DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
Washington DC 20204

April 27, 1988

Mr. Frank Battaglia
Waste Management Division
U.S. Environment Protection Agency
Region 1
JFK Federal Building, HSR-CAN5
Boston, MA 02203

Dear Mr. Battaglia:

This is in response to your request of March 16, 1988 for information from our files on any environmental, toxicology, environmental fate and leachability studies associated with a group of substances under the trade name "TINUVIN". We have enclosed a copy of the requested material from the referenced food additive petitions and the accompanying master files.

As you will note, a portion of the enclosed records is regarded as confidential commercial information. Under § 20.85 of FDA Public Information regulations, commercial information prohibited from disclosure by 21 U.S.C. 331(j), 21 U.S.C. 360(j)(c), 42 U.S.C. 263g(d) and 42 U.S.C. 263i(e) may be released only as provided by those sections. Any disclosure under § 20.85 shall be pursuant to an agreement that the record shall not be further disclosed by other Federal government departments or agencies except with the written permission of the Food and Drug Adminstration.

We appreciate the opportunity of transmitting this material to you.

Sincerely yours,

Rudolph Harris

Rudolph Harris, Ph.D.
Indirect Additives Branch, HFF-335
Division of Food and Color Additives
Center for Food Safety
and Applied Nutrition

SEMS DocID 654286

FMF 000280

CIBA-GEIGY CORP.

TØNUVIN 622 LD

VOLUME 1/4

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                                                        N      821116
                                                        R      830124
                                                        I      830413
                                                        K      830413

SOURCE:      RKR ENGINEERING INC
USE:         PLASTIC, RIGID OR SEMIRIGID
             PAPER, PLASTIC OR FOIL, FLEXIBLE
FUNCTION:    FOOD ADDITIVE, INDIRECT
EFFECT:      POLYMER : LUBRICANT : STABILIZER

CHEMICALS:   P CALCIUM CARBONATE : P CALCIUM STEARATE
             P TETRAKIS(METHYLENE(3,5-DI-TERT-BUTYL-4-HYDROXYHYDROCINNAMATE
             P CASTOR OIL, HYDROGENATED : P POLYETHYLENE : P POLYPROPYLENE
             P DIMETHYL SUCCINATE-4-HYDROXY-2,2,6,6-TETRAMETHYL-1-PIPERIDIN
             P TRIS(2,4-DI-TERT-BUTYLPHENYL)PHOSPHITE

                 *** PRIVILEGED *** ... HANDLE APPROPRIATELY


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DISPLAY SUMMARY REPORT? (ENTER S)....
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*** REFERENCES ***

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NUMBER 1 REFERENCE
FAIS FAP 083507 REC'D: 800328 VOLS: 04 PAGES: 00991

TITLE: DIMETHYL SUCCINATE
4-HYDROXY-2,2,6,6-TETRAMETHYL-1-PIPERIDINEETHANOL AS A
STABILIZER IN OLEFIN POLYMERS

DATE	*CFR*	*STATUS*	*DATE*
820309	178.2010	F	800418
		P	800613
		R	800807
		A	801010
		A	810212
		F	810212
		R	810218
		A	810716
		F	810716
		I	820309

SOURCE: CIBA-GEIGY CORP
USE: PLASTIC, RIGID OR SEMIRIGID
PAPER, PLASTIC OR FOIL, FLEXIBLE
BULK FOOD CONTAINER OR EQUIPMENT
FUNCTION: FOOD ADDITIVE, INDIRECT
EFFECT: STABILIZER

CHEMICALS: P DIMETHYL SUCCINATE-4-HYDROXY-2,2,6,6-TETRAMETHYL-1-PIPERIDIN

*** PRIVILEGED *** ... HANDLE APPROPRIATELY

NUMBER 2 REFERENCE
FAIS FAP 383678 REC'D: 821025 VOLS: 01 PAGES: 00049

TITLE: POLYFLEXENE, PROFLEXENE, AND PROFILL AS PROCESSING AND FILLER
AIDS IN FOOD PACKAGING ARTICLES

Bruce A. Schwemmer, Director
Product Safety & Ecology, Additives
Plastics & Additives Division

CIBA-GEIGY Corporation
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Hawthorne, New York 10532
Telephone 914 347 4700

CIBA-GEIGY

Certified Mail

December 11, 1984

Petitions Control Branch, HFF-334
Division of Food and Color Additives
Center for Food Safety and Applied Nutrition
Food and Drug Administration
200 C Street, SW
Washington, DC 20204

Dear Sir or Madam:

Subject: Food Additive Master File: Dimethyl succinate polymer with 4-hydroxy-2,2,6,6,-tetramethyl-1-piperidineethanol, TINUVIN® 622 LD

Please establish a food additive master file for CIBA-GEIGY Corporation's regulated food additive dimethyl succinate polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperidineethanol, tradename Tinuvin 622 LD.

The first submission for this master file is enclosed, a toxicological report entitled "Potential tumorigenic and toxic effects in prolonged dietary administration to rats."

Please inform me of the master file number assigned to this chemical substance.

Cordially,

CIBA-GEIGY Corporation

Bruce Schwemmer

Bruce Schwemmer

BS:mmm:7240h
Enclosures (3 copies)

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CONFIDENTIAL

Received by: Lf

19. Mai 1983

CBG 237/82271
Tox. Dispo. No. 79 1020

TK 12 259

POTENTIAL TUMORIGENIC AND TOXIC EFFECTS IN PROLONGED DIETARY ADMINISTRATION TO RATS

(Final report)

TINUVIN 622

VOLUME I

Addressee:

Professor R. Hess,
R-1036.206,
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Basle,
SWITZERLAND.

10 May 1983

Authors:

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William A. Gibson.

Huntingdon Research Centre,
Huntingdon,
Cambridgeshire,
ENGLAND.

We the undersigned, hereby declare that the work was performed under our supervision according to the procedures herein described, and that this report provides a correct and faithful record of the results obtained.

Brian Hunter, B.Sc.,(Hons.),
Director of Rodent Toxicology

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W. A. Gibson

W. A. Gibson, B.Sc., (Medical Sciences),
Pathologist - Post Mortem Room

To the best of my knowledge and belief, this study was conducted in compliance with Good Laboratory Practice regulations as set forth in 'Title 21 of the US Code of Federal Regulations, Part 58', with the exception of possible minor items, none of which is considered to have an impact on the validity of the data or the interpretation of the results in the report.

Study Director

Brian Hunter, B.Sc.,
Director of Rodent Toxicology

QUALITY ASSURANCE AUDIT STATEMENT

HRC REPORT NO. CBG 237/82271

This report has been audited by HRC Quality Assurance Unit and is considered to be an accurate presentation of the data produced during the course of the study.

29.4.83

Kenneth W.G. Shillam, B.Sc., Ph.D., F.I. Biol.,
Director, Quality Assurance

Audit notes

An audit by the QAU consists of (a) a comparison of the reported findings with the raw data as recorded in notebooks and worksheets, and (b) a comparison of derived data and statements of fact with the reported raw data. Any computerized presentations which are the outcome of verified entry direct from the raw data and which are secure against manual alteration are not normally audited.

Short reports and some parts of longer reports are audited completely. Reports containing large amounts of data are divided into sections liable to have similar error rates and each is subjected to a sampling procedure according to the methods described in British Standards Institution, BS 6000, 6001 (1972) and US Military Standard 105D (1963). The Acceptable Quality Level (the maximum percentage errors considered satisfactory as a process average) is 0.4. Reports with any section not meeting the acceptance criteria are revised by the Study Director and this is followed by QAU re-audit.

The results of any investigations made by the sponsor and which are included in HRC reports are audited using the sponsor's report to HRC.

HRC

DATES OF QAU STUDY INSPECTIONS

HRC Report No. CBG 237/82271

Inspections were made by the Quality Assurance Unit of the various phases of the study described in this Report and, in the case of repetitive continuing operations, at the intervals required by the U.S. FDA Good Laboratory Practice Regulations. The dates on which inspections were made and the dates on which the findings were reported to the Study Director and to HRC Management are given below:

Phase of Study	Date of Inspection*	Date of Reporting
Protocol Review	-	25.10.79
Pre-experimental Period	13.11.79	23.11.79
Experimental Period	11.12.79	18.12.79
"	22.1.80	30.1.80
"	23.4.80	28.4.80
"	7.5.80	2.6.80
"	22.5.80	10.6.80
"	18.7.80	30.7.80
"	22.10.80	29.10.80
"	27.1.81	10.2.81
"	9.4.81	21.4.81
"	13-29.5.81	29.5.81
"	15.7.81	30.7.81
"	14.10.81	22.10.81
"	23.12-7.1.82	8.1.82
"	7.1.82	22.1.82
"		
Post experimental Period		
Final Report Audit	-	26.4.83

K.W.G. Shillam
Director,
Quality Assurance Unit

*Week beginning. This has been adopted to avoid the presentation of excessive dates in instances of an inspection being conducted over several days. It should also be noted that although inspection of each repetitive procedure was made at the required intervals, not all the various procedures may have been inspected on the same calendar occasion.

Dates on which any 'process-based' inspections were made while the study was in progress are not included in the above listing.

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SUMMARY

Three groups of 70 male and 70 female Charles River (U.S.A.) rats of Sprague-Dawley origin, (50 males and 50 females per group for tumour evaluation with an additional 20 males and 20 females per group for the laboratory investigations), received TK 12 259, as supplied, by admixture with the diet at levels of 10000, 3000 or 1000 ppm for a total period of 111 weeks for male rats and 107 weeks for female rats. A fourth group of 70 male and 70 female rats received powdered diet alone for control purposes.

Results

Slight reductions in the rate of bodyweight gain were noted for females receiving 10000 or 3000 ppm (equivalent to a mean daily intake of 458 or 138 mg/kg/day respectively) during the period of fastest growth. Males receiving 10000 or 3000 ppm (equivalent to a mean daily intake of 366 or 109 mg/kg/day respectively) were similar to the controls with respect to their bodyweight gain over the same time period. In other respects the performances of rats receiving 10000 or 3000 ppm were essentially similar to those seen in control rats. There were no clinical signs noted that were considered to be related to treatment, food and water intakes were similar to those seen in control rats, whilst the ranges for the various parameters examined during the clinical pathology investigations were generally within the ranges considered normal for rats of the age and strain employed. Ophthalmological examinations and hearing function tests gave no indications of a reaction to treatment. Similarly, treatment with TK 12 259 had no apparent effects on the mortality incidences of the groups receiving 10000 or 3000 ppm, whilst the histopathological examinations of the various individual rats showed no evidence of any significant deviations from the pathology encountered amongst the control rats. In particular there was no effect on the spontaneous tumour profile of rats receiving 10000 or 3000 ppm when compared with the controls.

Rats receiving 1000 ppm, (equivalent to a mean daily intake of 37 or 45 mg/kg/day for males and females respectively) showed no signs of a reaction to treatment.

Conclusions

Based on the data obtained in this study it may be concluded that a dietary level of 1000 ppm of TK 12 259 was without effect; at the higher dose levels of 10000 or 3000 ppm, treatment resulted in a slightly reduced bodyweight gain for females of these groups which was restricted to the first 26 weeks of treatment. These minor differences may be considered to be of no toxicological importance.

No disturbance of the spontaneous tumour incidence was seen. Therefore it may be concluded that TK 12 259 is not a carcinogen under the conditions of this study.

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INTRODUCTION

The object of this study performed at the Huntingdon Research Centre, England, was to assess the potential tumorigenicity and toxicity of TK 12 259, a light stabilizer, when administered to rats by admixture with the diet. The study was terminated, after consultation with the Sponsor following due consideration of the survival figures and projected mortality rates.

Treatment was scheduled to commence on 14 November 1979, but was delayed by 14 days as a result of an outbreak of sialodacryo-adenitis among the rats.

Thus treatment commenced on 28 November 1979 and was terminated, over the period commencing 11 December 1981 to 14 January 1982.

This report contains all data generated during the course of the study.

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EXPERIMENTAL PROCEDURE

Details of test material

TK 12 259 is a polymeric sterically hindered amino derivative developed by Ciba-Geigy Limited, for use as a light stabilizer.

The sample of TK 12 259 used in this study was received, as a white powder on 26 September 1979 from Ciba-Geigy Limited, Basle, Switzerland. The following information was supplied:

Characteristics:	White powder.
Batch No:	EN 21730.92.190.
Storage:	20°C in daylight.
Stability:	Stable.
Stability in diet:	20 days.
Simple test for identification:	Melting point, 130 - 145°C.
Purity:	98%.

Dietary levels used for the study were based on test compound as supplied.

Animal management and treatment

A total of 331 male and 310 female CD rats of Sprague-Dawley origin in a weight range of 70 - 100 g (age approximately 28 days) was obtained from Charles River Laboratories, Portage, U.S.A., on 1 November 1979. These rats were reared by cross-fostering.

On arrival rats were placed at random in cages according to sex so that each cage contained 5 rats of the same sex. Seven days later each animal was weighed and allocated to one of the 4 treatment groups using the following computer programme so that each group contained a similar population of rats and the initial mean bodyweights were approximately equalised:

Random allocation of animals to cages

1. The programme sorts the animals into ascending order by weight.

2. The pseudo-random permutation ($P_1 \ldots . Pc$) of the number ($1 \ldots . c$) is obtained (where c is the number of cages.

   The first c animals starting with the lowest weights, are assigned in order to the cages $P_1 \ldots . Pc$. Another pseudo-random permutation is obtained and the next c animals are assigned to cages in the same way.

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3. The cage means and the group means are then calculated and, at both stages, the programme checks that the means (ignoring the spare cages) are within the specified tolerance of the group mean; if this is exceeded, the programme returns to step 2. Reiterating is allowed up to a maximum of 9 times.

4. For each cage, the numbers of the animals in the cage (the animals are given the numbers 1....N in the order in which the data is read in) are printed, together with their weights followed by the cage means.

Finally, the group means are printed.

Prior to final assignment to the study, all animals were fully examined by a member of Huntingdon Research Centre's veterinary services department to ensure that the selected rats were in a good state of health.

A 27-day period of acclimatisation was allowed between delivery and the start of treatment. Rats not assigned to the study were killed on the first day of treatment.

The rats were allocated to four treatment groups as follows:

Group	Treatment level TK 12 259 (ppm)	Rat Nos. ♂ M	♂ S	♀ M	♀ S
1	0 (Control)	1- 50	51- 70	281-330	331-350
2	1000	71-120	121-140	351-400	401-420
3	3000	141-190	191-210	421-470	471-490
4	10000	211-260	261-280	491-540	541-560

Health check: ♂ A to J ♀ K to T.

M = Main group rats not used for laboratory investigations.

S = Satellite group rats, used for laboratory investigations and hence subjected to the stresses of fasting and withdrawal of blood samples under light ether anaesthesia.

Pre-treatment health check

At the time rats were allocated to groups, 10 males and 10 females selected by the computer programme were designated A to T inclusive and subjected to a routine macroscopic examination. Any macroscopic abnormality was immediately processed and examined microscopically. Lungs, liver, heart and kidneys were preserved in fixative but not processed further.

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Accommodation

Animal room temperature and relative humidity controls were set at approximately 21°C and 50% respectively, and lighting controlled to give 12 hours light (8 a.m. to 8 p.m.) and 12 hours dark per 24 hours. The rats were housed 5 to a cage (unless the number was reduced by mortality) in suspended cages with wire mesh floors. Each cage was identified by a coloured label according to group. Identification within the cage was by earmark.

Each label was uniquely numbered with cage and study number. The cages constituting each group were dispersed in batteries so that possible environmental influences arising from their spatial distribution were equilibrated, as far as possible for all treatment (Figure 1).

Diet

All rats had free access to tap water and Spratt's Laboratory Diet No. 2 containing the appropriate concentration of TK 12 259 (except as noted under urinalysis and blood chemistry).

Details of dietary preparation

Fresh diets were prepared weekly throughout the study.

The test material was weighed out, and ground in a pestle and mortar, if appropriate, then a similar quantity of sieved Spratt's Laboratory Diet No. 2 was added and ground in. A further quantity of sieved diet was added and ground in. The mixture was then transferred to a bowl and further quantities of diet were added until the required quantity was reached. The mixture was stirred thoroughly after each addition. This pre-mix was then mixed in a double-cone blender for about 15 minutes. The dietary concentrations required were obtained from this pre-mix by direct dilution with further quantities of diet, homogeneity being achieved by mixing for 7 minutes in the rotary double-cone blender. The concentrations of test compound were maintained at a constant concentration (ppm) throughout the study.

Dietary sampling (see Addendum 1)

Prior to the start of the study samples of all dietary levels and the pre-mix were sent to the Sponsor for analysis. The start of the study was dependent on the results of this analysis.

Dietary samples were collected from diets prepared for feeding in week 1, and thereafter at 2-monthly intervals for despatch to the Sponsor.

On each occasion 3 different 200 g samples of each dietary level were sent, collected from the top, middle and end of discharge from the blender. In addition, on each occasion a 500 g sample of control diet and a 5 g sample of test compound were sent to the Sponsor.

Observations

The following observations were made during the course of the study:

Signs

All signs of ill health, together with any behavioural changes were recorded. Any reaction to treatment exhibited by the rats was recorded as to type, duration and animal affected. Time of onset, dimensions and location of all palpable tumours were recorded.

Recording of clinical signs

All animals were checked early in each working day and again at approximately 3.30 - 4.00 p.m. for dead or moribund animals. This allowed post mortem examination to be carried out during the working period of that day. At weekends and Bank Holidays a similar procedure was followed except that the final check was carried out at approximately mid-day.

Principal observation of individual animals for clinical signs of reaction to treatment was carried out daily at approximately the same time each day during the first 4 weeks of the study. If any change was seen, notes were made on the individual animal's form. After 4 weeks there seemed no reason to continue these daily observations and the frequency was subsequently once weekly.

Records of palpable masses

All rats were palpated every week, at the time of examination for clinical signs, to record time of appearance and location of palpable masses. Dimensions of all palpable masses were recorded every 2 weeks.

Mortality

Any rat showing signs of severe debility or intoxication, particularly if death appeared imminent, was killed by carbon dioxide asphyxiation to prevent loss of tissues through autolytic degeneration or cannibalism. All rats killed in extremis, or found dead in the cage were subjected to detailed macroscopic examination; where practicable, a full spectrum of tissue samples was preserved routinely in buffered 10% formalin as detailed under 'Post mortem studies'.

Food consumption

The quantity of food consumed by each cage of rats was recorded on a weekly basis. Food intake per rat (g/rat/week) was calculated using the amount of food given to and left by each cage in each group and the number of rats surviving in each cage for the majority of days in the week, the values subsequently being rounded by computer. The group mean values were calculated using the total amount of food given to and left by all cages in each group and the total number of rats surviving in each group, the values again being rounded by computer. For this reason the group mean values presented in the Table cannot be calculated exactly from the individual cage mean figures presented in the Appendix.

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Bodyweight change

The weight of each rat was recorded weekly prior to the commencement of treatment and at weekly intervals thereafter. From these individual figures the group mean bodyweight was calculated.

Water consumption

Daily monitoring by visual examination of the water bottles was maintained throughout the study. Consumption for each cage in the control and high dosage level groups was measured daily for a 5-day period during weeks 6, 12 and 24.

The investigation was extended to all cages of each group during week 79.

Laboratory investigations (Satellite groups)

At intervals during the study (see below), samples of blood or urine were obtained from 10 male and 10 female rats from each group and all values or observations obtained from these investigations were recorded and subjected to statistical analysis where appropriate.

Food was removed overnight from animals to be sampled for urinalysis and blood chemistry. Water was also removed overnight from animals to be sampled for urinalysis.

Animals sampled for the haematological investigations were not fasted prior to sampling.

The same rats were used throughout the study for a particular investigation. If animals used for the laboratory investigations died during the study, samples were not collected from additional satellite group animals except at the pre-terminal investigations.

(a) Haematology

During weeks 26, 52, 78 and 104, samples of blood were withdrawn, under light ether anaesthesia, from the orbital sinus of 10 male and 10 female rats in each group.

Estimations performed, together with the methods used were as follows:

	Units
Packed cell volume (PCV) - Technicon Hemalog 8/90 Micro, using standard Technicon methodology	%
Haemoglobin (Hb) - Technicon Hemalog 8/90 Micro, using standard Technicon methodology	g/100 ml (g%)
Red cell count (RBC) - Technicon Hemalog 8/90 Micro, using standard Technicon methodology	mill/cmm

	Units
Reticulocyte count+	% red cells
Absolute indices: Mean corpuscular haemoglobin concentration (MCHC), mean cell volume (MCV) and mean corpuscular haemoglobin (MCH)	
MCHC = Hb (g%) x 100 ÷ PCV (% red cells)	%
MCV = PCV (% red cells) x 10 ÷ RBC (mill/cmm)	cubic microns
MCH = Hb (g%) x 10 ÷ RBC (mill/cmm)	pg
Total white cell count (WBC) - Technicon Hemalog 8/90 Micro, using standard Technicon methodology	1000 cells/cmm
Differential count	
(N) = Neutrophils	
(L) = Lymphocytes	
(E) = Eosinophils	
(B) = Basophils	
(M) = Monocytes	1000 cells/cmm
Platelet count (plts) - Technicon Hemalog 8/90 Micro, using standard Technicon methodology	1000 cells/cmm
Thrombotest - Owren, P.A. (Lancet, 1959, ii 754)	seconds

(b) Blood chemistry

During weeks 26, 52, 78 and 104, samples of blood were withdrawn, under light ether anaesthesia, from the orbital sinus of 10 male and 10 female rats from each group. Due to an oversight at week 26, some parameters were not examined. These were estimated at week 28.

The estimations performed, together with the methods used were as follows:

	Units
Plasma Glucose - Union Carbide Centrifichem, using Roche Diagnostics Test Kit (Hexokinase)	mg/100 ml(mg%)
Plasma Alkaline Phosphatase (AP) - Union Carbide Centrifichem, using Smith Kline Instruments Test Kit. Reaction temperature 30°C	mU/ml
Plasma Glutamic Pyruvic Transaminase (GPT) - Union Carbide Centrifichem, using Roche Diagnostics Test Kit. Reaction temperature 30°C	mU/ml
Plasma Glutamic Oxaloacetic Transaminase (GOT) - Union Carbide Centrifichem, using Roche Diagnostics Test Kit Reaction temperature 30°C	mU/ml
Plasma Urea Nitrogen - Technicon SMA 12/60, using standard Technicon SMA methodology	mg/100 ml(mg%)
Plasma Total Proteins - Technicon SMA 12/60, using standard Technicon SMA methodology	g/100 ml(g%)
Plasma Albumin - Technicon SMA 12/60, using standard Technicon SMA methodology. A/G ratio by calculation. (If a dose related effect was seen on the A/G ratio, a differential protein analysis was performed using electrophoresis)	g/100 ml(g%)

+ A preparation was made for reticulocyte count, although the preparation was only assessed if anaemia was diagnosed.

000017

	Units
Plasma Total Lactic Dehydrogenase (LDH) - Union Carbide Centrifichem, using Roche Diagnostics Test Kit Reaction temperature 30°C	mU/ml
Plasma Total Bilirubin - Union Carbide Centrifichem, using Roche Diagnostics Test Kit Reaction temperature 30°C	mg%
Plasma Sodium (Na^+) - Technicon SMA 12/60, using standard Technicon SMA methodology	mEq/l
Plasma Potassium (K^+) - Technicon SMA 12/60, using standard Technicon SMA methodology	mEq/l
Plasma Chloride (Cl^-) - Technicon SMA 12/60, using standard Technicon SMA methodology	mEq/l
Plasma Calcium (Ca^{++}) - Technicon SMA 12/60, using standard Technicon SMA methodology	mEq/l
Plasma Inorganic Phosphorus (P^{--}) - Technicon SMA 12/60, using standard Technicon SMA methodology	mEq/l
Plasma Creatinine - Technicon SMA 12/60, using standard Technicon SMA methodology	mg/100 ml(mg%)
Plasma Cholesterol - Technicon SMA 12/60, using Technicon SMA enzymatic methodology	mg/100 ml(mg%)

(c) Urinalysis

During weeks 24, 49, 77 and 102, individual overnight urine samples were collected from 10 males and 10 females from each group.

The volume of each sample was measured.

The estimations performed, together with the methods used were as follows:

(i)	pH	-	pH meter
(ii)	Specific gravity (SG)	-	by refractometer
(iii)	Protein	-	by precipitation with sulphosalicylic acid and quantitative estimation against Kingsway turbidimetric standards
(iv)	Reducing substances	-	using Clinitest*
(v)	Glucose	-	using Multistix*
(vi)	Ketones	-	using Multistix*
(vii)	Bile pigments	-	using Multistix*
(viii)	Urobilinogen	-	using Multistix*
(ix)	Haemoglobin	-	using Multistix*

* Diagnostic reagent of Ames Company, Stoke Poges, England.

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For tests (iv) to (ix) inclusive, results were graded as follows:

0 signifies negative
tr signifies marginal positive (trace)
+ signifies positive

(x) Microscopy of spun deposit, after centrifugation at approximately 1500 'g' for 10 minutes, the deposit was examined for:

epithelial cells	(E)
polymorphonuclear leucocytes	(P)
mononuclear leucocytes	(M)
erythrocytes	(R)
organisms	(O)
casts	(C)
abnormal constituents	(A)

Gradings for cell frequency in deposit were recorded as follows:

0 signifies none observed
1 signifies few in some fields
2 signifies few in all fields
3 signifies many in all fields

Ophthalmoscopy (Main groups)

Before dosing commenced and during weeks 26, 52, 78 and 104, the eyes of all animals in the control and high dosage level groups were examined using a Keeler indirect ophthalmoscope after administration of a mydriatic.

Hearing test (Main groups)

Prior to dosing and during weeks 26, 52, 79 and 104, hearing was assessed in all control and high dosage level group rats using a Galton whistle set at 10kHz placed one metre from the rat's head.

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Post mortem studies

On completion of the treatment period, all surviving main and satellite group rats were killed by carbon dioxide asphyxiation and subjected to the procedures as detailed in the following paragraphs:

(a) Organ weight analysis

The following organs from all animals killed at termination were dissected free of fat and weighed:

adrenals	heart	liver	ovaries
brain	kidneys	testes	

The weights of major organs of individual rats dying during the study were recorded at the discretion of the post mortem pathologist.

(b) Macroscopic examination

All superficial tissues, including the urogenital orifices and tail, each pinna, eye and external auditory meatus, were examined visually and by palpation for distortion, swelling or other evidence of tumour formation; similar attention was given to the mammary tracts and the subcutaneous structures. The external nares, buccal cavity and tongue were then examined, and the cranial roof removed to allow observation of the brain, pituitary gland and cranial nerves. After ventral mid-line incision and skin reflection, all subcutaneous tissues were examined, including regional lymph nodes, mammary and thyroid/parathyroid glands. The condition of the thoracic viscera was noted, with due attention to the thymus lymph nodes and heart.

The abdominal viscera were examined before and after removal; the urinary bladder was briefly distended with fixative after removal, opened and examined under low-power magnification.

The oesophagus, stomach and intestines including caecum were incised and examined. The lungs were removed and all pleural surfaces examined under suitable illumination. The liver was sectioned at intervals of a few millimetres; the kidneys were incised and examined. Any abnormalities in the appearance and size of the gonads, adrenals, uterus, intra-abdominal lymph nodes and accessory reproductive organs were recorded. Any lesion suggestive of neoplasia was noted, including details of location, size and multiplicity. Any evidence of adhesion or possible invasion to adjacent structures was noted.

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(c) Tissues preserved at autopsy

Samples of the following tissues from all animals were preserved in buffered 10% formalin (except eyes, which were preserved in Davidson's fixative):

adrenals
aorta
bone
brain (medullary, cerebellar and cortical sections)
caecum
duodenum
eyes
Harderian gland
head+
heart
ileum
jejunum
kidneys
liver* (from at least two lobes)
lungs* (all lobes and mainstem bronchi)
lymph nodes* (cervical and mesenteric)
mammary gland
mid-colon
oesophagus
ovaries
pancreas
pituitary
prostate
salivary gland
sciatic nerve
seminal vesicles
skeletal muscle
skin
spinal cord (at least two levels)
spleen
sternum (for bone marrow)
stomach (glandular and non-glandular)
testes
thymus (where present)
thyroid (with parathyroid)
trachea
urinary bladder
uterus (plus cervix)

+ For nasal cavity, paranasal sinuses, tongue, oral cavity, nasopharynx and middle ear.

* Examination of multiple sections from these tissues, as an investigation for metastases, was considered in the light of other histopathological findings.

All nodules, tissue masses and otherwise macroscopically abnormal tissues were routinely preserved, along with samples of adjacent tissue where appropriate. Where possible, blood smears were prepared.

(d) Microscopic examination

Tissues required for microscopic examination were embedded in paraffin wax and sections cut at 5μ; the latter were stained with haematoxylin and eosin, except where indicated below. The microscopic examination consisted of the following:

For satellite group rats dying during the study, or killed at termination, macroscopically abnormal tissues were examined microscopically.

For every rat in the main group either dying during the study or killed at termination, all the tissues (with the exception of the head) listed in (c) (including all macroscopically observed lesions suggestive of neoplasia) were routinely examined.

Three coronal sections through the head were examined in 10 males and 10 females from each group killed at termination.

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Where practicable, a section of kidney was stained with Periodic Acid Schiff (for basement membranes) and frozen sections of liver and kidney, fixed in buffered formalin, were cut on a cryostat at 12 μm and stained for fat with Oil Red O.

All tumours confirmed or discovered were classified according to defined criteria.

Statistical methods

Food consumption, bodyweight and clinical laboratory data were assessed by a one-way analysis of variance and intergroup comparisons made by using Student's 't' test based on the residual variance (i.e. using the method of Least Significant Differences). Clinical laboratory data were also assessed using Williams' test.

Analysis of food consumption data was performed using the means of all the cage total food intakes in each group over specified time periods. The cage means were calculated using the amounts of food given to and left by each cage in each week and the number of animals surviving in the cage for the majority of days in the week. The cage mean food consumption figures were rounded to the nearest whole number, but the cage totals were calculated using the exact cage mean weekly figures.

Analysis of the bodyweight data was performed using the individual weight gains of rats surviving throughout the specified time periods.

Analysis of organ weights was performed using analysis of covariance. Organ weights were adjusted for final bodyweight as covariate where this was the more efficient method of analysis. Where appropriate, organ weights were $\log_e$ transformed to stabilise variance. Group means were compared using both Student's 't' test on the residual variance (i.e. using the method of Least Significant Differences) and Williams' test.

Where mortality rates were similar in the various groups, differences in tumour incidence were directly compared, using chi^2 where the numbers of tumours were sufficiently high. Adjustments for intergroup differences in mortality patterns were effected using log rank methods (WHO International Agency for Research on Cancer (1980)).

Other statistical tests were performed when considered appropriate.

References

Bartlett, M.S. (1937). Proc. Roy. Soc. A 160: 268-282.

Kruskal, W.H. and Wallis, W.A. (1952/3). J. Amer. Statist. Ass. 47: 583-621 and 48: 907-912.

Williams, D.A. (1971/2). Biometrics 27: 103-117 and 28: 519-531.

CLINICAL FINDINGS (Appendix 11)

During the pre-treatment week, rats of all groups showed clinical signs of sialodacryo-adenitis, a viral disease occasionally seen in rats of this strain, causing swelling of the salivary and Harderian glands. Veterinary examination of the rats revealed that the severity of the symptoms displayed (see the "Pre-treatment health check" and "Ophthalmoscopy" sections) precluded the initiation of treatment on 14 November 1979, and thus the start of treatment was delayed for two weeks, i.e. to 28 November 1979. A second outbreak of the disease occurred during weeks 17 and 18 although the number of rats affected and the severity of the symptoms was much reduced. There were no apparent residual effects of these outbreaks as confirmed by the week 26 ophthalmic examination. The number of rats affected and the distribution in each group can be represented thus:

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
Pre-treatment	40/70	22/70	30/70	16/70	13/70	22/70	21/70	29/70
17 - 18	21/70	12/70	17/70	9/69	3/70	8/70	5/70	4/70

There were no apparent clinical signs indicative of a reaction to treatment over the treatment period.

The incidence of main group rats which were noted to have palpable masses clinically during life can be represented thus:

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
Percentage of Main group rats with palpable masses	40	42	26	26	72	60	60	64

Treatment with TK 12 259 did not affect the incidence of palpable masses amongst treated rats when compared with the controls.

000024

Shirley, E. (1977). Biometrics 386: 389

Fisher, R. A. "Statistical Methods for Research Workers", Para. 21.02 Oliver and Boyd, Edinburgh (1950).

Mantel, N. (1963). J. Amer. Statist. Ass. 58: 690-700.

WHO International Agency for Research on Cancer (1980). Long-term and short-term screening assays for carcinogens: A critical appraisal. IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans. Annex: R. Peto et al. Guidelines for simple sensitive significance tests for carcinogenic effects in long-term animal experiments. Supplement 2, pp 311-426.

Quality assurance aspects of the diet

There was no information available to the Study Director to indicate that any substance likely to influence the effect of TK 12 259 could reasonably be expected to be present in the diet.

Analyses were made on all batches of diet used to establish levels of basic nutrients and of specified substances and micro-organisms likely to have been present in the feed components and which, if in excess, might have had an undesirable effect on the test system. All batches of diet used conformed with the acceptable standards agreed by the Study Director and the Director, Quality Assurance Unit (see Appendix 12).

The analytical data have been stored in Huntingdon Research Centre Archives.

Quality assurance aspects of drinking water

There was no information available to the Study Director to indicate that any substance likely to influence the effect of TK 12 259 could reasonably be expected to be present in the drinking water.

Results of the routine physical and chemical analyses of water at source (sampling point, Sapley reservoir) as conducted quarterly by the supplier, Anglian Water Authority, have been made available to Huntingdon Research Centre. Additionally, levels of specified substances known to be present from time to time in local water and which, if in excess, might have an undesirable effect on the test system, are determined in the tap water at approximately 6-monthly intervals. A list of the principal determinants is given in Appendix 13.

The analytical data have been stored in Huntingdon Research Centre Archives.

Location of raw data

All specimens, samples and raw data, or exact copies thereof, together with a master copy of this final report, are located in the archives of Huntingdon Research Centre, Huntingdon, England.

The raw data associated with the determination of the inclusion levels of TK 12 259 in test diets is located in the laboratories of Ciba-Geigy Ltd., Basle, Switzerland.

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PRE-TREATMENT HEALTH CHECK

The pre-treatment health check macroscopic examination performed on 10 male and 10 female rats revealed the following abnormalities:

Macroscopic findings:	No. of rats with:	
	♂	♀
Cervical lymph nodes: Enlarged	0/10	9/10
Deep cervical lymph nodes: Enlarged	0/10	8/10
Salivary glands: Enlarged	0/10	4/10
Harderian glands: Darkened	0/10	1/10
Spleen: Enlarged	0/10	1/10

The sections examined from 2/4 rats (O♀, S♀) reported at necropsy as having enlarged salivary glands, revealed signs of sialodacryo-adenitis characterised by inflammatory cell aggregations and infiltration in the salivary glands (no tissue was available from rat O♀) extra-orbital lachrymal glands and Harderian glands. This was also observed in rat T♀ which had no reported abnormalities in these tissues at necropsy.

Other miscellaneous microscopic findings included pyknosis in a lymph node of rat P♀, probable signs of early reactive hyperplasia in a cervical lymph node of rat O♀ and minimal extramedullary haemopoiesis in the spleen of rat K♀.

MORTALITY (Appendices 10 and 11 and Figures 3a and 3b)

Over the treatment period there was a total of 387 deaths, the distribution and incidence of which showed no relationship to treatment with the test compound.

The distribution of deaths among the treatment groups was as follows:

	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
Total over the treatment period	50	56	50	48	51	42	48	42

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FOOD CONSUMPTION (Table 1, Appendix 1)

Throughout the treatment period, there were no differences in the food intakes of treated rats when compared with the controls.

Marginal reductions in group mean food intakes were noted during week 17 for rats of all treatment groups. These reductions were probably due to decreased appetite caused by the sialodacryo-adenitis infection prevalent among the rats at this time.

Statistical analysis of the food consumption data revealed the following values, expressed as g/rat and also as a percentage of the control value:

Treatment period	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
Total 1- 26 weeks	4836	4880	4941	4878	3324	3275	3220	3241
SD	197.6	222.7	148.9	310.6	140.9	173.7	147.0	105.1
% of control	-	101	102	101	-	99	97	98
Total 27- 52 weeks	4664	4734	4743	4682	3338	3284	3261	3266
SD	184.4	177.5	204.0	224.8	157.4	197.2	175.9	184.7
% of control	-	102	102	100	-	98	98	98
Total 53- 78 weeks	4707	4787	4673	4608	3566	3554	3501	3545
SD	199.3	314.2	223.0	213.2	241.9	248.2	262.6	232.2
% of control	-	102	99	98	-	100	98	99
Total 79- 104 weeks	4896	4726	4822	4811	3918	3924	3819	3867
SD	230.9	305.2	360.3	512.8	523.4	266.4	260.7	279.0
% of control	-	97	98	98	-	100	97	99
Total 1- 106 weeks	19510	19365	19562	19188	14308	14333	14018	14244
SD	658.8	537.4	913.3	921.3	902.3	773.2	678.1	699.0
% of control	-	99	100	98	-	100	98	100
Total 1- 110 weeks	20274	20145	20413	19944				
SD	757.5	527.6	1027.9	981.8				
% of control	-	99	101	98				

SD Standard deviation

BODYWEIGHT CHANGE (Table 2, Figure 2, Appendix 2)

Over the first 26 weeks of treatment, marginal reductions in the rate of bodyweight gain were noted amongst females receiving 10000 or 3000 ppm TK 12 259, although the differences from control values were not dosage-related in degree. Males receiving 10000 or 3000 ppm and rats receiving 1000 ppm were comparable to the controls over this period.

Thereafter, the bodyweight gains of treated rats were similar to those of the controls. Although marginal reductions or increases in the rates of gain for various groups were noted, these were rarely statistically significant and are not thought to be related to treatment with TK 12 259.

The group mean reductions in bodyweight noted for rats of all groups during week 17, were considered to have resulted from the decreased appetite of the rats caused by the sialodacryo-adenitis infection present amongst the rats at that time.

Statistical analysis of the bodyweight data gave the following group mean bodyweight gains (g).

Treatment period	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
Gain 0- 26 weeks	359.2	371.6	379.2	365.5	160.6	158.7	143.7**	145.3*
SD	69.63	73.47	73.95	93.22	40.87	40.61	32.23	35.01
Gain 26- 52 weeks	134.1	133.7	131.9	125.0	99.7	95.2	94.6	92.5
SD	48.46	50.70	55.99	44.15	42.21	43.31	36.35	39.73
Gain 0- 52 weeks	492.5	505.4	511.9	490.2	259.0	253.1	238.3	239.6
SD	104.38	107.74	115.19	116.96	75.53	76.49	61.44	66.93
Gain 52- 78 weeks	61.1	52.1	62.2	58.4	65.1	81.4	69.1	71.5
SD	56.30	68.73	56.04	44.17	44.29	41.40	47.90	56.66
Gain 78- 104 weeks	-29.6	-5.3	-12.0	-20.5	23.0	48.8	19.2	25.1
SD	72.99	91.27	93.04	108.66	50.05	50.30	68.67	75.76
Gain 0- 106 weeks	516.1	523.0	523.8	502.6	314.5	371.9*	299.7	347.1
SD	131.31	96.08	142.16	150.33	93.73	124.36	64.28	85.15
Gain 0- 110 weeks	487.4	480.9	520.4	484.6				
SD	110.06	90.17	130.46	149.27				

SD Standard deviation
Level of significance: *P<0.05 in comparison with the control value
**P<0.01 in comparison with the control value

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EFFICIENCY OF FOOD UTILISATION (Table 3)

Associated with the marginally lower bodyweight gain of females receiving 10000 or 3000 ppm, TK 12 259, over the first 26 weeks of treatment the overall efficiency of food utilisation in these groups was marginally inferior to that of the controls. Food conversion efficiency of other treated groups was similar to that of the controls.

ACHIEVED INTAKE OF TK 12 259 (mg/kg/day) (Table 4)

The weekly group mean achieved intake of TK 12 259 (mg/kg/day) was calculated using the formula given on page 38 as a footnote to Table 4.

The group mean achieved intakes over the treatment period were as follows:

	Group	Nominal level (ppm)	Achieved level (mg/kg/day)	
			♂	♀
Week 1-termination	2	1000	37	45
	3	3000	109	138
	4	10000	366	458

WATER CONSUMPTION (Table 5, Appendix 3)

Accurate measurement of water consumption over 5 days during weeks 6, 12 and 24, revealed similar intakes for controls and rats receiving 10000 ppm, and continued visual appraisal of the water dispensers revealed no apparant differences in water intake between treated groups and the controls at any time during the treatment period.

As a result of an apparently increased urinary output amongst treated rats when compared with the controls noted during the week 77 urinalysis investigation, the water intake of all cages of rats of all groups was investigated during week 79. There were no significant differences between the intakes of treated rats and the controls.

LABORATORY INVESTIGATIONS

(a) Haematology (Table 6, Appendix 4)

The investigations carried out during weeks 26, 52, 78 and 104 gave no indications of a reaction to treatment.

On occasions, statistical differences between treated and control rats were noted for certain parameters. However these differences were of a small order of magnitude and calculated group means and individual values generally remained within the ranges expected for rats of this strain. Thus the differences noted are considered to be of no toxicological significance.

(b) Blood chemistry (Table 7, Appendix 5)

The investigation of blood chemistry undertaken during week 26 revealed no intergroup differences indicative of a reaction to treatment.

Due to an oversight, albumin and chloride levels were not measured during the week 26 investigation. Therefore, the investigation of total protein, plasma albumin, A/G ratio and plasma chloride levels were performed during week 28. This revealed elevated total protein levels with a corresponding elevation in levels of plasma albumin for treated males, particularly those receiving 10000 or 1000 ppm. However, these findings were not dosage-related in degree and the A/G ratios were similar among control and treated males. Treated females were not affected in this way.

In the absence of similar findings for total protein levels at the week 26, and subsequent, investigations, these differences were considered to have occurred fortuitously and to be unrelated to treatment. Chloride levels for treated rats were within the expected range and gave no indication of a treatment-related disturbance.

Occasional statistical differences between the values obtained for treated and control rats were also apparent at the investigations carried out during weeks 52, 78 and 104. Again the changes noted were marginal and the effects often inconsistent between the investigations and also between the sexes, whilst the majority of the individual values obtained were within the ranges considered 'normal' for rats of this strain. The differences noted at each investigation are thus considered to be of no toxicological significance.

(c) Urinalysis (Table 8, Appendix 6)

The overnight urine collections performed during weeks 24 and 49 gave no indications of a reaction to treatment.

A similar investigation performed during week 77 revealed that treated rats were excreting larger volumes of urine than the controls and some of the differences were statistically significant. An investigation of the water intake carried out two weeks later showed no apparent increase in the water intake of treated rats so in the absence of such corroborating evidence or a corresponding reduction in the specific gravity the observed increases in the volumes of urine excreted are considered of no toxicological significance.

At week 102 there were no indications of a reaction to treatment.

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OPHTHALMOSCOPY (Table 9, Appendix 7)

The pre-treatment investigation revealed a number of ophthalmic observations due to the outbreak of sialodacryo-adenitis prevalent among rats of all groups at the time of the examination. The incidence of hyaloid remnants and hyaloid arteries in the eyes of the examined rats is considered 'normal' for rats of the age and strain employed.

The ophthalmic examinations undertaken during weeks 26, 52, 78 and 104 revealed 5, 12, 27 and 24 rats respectively with ocular abnormalities. None of the observed lesions could be associated with treatment with the test compound as the incidences were similar for treated and control rats.

HEARING FUNCTION TEST (Table 10, Appendix 8)

During the pre-treatment investigation all rats tested reacted satisfactorily to the 10 kHz signal applied.

During the tests undertaken during weeks 26, 52, 79 and 104 of the treatment period, only two rats failed to respond to the 10 kHz signal (even after re-testing), although one rat which did not respond when first tested was sacrificed prior to the re-test. Thus there is no evidence to suggest that treatment with TK 12 259 adversely affects the hearing ability of rats.

POST MORTEM STUDIES

(i) Organ weight analysis (Tables 11 and 12, Appendix 9)

Statistical analysis of organ weights in rats killed at termination of treatment gave no indications of a reaction to treatment.

(ii) Macroscopic findings (Tables 13 and 14, Appendix 11)

The macroscopic examinations performed at termination revealed no changes attributable to treatment with TK 12 259.

Summaries of the findings noted at the terminal sacrifices in main group, and satellite group, rats are given in Tables 13 and 14.

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(iii) Microscopic findings (Tables 15, 16, 17, 18 and 19, and Appendix 11)

(a) Neoplastic findings:

All neoplastic lesions seen in this study are summarised in Tables 15 and 16.

There was an apparent increase in the incidence of pituitary tumours among male rats treated with 10000 ppm, especially in those killed at termination. The incidence was as follows:

	Control		1000 ppm		3000 ppm		10000 ppm	
	D	T	D	T	D	T	D	T
No. of rats with pituitary tumours	14	4	16	4	17	6	16	11
No. of rats examined	36	14	39	11	36	14	31	19

D male rats dying or killed during the treatment period
T male rats killed at termination

Although there was an increase in the relative onset ratio of pituitary tumours in the 3000 and 10000 ppm groups, both the test for heterogeneity and the test for trend with increasing dose level were not statistically significant (Peto et al 1980). The results of the statistical analysis are given in Addendum 2.

There were no treatment-related effects in the incidence of other tumour types, nor on the total numbers of tumour bearing rats per group. The observed tumour profile was that commonly seen among laboratory rats of this strain.

In female rats, pituitary and mammary tumours were the commonest tumours recorded; however, the incidences for each tumour type were within the expected range for this strain of laboratory rats.

(b) Non-neoplastic findings

All the changes seen are summarised in Tables 18 and 19.

A minimal increase in the incidence of bile duct hyperplasia was seen in rats treated with 10000 ppm when compared to the incidence in the controls. In the absence of any further progression of this spontaneously occurring lesion in this long term study, this is considered to be of little toxicological significance.

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A small number of other spontaneous lesions (for example, splenic haemosiderosis, cortical cystic degeneration in the adrenals, and mammary hyperplasia) also showed minimal increases in the incidence when compared to the controls for rats killed at termination. However, when the findings were compared in conjunction with the findings from rats dying or killed during the study (Tables 18 and 19) the incidences for each lesion were similar to those seen among control rats.

Other spontaneous, usually age related, changes were seen in many organs and tissues. These changes showed no relationship to treatment and are frequently seen in laboratory maintained rats of this strain.

(c) Factors contributory to death (see Table 17)

For rats dying or killed during the study, the pathologist has attempted to ascertain the major factor or factors in the cause of death or the moribund state for each rat. In some rats there was more than one factor recorded. There were no treatment-related effects in the incidences of the various observations. The commonest factors included, pituitary tumours, mammary tumours, and renal lesions, none of which showed any treatment-related effects.

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FIGURE 1

Group and cage arrangement in batteries

Group	Treatment TK 12 259 (ppm)	Label colour code	Main Group		Satellite Group			
					Haematology		Blood chemistry /Urinalysis	
			♂	♀	♂	♀	♂	♀
1	Control (0)	White	1-10	57- 66	11,12	67, 68	13,14	69, 70
2	1000	Yellow	15-24	71- 80	25,26	81, 82	27,28	83, 84
3	3000	Green	29-38	85- 94	39,40	95, 96	41,42	97, 98
4	10000	Red	43-52	99-108	53,54	109,110	55,56	111,112

♂

1 1	2 16	3 31	4 46	1 6	2 21	3 36	4 51	1 11	2 26	3 41	4 56
2 15	3 30	4 45	1 5	2 20	3 35	4 50	1 10	2 25	3 40	4 55	
3 29	4 44	1 4	2 19	3 34	4 49	1 9	2 24	3 39	4 54	1 14	
4 43	1 3	2 18	3 33	4 48	1 8	2 23	3 38	4 53	1 13	2 28	
1 2	2 17	3 32	4 47	1 7	2 22	3 37	4 52	1 12	2 27	3 42	

♀

1 57	2 72	3 87	4 102	1 62	2 77	3 92	4 107	1 67	2 82	3 97	4 112
2 71	3 86	4 101	1 61	2 76	3 91	4 106	1 66	2 81	3 96	4 111	
3 85	4 100	1 60	2 75	3 90	4 105	1 65	2 80	3 95	4 110	1 70	
4 99	1 59	2 74	3 89	4 104	1 64	2 79	3 94	4 109	1 69	2 84	
1 58	2 73	3 88	4 103	1 63	2 78	3 93	4 108	1 68	2 83	3 98	

Group / Cage

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000034

FIGURE 2

Bodyweight change of male and female rats throughout the treatment period

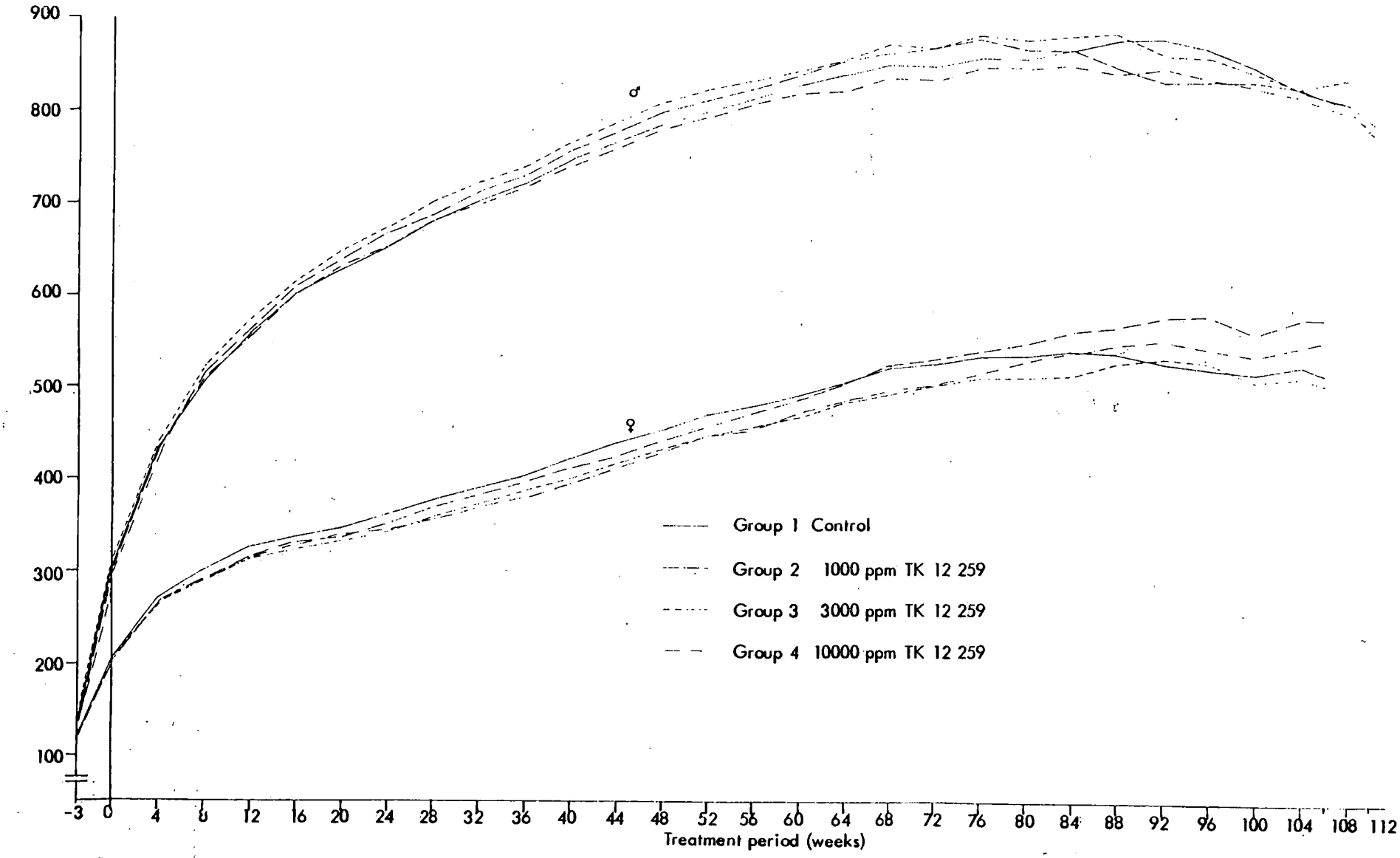

FIGURE 3a

Cumulative mortality in male rats

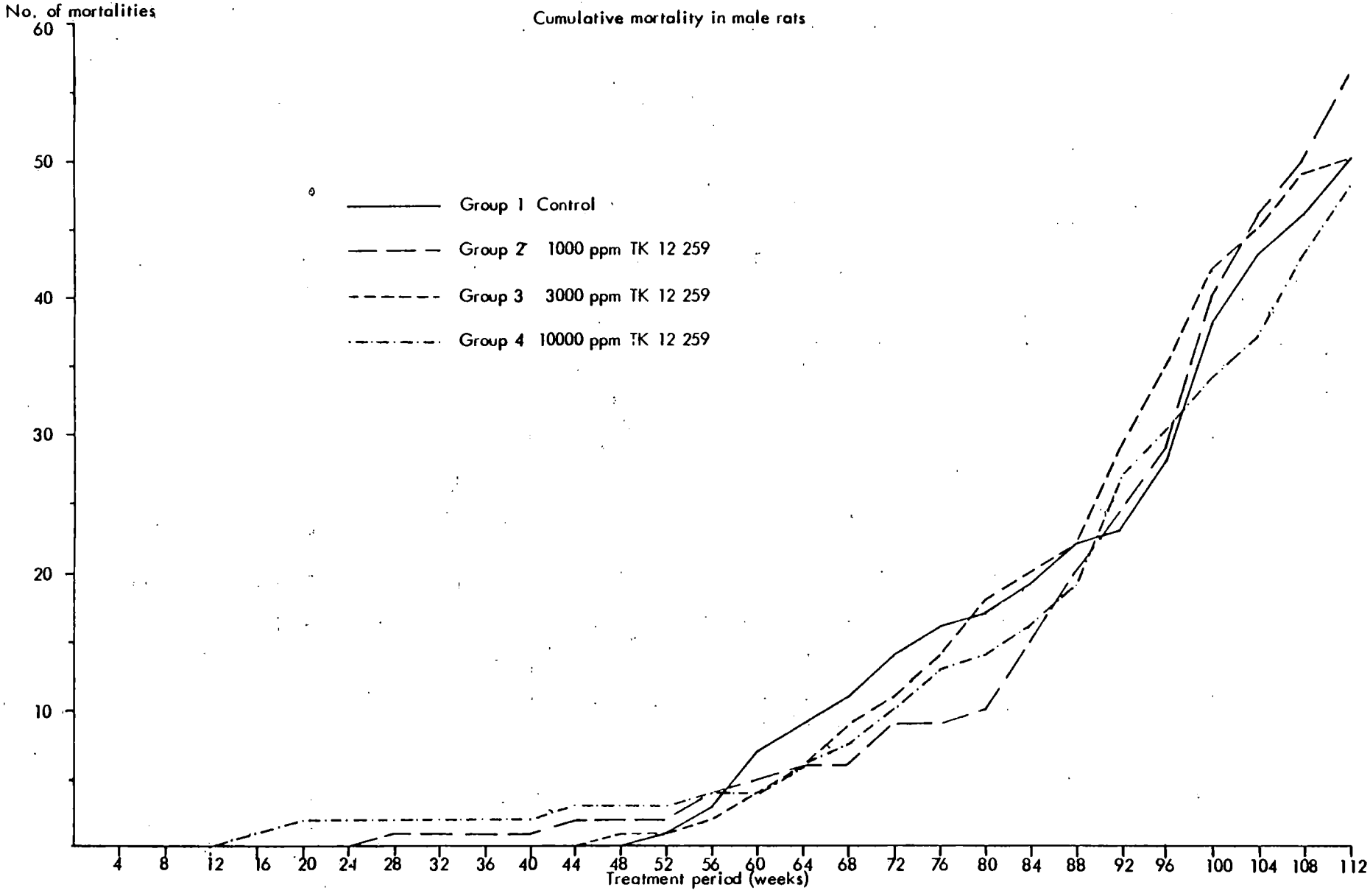

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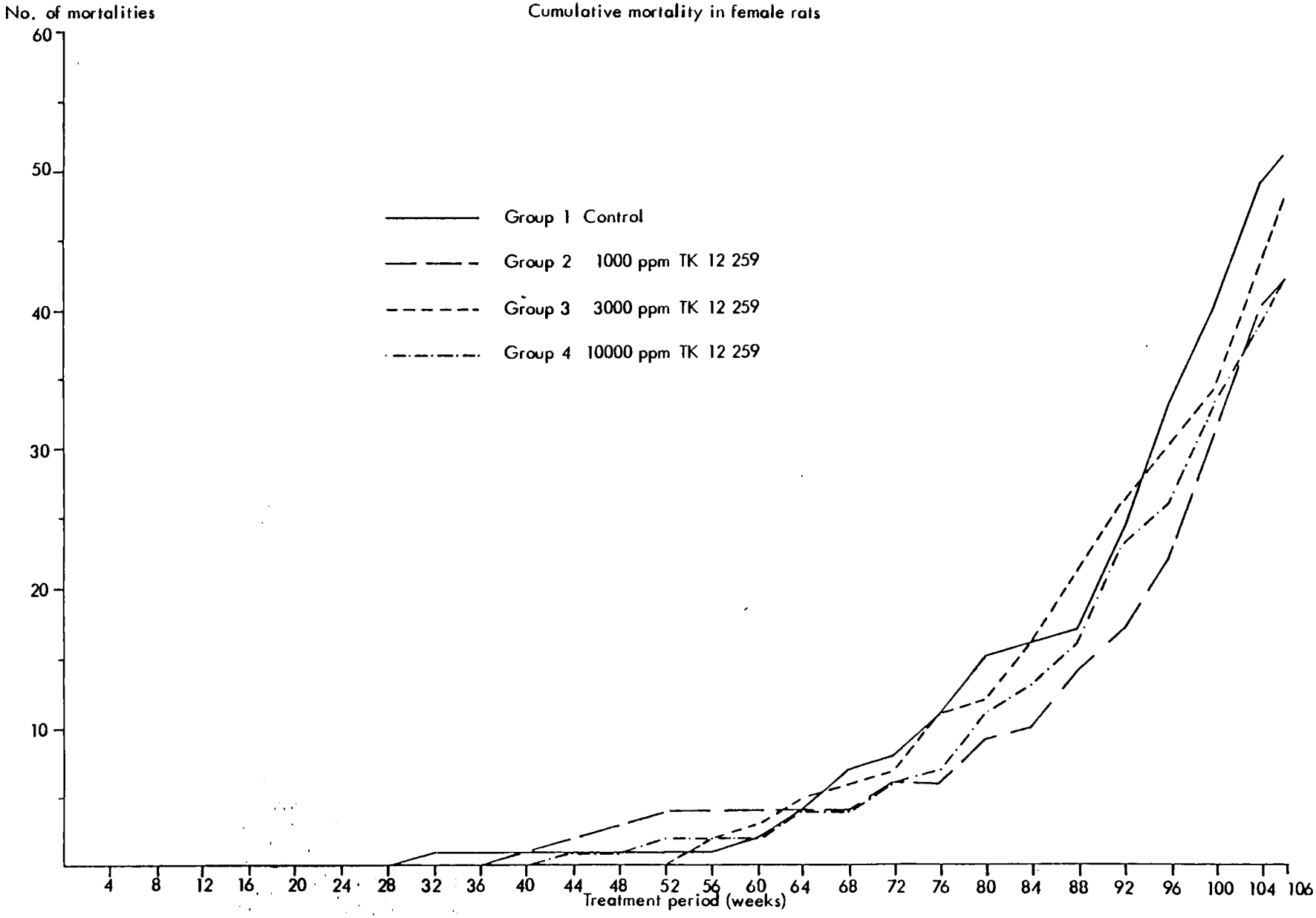
FIGURE 3b

Cumulative mortality in female rats



000036

TABLE 1

Group mean food consumption (g/rat/week)

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0 (Control)	1000	3000	10000

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
-2	161	159	162	161	120	115	117	120
-1	191	188	194	190	129	128	127	127
1	192	187	193	190	132	133	129	130
2	191	188	193	186	135	133	133	128
3	192	191	194	191	137	132	135	137
4	190	189	186	192	136	134	130	131
5	193	192	194	192	134	142	130	132
6	195	195	196	194	133	130	128	131
7	188	192	190	193	131	132	126	128
8	183	189	192	192	130	129	127	126
9	190	192	194	190	132	128	124	127
10	189	194	199	197	130	129	130	128
11	188	192	194	187	131	128	126	124
12	184	184	192	191	129	125	122	124
13	187	190	190	185	125	124	123	126
14	190	195	194	191	123	124	122	125
15	190	190	191	187	129	124	119	123
16	183	187	189	186	122	121	119	121
17	150	149	153	158	106	107	105	105
18	178	181	183	181	119	114	114	117
19	187	190	187	186	122	118	116	120
20	185	188	189	188	125	119	119	118
21	186	190	193	187	123	125	126	122
22	186	183	188	187	131	123	122	122
23	187	191	193	191	131	128	124	124
24	184	185	190	189	124	124	124	121
25	186	191	196	187	130	127	125	127
26	180	184	186	182	123	123	123	124

000037

TABLE 1

(Food consumption - continued)

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
27	136	165	188	183	129	127	123	123
28	130	179	181	182	125	127	123	125
29	130	181	182	179	128	125	124	123
30	131	132	184	180	125	125	124	125
31	134	134	185	183	127	126	124	124
32	162	186	192	186	128	130	131	130
33	163	163	164	164	125	119	117	119
34	177	171	174	170	121	110	112	113
35	181	130	181	178	124	124	124	121
36	131	183	183	182	129	128	126	122
37	132	185	184	181	128	126	126	129
38	176	133	179	180	126	120	122	123
39	181	184	181	182	126	122	122	123
40	132	183	181	182	133	126	127	127
41	179	182	185	183	131	127	127	129
42	134	183	187	185	130	127	129	125
43	179	189	186	184	131	129	127	128
44	133	191	187	184	134	129	129	125
45	173	183	182	180	119	129	127	130
46	177	182	181	181	131	130	131	129
47	176	182	182	177	133	129	129	128
48	136	188	190	183	133	133	135	135
49	175	182	185	180	127	128	124	128
50	175	182	177	179	133	130	125	126
51	130	180	135	178	135	128	127	130
52	176	179	176	173	129	129	125	128

000038

TABLE 1

(Food consumption - continued)

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
53	177	181	177	177	130	133	130	130
54	174	177	172	173	131	129	128	131
55	170	172	163	159	133	126	121	129
56	176	176	180	176	121	127	126	121
57	187	188	185	184	137	143	134	138
58	183	190	181	181	142	138	134	138
59	182	184	177	177	138	135	130	137
60	182	184	176	177	134	135	132	135
61	183	189	181	181	139	135	132	136
62	183	187	186	180	139	139	136	141
63	180	186	183	179	139	142	137	139
64	190	186	184	177	138	135	133	132
65	181	183	180	172	139	137	133	137
66	183	185	183	179	141	138	140	140
67	183	185	182	178	140	139	135	137
68	183	184	187	176	141	140	132	136
69	181	184	183	177	141	136	138	135
70	177	188	182	176	132	141	138	135
71	182	183	181	178	140	138	132	138
72	178	180	175	177	134	132	136	136
73	181	182	174	174	134	136	131	136
74	180	185	184	175	134	137	134	129
75	178	181	181	174	132	134	138	139
76	178	185	179	181	139	138	141	141
77	181	182	181	179	140	142	140	140
78	175	181	179	173	140	140	138	140

000039

TABLE 1

(Food consumption - continued)

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
79	179	178	183	178	145	145	138	144
80	189	183	191	181	147	151	142	149
81	187	185	188	180	143	148	134	145
82	183	182	185	182	147	152	141	149
83	184	181	186	181	150	149	144	146
84	181	176	186	173	146	143	142	145
85	193	185	186	183	151	150	146	148
86	195	179	195	188	149	159	150	149
87	195	181	190	184	145	148	146	147
88	189	168	182	173	140	149	145	145
89	187	174	167	173	137	146	141	139
90	191	186	180	177	138	149	144	141
91	187	185	183	179	134	153	147	141
92	184	172	175	179	134	149	144	144
93	181	172	182	176	137	147	153	145
94	179	173	184	184	138	148	152	142
95	176	171	174	174	143	143	147	132
96	172	173	180	163	149	146	150	145
97	175	172	177	175	151	143	148	148
98	187	184	176	180	160	150	149	153
99	192	191	188	182	155	143	151	150
100	196	196	191	189	165	145	142	159
101	201	196	192	191	165	155	159	159
102	176	185	185	184	156	154	146	146
103	178	182	192	172	157	144	140	145
104	179	188	174	177	156	170	148	164

000040

TABLE 1

(Food consumption - continued)

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
105	196	203	191	180	144	168	153	160
106	183	197	215	167	159	168	149	165
107	191	193	208	189				
108	185	195	200	188				
109	194	205	201	179				
110	191	197	193	189				

000041

TABLE 2

Group mean bodyweights (g)

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0 (Control)	1000	3000	10000

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
-3	139	139	139	139	124	123	123	123
-2	192	194	195	193	157	154	156	155
-1	253	254	255	252	187	183	186	186
0	307	306	310	303	210	206	209	207
1	350	346	353	345	229	223	226	228
2	337	333	389	375	247	240	242	239
3	417	414	419	408	263	254	258	256
4	439	437	440	433	273	266	266	266
5	460	461	464	454	283	276	274	276
6	435	484	485	475	292	285	283	283
7	498	502	507	498	299	290	290	292
8	508	515	517	509	302	295	293	294
9	521	523	534	521	309	301	297	299
10	538	547	554	538	316	310	308	309
11	555	561	567	550	324	317	314	314
12	558	564	574	557	326	319	313	315
13	570	576	535	568	329	324	318	320
14	584	591	593	580	332	327	321	323
15	594	601	605	588	333	328	322	324
16	602	610	615	599	337	332	325	327
17	594	602	609	592	336	331	322	324
18	606	616	623	607	337	332	323	327
19	620	628	637	616	343	336	329	332
20	628	639	647	630	346	337	334	339
21	633	647	654	634	353	342	335	336
22	637	646	656	637	356	346	340	340
23	644	659	669	647	359	350	344	346
24	654	667	674	654	361	354	344	345
25	662	677	685	665	369	362	353	354
26	666	677	689	669	371	364	352	352

000042

TABLE 2

(Bodyweights - continued)

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
27	674	654	697	675	373	365	355	356
28	631	633	701	681	378	370	360	358
29	685	692	704	682	381	373	362	362
30	687	697	707	689	380	374	366	365
31	693	703	713	690	384	376	367	364
32	733	711	721	700	390	383	375	371
33	688	703	711	691	389	383	373	370
34	705	712	722	700	392	386	372	373
35	711	721	732	707	396	391	381	376
36	721	730	740	717	402	397	387	381
37	729	739	750	725	409	402	389	386
38	732	739	753	730	412	403	395	391
39	740	750	758	734	415	404	396	391
40	746	757	765	739	422	411	400	396
41	746	758	770	748	426	415	406	401
42	756	764	779	754	429	418	410	405
43	763	772	783	755	433	420	413	410
44	766	776	787	759	439	425	417	413
45	765	777	790	761	441	428	418	415
46	773	786	797	766	444	434	426	422
47	778	791	802	774	449	438	429	426
48	785	798	807	779	452	444	433	429
49	787	800	813	782	456	446	437	435
50	790	806	816	789	462	453	442	435
51	794	808	821	793	466	455	444	440
52	799	811	822	793	470	459	447	447

000043

TABLE 2

(Bodyweights - continued)

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
53	805	814	827	799	473	465	453	450
54	806	814	826	803	475	467	453	453
55	802	811	820	794	471	464	452	454
56	811	823	831	808	480	472	458	457
57	816	824	836	810	483	479	460	461
58	822	833	843	816	490	482	467	466
59	823	835	839	815	493	485	467	468
60	828	839	844	819	493	487	469	472
61	829	843	847	815	495	491	473	475
62	834	843	853	817	500	496	476	480
63	838	849	854	821	506	502	482	485
64	840	854	854	822	508	506	484	485
65	842	855	857	827	508	508	487	488
66	847	858	863	835	516	514	492	495
67	846	860	864	831	518	519	494	497
68	850	863	871	836	522	523	494	498
69	852	864	872	838	526	525	500	504
70	850	875	876	838	530	532	503	504
71	849	868	875	835	528	533	502	505
72	847	866	867	834	526	531	504	504
73	856	873	876	841	532	537	509	512
74	859	875	883	843	532	542	510	510
75	858	876	884	844	531	540	513	513
76	858	878	882	848	535	541	514	516
77	857	876	878	845	533	542	514	516
78	849	870	873	842	532	539	509	515

000044

TABLE 2

(Bodyweights - continued)

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
79	854	868	872	843	531	545	510	522
80	856	866	876	846	535	549	513	530
81	858	869	878	841	535	552	514	533
82	863	872	885	849	536	560	510	533
83	864	866	882	849	539	562	511	535
84	868	867	882	850	539	563	515	538
85	873	862	878	847	540	559	518	535
86	877	852	879	850	541	561	525	539
87	876	851	880	847	541	568	528	542
88	878	848	883	842	537	566	527	547
89	875	840	868	833	535	566	522	545
90	875	845	868	829	532	568	521	541
91	870	834	873	839	527	576	526	546
92	879	831	860	847	528	577	534	551
93	873	838	851	850	527	580	532	548
94	870	836	859	857	524	584	530	545
95	875	826	862	851	520	579	530	541
96	868	832	859	836	523	580	529	544
97	870	829	855	843	532	582	529	549
98	863	822	849	839	523	572	523	545
99	851	829	856	831	519	563	518	539
100	850	831	842	828	516	561	507	536
101	847	812	845	837	519	568	519	554
102	832	822	840	830	520	567	513	542
103	815	814	824	819	517	556	506	539
104	824	827	826	816	525	576	512	547

000045

TABLE 2

(Bodyweights - continued)

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
105	825	825	818	817	512	576	514	553
106	819	821	825	800	516	577	505	554
107	821	815	837	806				
108	812	808	838	800				
109	815	776	829	790				
110	789	776	821	782				

000046

TABLE 3

Group mean food conversion ratios*

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0 (Control)	1000	3000	10000

Week(s)	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
1	4.47	4.68	4.49	4.52	6.95	7.82	7.59	6.19
2	5.16	5.08	5.36	6.20	7.50	7.82	8.31	11.64
3	6.40	6.16	6.47	5.79	8.56	9.43	8.44	8.06
4	8.64	8.22	8.86	7.68	13.60	11.17	16.25	13.10
1- 4	5.80	5.76	5.89	5.84	8.57	8.87	9.25	8.92
5- 8	11.00	9.85	10.03	10.14	18.21	18.38	18.93	18.46
9-12	15.02	15.55	13.67	15.94	21.75	21.25	25.10	23.95
13-16	17.05	16.57	18.63	17.83	45.36	37.92	40.25	41.25
17-20	26.92	24.41	22.25	23.00	52.44	91.60	50.44	38.33
21-24	28.58	26.75	28.30	31.42	33.93	29.41	49.60	81.50
1-26	13.47	13.15	13.04	13.33	20.64	20.73	22.52	22.35

* Calculated as $\frac{\text{Food consumed (g/rat)}}{\text{Bodyweight gain (g)}}$

000047

TABLE 4

Weekly achieved intake of TK 12 259 (mg/kg/day)[1]

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0 (Control)	1000	3000	10000

Week(s)	Group					
	2♂	3♂	4♂	2♀	3♀	4♀
1	81.95	249.52	837.74	88.58	254.19	853.86
2	73.68	222.95	738.10	82.07	244.64	783.11
3	68.47	205.80	696.95	76.34	232.36	790.76
4	63.45	185.60	652.28	73.63	212.65	717.02
5	61.09	183.94	618.46	74.86	206.35	695.84
6	58.96	177.03	596.65	66.21	196.97	669.56
7	55.64	164.17	566.73	65.59	188.48	636.02
8	53.10	160.71	544.76	63.00	186.72	614.33
9	52.60	158.22	527.05	61.36	180.15	611.90
10	51.56	156.78	532.50	60.32	184.18	601.50
11	49.51	148.34	491.98	58.33	173.63	568.68
12	46.73	144.23	492.97	56.15	166.78	563.25
13	47.62	140.52	469.84	55.10	167.08	566.93
14	47.74	140.56	475.36	54.42	163.91	555.43
15	45.54	136.09	457.44	54.09	158.88	543.17
16	44.12	132.79	447.71	52.38	157.65	531.05
17	35.12	107.14	379.03	46.11	139.10	460.83
18	42.46	127.32	431.31	49.13	151.50	513.50
19	43.64	127.21	434.53	50.47	152.50	520.27
20	42.39	126.17	431.09	50.52	153.85	502.45
21	42.21	127.15	422.69	52.60	161.43	516.40
22	40.44	122.82	420.37	51.08	154.92	515.64
23	41.82	124.66	425.01	52.55	155.39	516.45
24	39.86	121.26	415.07	50.32	154.49	500.31
25	40.60	123.62	405.07	50.68	153.72	519.11
26	38.83	117.28	389.81	48.41	149.54	501.82
Mean 1-26 weeks	50.35	151.23	511.56	59.40	176.96	591.12

[1] Achieved intake = $\frac{\text{Nominal dietary concentration (ppm) x food consumption (g/rat)}}{\text{Calculated mid-week bodyweight (g) x 7}}$

000048

TABLE 4

(Achieved intakes - continued)

Week	Group					
	2♂	3♂	4♂	2♀	3♀	4♀
27	38.84	116.26	389.03	49.77	149.12	496.37
28	37.28	110.97	383.48	49.37	147.45	492.20
29	37.47	111.03	375.22	48.07	147.21	488.10
30	37.44	111.77	375.12	47.81	146.00	491.26
31	37.55	111.67	379.16	48.00	145.00	485.99
32	37.58	114.76	382.32	48.94	151.33	505.34
33	32.94	98.16	336.86	44.39	134.07	458.84
34	34.53	104.08	349.18	40.87	128.86	434.53
35	35.89	106.70	361.46	45.60	141.15	461.57
36	36.03	106.56	365.17	46.41	140.63	461.07
37	35.98	105.85	358.63	45.06	139.18	481.16
38	35.38	102.08	353.46	42.59	133.38	452.29
39	35.31	102.68	355.19	43.19	132.20	449.40
40	34.70	101.87	353.02	44.17	136.76	461.06
41	34.32	103.30	351.62	43.93	135.06	462.45
42	34.35	103.48	351.91	43.56	135.50	443.11
43	35.16	102.07	348.39	43.98	132.27	448.73
44	35.25	102.09	347.24	43.62	133.22	433.95
45	33.67	98.92	338.35	43.21	130.37	448.59
46	33.27	97.76	338.67	43.09	133.04	440.35
47	32.97	97.56	328.39	42.27	129.32	431.27
48	33.80	101.22	336.68	43.18	134.24	451.13
49	32.54	97.88	329.46	41.09	122.17	423.28
50	32.38	93.13	325.54	41.22	121.89	413.79
51	31.86	96.87	321.47	40.28	122.86	424.49
52	31.59	91.82	311.66	40.33	120.25	412.30
Mean 27-52 weeks	34.93	103.48	351.80	44.38	135.48	455.87
Mean 1-52 weeks	42.64	127.35	431.68	51.89	156.22	523.50

000049

TABLE 4

(Achieved intakes - continued)

Week	Group					
	2♂	3♂	4♂	2♀	3♀	4♀
53	31.82	92.00	317.66	41.13	123.81	414.08
54	31.06	89.19	308.54	39.55	121.10	414.49
55	30.24	84.88	284.46	38.67	114.60	406.36
56	30.77	93.45	313.89	38.77	118.68	379.49
57	32.61	95.12	324.92	42.96	125.12	429.51
58	32.76	92.40	318.05	41.03	123.90	425.34
59	31.52	90.20	310.06	39.89	119.30	419.09
60	31.40	89.64	309.49	39.68	120.88	410.33
61	32.10	91.75	316.49	39.44	120.11	410.32
62	31.69	93.78	315.13	40.24	122.84	421.84
63	31.41	91.89	312.23	40.65	122.58	411.55
64	31.21	92.34	307.80	38.27	118.01	388.81
65	30.59	90.17	298.02	38.60	117.40	402.29
66	30.86	91.20	307.72	38.58	122.57	406.92
67	30.77	90.33	305.26	38.45	117.36	394.59
68	30.51	92.38	301.65	38.39	114.52	390.52
69	30.44	89.99	302.10	37.08	119.00	384.94
70	30.89	89.24	300.03	38.11	117.93	382.65
71	30.00	88.60	303.99	37.02	112.58	390.77
72	29.66	86.11	303.00	35.45	115.88	385.11
73	29.90	85.57	296.80	36.38	110.84	382.45
74	30.24	89.66	296.91	36.28	112.72	360.64
75	29.53	87.80	294.69	35.38	115.63	388.21
76	30.14	86.88	305.64	36.47	117.68	391.50
77	29.65	88.15	302.08	37.46	116.73	387.60
78	29.62	87.62	293.00	37.00	115.63	387.97
Mean 53-78 weeks	30.82	90.01	305.75	38.50	118.36	398.75
Mean 1-78 weeks	38.70	114.91	389.70	47.43	143.60	481.91

000050

TABLE 4

(Achieved intakes - continued)

Week	Group					
	2♂	3♂	4♂	2♀	3♀	4♀
79	29.26	89.89	301.82	38.22	116.08	396.75
80	30.15	93.66	306.18	39.44	118.98	404.67
81	30.47	91.87	304.85	38.41	111.84	389.73
82	29.87	89.94	307.69	39.05	118.02	399.36
83	29.76	90.23	304.56	37.94	120.89	390.58
84	29.02	90.38	290.93	36.32	118.63	386.10
85	30.57	90.58	308.11	38.20	121.15	394.09
86	29.84	95.13	316.52	40.56	123.27	396.38
87	30.37	92.59	309.79	37.45	118.84	388.53
88	28.25	88.49	292.65	37.54	117.81	380.43
89	29.45	81.75	295.10	36.85	115.21	363.68
90	31.54	88.87	304.28	37.54	118.34	370.96
91	31.48	90.10	306.61	38.21	120.34	370.61
92	29.52	86.56	303.34	36.92	116.44	375.05
93	29.44	91.17	296.32	36.30	123.02	376.97
94	29.53	92.23	307.98	36.33	122.68	371.19
95	29.40	86.66	291.07	35.13	118.87	347.28
96	29.81	89.65	276.06	35.99	121.41	381.83
97	29.59	88.51	297.80	35.16	119.90	386.88
98	31.84	88.53	305.76	37.14	121.40	399.58
99	33.05	94.51	311.38	36.00	124.33	395.36
100	33.73	96.42	325.50	36.86	118.75	422.59
101	34.08	96.55	327.76	39.23	132.83	416.78
102	32.35	94.11	315.37	38.77	121.26	380.60
103	31.78	98.90	298.02	36.64	117.76	383.24
104	32.73	90.39	309.31	42.91	124.61	431.47
Mean 79-104 weeks	30.65	91.10	304.41	37.66	120.10	388.49
Mean 1-104 weeks	36.69	108.96	368.38	44.98	137.73	458.56

000051

TABLE 4

(Achieved intakes - continued)

Week	Group					
	2♂	3♂	4♂	2♀	3♀	4♀
105	35.11	99.58	314.93	41.67	127.82	415.58
106	34.20	112.16	295.08	41.63	125.33	425.86
107	33.71	107.27	336.24			
108	34.33	102.35	334.46			
109	36.98	103.35	321.65			
110	36.27	100.26	343.51			
Mean, week 1 - termination	36.60	108.69	365.98	44.92	137.52	457.84

000052

TABLE 5

Group mean water consumption (ml/rat/day)

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0 (Control)	1000	3000	10000

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
6	40.4			40.2	31.2			31.3
SD	4.09			2.74	2.96			3.43
12	38.3			37.9	28.7			29.2
SD	3.65			4.23	2.81			2.72
24	39.4			37.9	30.6			29.8
SD	4.47			3.18	4.32			2.94
79	39.5	43.6	41.5	41.2	38.3	35.4	38.9	36.1
SD	5.97	8.91	8.93	6.14	7.29	5.67	7.23	4.90

SD Standard deviation

000053

000054

TABLE 6

Haematology - group mean values and observations

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0 (Control)	1000	3000	10000

Week 26

Group		PCV %	Hb g%	RBC mill/ cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Plate-lets 1000/ cmm	Thrombo-test secs	Comment on film ✓
1♂		52	13.8	7.0	19.7	27	74	14.0	1.4	12.4	0.2	0.0	0.0	864	26	NAD
	SD	2.17	0.69	0.49	0.98	1.17	4.22	3.33	0.70	3.18	0.12	0.00	0.06	71.06	2.20	
2♂		50	13.4	6.8	19.6	27	73	14.4	2.1	12.3	0.1	0.0	0.0	862	27	NAD
	SD	1.64	0.60	0.33	0.57	0.95	3.03	3.32	0.89	2.83	0.08	0.00	0.07	90.11	2.92	
3♂		52	13.9	7.1	19.6	27	73	15.4	1.7	13.6	0.1	0.0	0.0	816	26	NAD
	SD	2.10	0.59	0.34	1.09	1.08	4.82	3.25	1.25	3.35	0.15	0.00	0.04	135.83	2.04	
4♂		51	13.8	7.0	19.7	27	72	14.4	1.5	12.8	0.1	0.0	0.0	811	28	NAD
	SD	1.78	0.54	0.25	0.48	0.78	2.86	2.85	0.68	2.41	0.11	0.00	0.00	110.20	3.10	

SD Standard deviation
✓ Most frequent observation
NAD No abnormalities detected

TABLE 6

(Haematology - continued)

Week 26

Group		PCV %	Hb g%	RBC mill/ cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Plate-lets 1000/ cmm	Thrombo-tests secs	Comment on film ≠
1♀		48	13.6	6.4	28	75	21.2	10.6	1.1	9.4	0.1	0.0	0.0	759	21	NAD
	SD	1.10	0.44	0.26	1.00	2.21	0.71	1.57	0.42	1.32	0.15	0.00	0.03	93.51	2.03	
2♀		47	13.6	6.2	29	75	21.9	11.4	1.0	10.2	0.2	0.0	0.0	809	21	NAD
	SD	2.00	0.61	0.32	0.92	2.91	0.66	3.75	0.46	3.43	0.20	0.00	0.00	85.69	1.50	
3♀		47	13.5	6.3	29	75	21.5	10.1	0.9	9.1	0.1	0.0	0.0	807	21	NAD
	SD	2.42	0.42	0.31	1.18	2.91	0.88	2.63	1.05	1.72	0.10	0.00	0.00	68.32	2.25	
4♀		48	13.6	6.2	28	78	21.9*	10.8	1.0	9.6	0.1	0.0	0.0	825	21	NAD
	SD	2.08	0.52	0.35	1.07	4.25	0.59	1.70	0.55	1.74	0.13	0.00	0.05	61.86	2.05	

SD Standard deviation
≠ Most frequent observation
NAD No abnormalities detected
Level of significance (Student's 't' test): *P<0.05 in comparison with control value

000055

0000056

TABLE 6

(Haematology - continued)

Week 52

Group		PCV %	Hb g%	RBC mill/cmm	MCHC %	MCV qμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Platelets 1000/cmm	Thrombotest secs	Comment on film/
1♂		55	15.5	7.6	28	72	20.4	16.8	2.5	14.0	0.3	0.0	0.0	864	30	NAD
	SD	3.78	1.17	0.81	0.70	3.86	0.86	5.77	1.19	4.98	0.18	0.00	0.04	79.33	3.79	
2♂		54	15.0	7.5	28	72	20.1	12.9	2.6	10.2	0.1	0.0	0.0	889	*27	NAD
	SD	4.01	0.81	0.53	0.87	2.99	0.53	1.84	1.50	1.46	0.11	0.00	0.05	70.97	1.86	
3♂		56	15.3	7.7	*27	73	20.1	16.6	3.3	13.0	0.2	0.0	0.0	851	*27	NAD
	SD	2.69	0.61	0.36	0.56	3.59	0.96	4.53	3.08	2.53	0.20	0.00	0.07	64.89	1.10	
4♂		56	15.0	7.2	(***)27**	**78	20.1	17.2	2.7	14.2	0.1	0.0	0.2	818	(***)26**	NAD
	SD	2.67	0.65	0.43	0.70	2.83	0.66	13.79	1.39	11.92	0.18	0.00	0.53	71.15	1.77	

SD Standard deviation
/ Most frequent observation
NAD No abnormalities detected
Level of significance: * $P<0.05$ in comparison with control value
** $P<0.01$ in comparison with control value
*** $P<0.001$ in comparison with control value
Asterisks in parentheses indicate levels of significance using the method of least significant difference but not confirmed by Williams' test
Statistical analysis of total white blood cell and lymphocyte counts was performed using the Kruskal-Wallis test
Statistical analysis of thrombotest values was performed using $\log_e$ transformed data

TABLE 6

(Haematology - continued)

Week 52

Group		PCV %	Hb g%	RBC mill/ cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Plate-lets 1000/ cmm	Thrombo-test secs	Comment on film/
1♀		53	14.6	6.4	28	82	22.7	7.3	1.2	6.0	0.1	0.0	0.0	672	22	NAD
	SD	1.93	0.34	0.26	0.99	2.82	0.73	1.42	0.46	1.12	0.12	0.00	0.03	65.29	1.66	
2♀		52	14.6	6.4	28	81	22.8	8.6	1.4	7.1	0.2	0.0	0.0	720	22	NAD
	SD	2.16	0.66	0.46	1.28	5.82	1.18	2.47	0.92	1.77	0.16	0.00	0.03	80.97	1.41	
3♀		51	14.7	6.7	29 (*)	76 (**)	22.0	9.1	1.6	7.3	0.2	0.0	0.0	700	21	NAD
	SD	2.62	0.51	0.43	0.82	4.79	1.29	3.74	2.00	1.74	0.34	0.00	0.00	94.28	0.82	
4♀		54	14.7	6.5	28	83	22.8	9.3	1.4	7.7 *	0.3	0.0	0.0	680	21	NAD
	SD	2.39	0.61	0.35	0.85	3.64	0.48	1.72	0.81	1.62	0.42	0.00	0.00	50.99	1.13	

SD Standard deviation
/ Most frequent observation
NAD No abnormalities detected
Level of significance: *P<0.05 in comparison with control value
**P<0.01 in comparison with control value
Asterisks in parentheses indicate levels of significance using the method of least significant difference but not confirmed by Williams' test
Statistical analysis of the neutrophil counts was performed using log. transformed data

000057

TABLE 6

(Haematology - continued)

Week 78

Group		PCV %	Hb g%	RBC mill/cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Platelets 1000/cmm	Thrombo-test secs.	Comment on film ≠
1♂		47	15.5	6.1	32.9	58	19	11.6	3.0	8.4	0.2	0.0	0.0	832	28	NAD
	SD	2.12	0.74	0.60	0.43	2.57	0.75	2.01	1.83	2.46	0.12	0.00	0.06	99.85	2.23	
2♂		46	15.5	8.0	33.5	58	20	11.9	2.4	9.3	0.2	0.0	0.0	894	28	NAD
	SD	2.79	1.45	0.91	1.07	2.98	0.79	1.91	1.09	1.29	0.15	0.00	0.05	100.81	3.80	
3♂		48	16.6	8.8	** 34.5	(*) 55	19	13.4	2.9	10.2	0.2	0.0	(*) 0.1	783	28	NAD
	SD	3.04	1.20	0.97	1.16	4.06	1.29	3.48	1.74	2.87	0.18	0.00	0.10	106.36	2.91	
4♂		47	16.5	8.2	(***) ** 35.3	57	20	12.6	2.8	9.6	0.2	0.0	0.0	778	29	NAD
	SD	3.78	1.26	0.77	1.15	1.75	0.65	3.43	0.23	3.40	0.13	0.00	0.05	169.16	2.59	

SD Standard deviation
≠ Most frequent observation
NAD No abnormalities detected

Level of statistical signficance: * $P<0.05$ in comparison with control value
** $P<0.01$ in comparison with control value
*** $P<0.001$ in comparison with control value

Asterisks in parentheses indicate levels of significance using the method of least significant difference but not confirmed by Williams' test
Statistical analysis of the neutrophil counts was performed using the Kruskal-Wallis test.

0000058

TABLE 6

(Haematology - continued)

Week 78

Group		PCV %	Hb g%	RBC mill/cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Platelets 1000/cmm	Thrombo-test secs.	Comment on film ✓
1♀		45	16.4	7.8	36.3	58	21	8.0	2.5	5.3	0.1	0.0	0.1	756	24	NAD
	SD	2.12	0.93	0.65	0.99	2.56	0.68	2.62	1.56	1.25	0.10	0.00	0.10	139.69	2.05	
2♀		45	16.6	7.6	36.8	59	22	8.4	2.4	5.8	0.1	0.0	0.0	758	24	NAD
	SD	1.76	0.57	0.42	0.69	2.08	0.86	1.84	1.19	1.06	0.16	0.00	0.03	65.29	2.45	
3♀		44	16.3	7.7	36.7	58	21	8.8	2.4	6.1	0.2	0.0	0.0	773	23	NAD
	SD	2.13	1.09	0.45	1.77	2.60	1.28	3.60	1.89	1.79	0.31	0.00	0.07	144.30	1.64	
4♀		45	17.0	7.6	37.6	60	** 23	8.1	2.5	5.4	0.2	0.0	0.0	* 588	23	NAD
	SD	3.21	0.66	0.44	1.20	1.79	0.56	0.76	0.77	0.34	0.11	0.00	0.04	167.09	3.13	

SD Standard deviation
✓ Most frequent observation
NAD No abnormalities detected

Level of significance: * $P<0.05$ in comparison with control value
** $P<0.01$ in comparison with control value

000059

TABLE 6

(Haematology - continued)

Week 104

Group		PCV %	Hb g%	RBC mill/cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Platelets 1000/cmm	Thrombo-test secs.	Comment on film ≠
1♂		42	11.9	5.6	27.7	79	22	18.1	9.3	8.1	0.2	0.0	0.5	930	26	Sl. Pc. &An.
	SD	11.80	4.19	2.18	2.90	12.36	2.30	11.26	8.13	3.89	0.26	0.00	0.52	210.10	1.68	
2♂		45	12.7	6.0	28.0	76	21	15.5	7.6	7.2	0.3	0.0	0.4	1009	26	Sl. Pc. &An.
	SD	6.74	2.47	1.35	1.44	7.54	1.62	5.84	4.44	1.83	0.21	0.00	0.34	142.65	0.89	
3♂		49	14.5	6.9	29.4	73	21	15.0	5.7	8.7	0.1	0.0	0.5	930	26	Sl. An
	SD	4.63	1.66	1.10	0.98	7.70	1.72	2.47	2.03	1.53	0.13	0.00	0.74	60.24	2.07	
4♂		44	12.9	6.2	29.3	72	21	13.1	4.3	8.1	0.1	0.0	0.6	927	26	Sl. Pc. &An.
	SD	4.76	2.10	0.95	1.82	4.50	0.68	2.63	1.82	3.06	0.22	0.00	0.85	155.26	2.76	

SD Standard deviation
≠ Most frequent observation
Sl. Slight
Pc. Polychromasia
An. Anisocytosis
Statistical analyses of total white blood cell counts and neutrophil levels were performed using $\log_e$ transformed data

0000060

TABLE 6

(Haematology - continued)

Week 104

Group		PCV %	Hb g%	RBC mill/cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Platelets 1000/cmm	Thrombo-test secs.	Comment on film ✓
1♀		49	15.2	6.8	30.8	73	22	7.2	1.9	5.2	0.1	0.0	0.0	747	22	NAD
	SD	1.86	1.07	0.76	1.31	7.05	1.40	1.22	0.48	1.09	0.08	0.00	0.03	66.83	1.03	
2♀		44	14.0	6.0	31.7	75	(*) 24	(*) 10.0	* 3.6	6.0	0.2	0.0	(*) 0.3	819	22	Sl. Pc. &An.
	SD	7.40	2.79	1.31	2.27	7.53	1.40	2.77	1.10	2.12	0.13	0.00	0.22	99.30	3.85	
3♀		43	13.8	6.3	32.1	69	22	(*) 11.0	(**)* 4.7	5.9	0.1	0.0	0.2	738	24	NAD
	SD	4.16	1.80	0.99	1.38	3.74	0.86	3.42	2.74	1.40	0.10	0.00	0.19	110.57	1.26	
4♀		49	15.9	6.6	32.7	74	* 24	8.6	* 3.2	5.0	0.1	0.0	(*) 0.3	700	24	NAD
	SD	3.16	1.26	0.59	1.26	2.71	0.56	2.43	1.55	1.33	0.08	0.00	0.21	68.31	1.41	

SD Standard deviation
✓ Most frequent observation
NAD No abnormalities detected
Sl. Slight
Pc. Polychromasia
An. Anisocytosis

Level of significance: *P<0.05 in comparison with the control value
**P<0.01 in comparison with the control value

Asterisks in parentheses indicate levels of significance using the method of least significant difference but not confirmed by Williams' test

000061

000062

TABLE 7

Blood chemistry - group mean values

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0 (Control)	1000	3000	10000

Week 26

Group		BUN mg%	Glu-cose mg%	Plasma protein g%	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq/l	K mEq/l	Ca mEq/l	P mEq/l	Choles-terol mg%	Creat-inine mg%
1♂		12	117	7.4	22	29	80	560	<0.1	141	3.9	5.4	2.8	50	0.7
	SD	1.03	12.24	0.30	1.85	4.34	10.00	340.87	0.03	1.17	0.31	0.19	0.24	15.57	0.04
2♂		12	125	7.3	20	28	72	609	<0.1	142	3.9	*5.5	2.8	57	0.7
	SD	0.68	10.68	0.29	3.55	3.94	5.62	293.01	0.00	2.10	0.38	0.12	0.19	9.05	0.05
3♂		***14	124	7.2	24	29	79	559	<0.1	142	3.9	5.4	2.9	52	0.7
	SD	2.18	13.88	0.23	3.62	4.08	7.99	325.94	0.00	1.48	0.30	0.12	0.15	17.10	0.05
4♂		*13	123	7.2	*26	31	88	441	<0.1	141	3.8	*5.5	2.8	55	0.7
	SD	0.99	14.70	0.21	4.91	5.07	16.93	350.25	0.00	1.35	0.30	0.13	0.21	14.06	0.04

SD Standard deviation

Level of significance (Student's 't' test): *P<0.05 in comparison with control value

***P<0.001 in comparison with control value

Due to an oversight the total protein estimation performed did not include an albumin estimation, in addition, chloride levels were not analysed. These estimations were performed during week 28

TABLE 7

(Blood chemistry - continued)

Week 26

Group		BUN mg%	Glu-cose mg%	Plasma protein g%	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq/l	K mEq/l	Ca mEq/l	P mEq/l	Choles-terol mg%	Creat-inine mg%
1♀		*20	124	7.6	10	32	59	455	<0.1	140	3.5	5.6	2.8	62	0.8
	SD	4.45	12.61	0.45	2.71	6.69	15.32	354.08	0.00	0.94	0.26	0.17	0.41	9.82	0.07
2♀		*16	116	7.5	8	28	58	333	<0.1	**138	3.4	*5.4	2.8	61	0.8
	SD	2.51	11.80	0.66	3.58	9.10	15.34	262.18	0.03	1.20	0.28	0.14	0.36	11.87	0.05
3♀		*16	122	7.9	8	26	59	320	<0.1	140	*3.2	5.6	2.6	64	0.8
	SD	2.58	6.95	0.39	2.76	3.08	5.70	178.44	0.00	1.72	0.12	0.20	0.11	17.35	0.07
4♀		18	122	7.8	10	26	63	333	<0.1	141	3.4	5.6	2.6	65	0.8
	SD	4.77	15.04	0.45	3.43	8.73	14.77	289.18	0.00	1.37	0.30	0.21	0.24	7.70	0.07

SD Standard deviation

Level of significance (Student's 't' test): *P<0.05 in comparison with control value
**P<0.01 in comparison with control value

Due to an oversight the total protein estimation performed did not include an albumin estimation; in addition chloride levels were not analysed. These estimations were performed during week 28

000063

TABLE 7

(Blood chemistry - continued)

Week 28

Group		Plasma protein g%		A/G ratio	Cl mEq/l
		Total	Alb		
1σ		7.2	3.9	1.17	101
	SD	0.27	0.12	0.08	1.37
2σ		(*) 7.5	(*) 4.0	1.17	(**)* 99
	SD	0.32	0.11	0.07	1.10
3σ		7.4	3.9	1.15	* 100
	SD	0.25	0.20	0.09	1.25
4σ		(***)** 7.7	** 4.1	1.13	** 99
	SD	0.10	0.11	0.07	1.32

SD Standard deviation

Level of signficance: *P<0.05 in comparison with control value
**P<0.01 in comparison with control value
***P<0.001 in comparison with control value

Asterisks in parentheses indicate levels of significance using the method of least significant difference but not confirmed by Williams' test

000064

TABLE 7

(Blood chemistry - continued)

Week 28

Group		Plasma protein g%		A/G ratio	Cl mEq/l
		Total	Alb		
1♀		7.9	4.5	1.28	102
	SD	0.44	0.26	0.07	1.69
2♀		8.0	4.5	1.28	*100
	SD	0.42	0.34	0.12	1.79
3♀		8.0	4.6	1.36	(***)*99
	SD	0.50	0.35	0.12	1.51
4♀		7.7	4.5	**1.45	*102
	SD	0.43	0.36	0.12	1.88

SD Standard deviation

Level of signifcance: *P<0.05 in comparison with control value
**P<0.01 in comparison with control value
***P<0.001 in comparison with control value

Asterisks in parentheses indicate levels of significance using the method of least significant difference but not confirmed by Williams' test

000065

TABLE 7

(Blood chemistry - continued)

Week 52

Group		BUN mg%	Glu-cose mg%	Plasma protein g% Total	Plasma protein g% Alb	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq/l	K mEq/l	Ca mEq/l	Cl mEq/l	P mEq/l	Choles-terol mg%	Creat-inine mg%
1♂		16	133	7.2	3.7	1.02	15	37	75	1019	<0.2	143	4.0	5.7	101	2.8	84	0.7
	SD	11.01	17.04	0.28	0.27	0.14	5.98	25.45	20.54	282.23	0.04	0.97	0.20	0.15	1.64	0.31	35.48	0.25
2♂		12	130	7.5	3.6	(*)0.91	12	34	88	1127	<0.2	143	3.9	5.6	102	2.7	68	0.5
	SD	1.20	16.31	0.27	0.13	0.09	4.23	11.26	15.16	298.19	0.12	1.80	0.15	0.12	1.45	0.14	24.49	0.09
3♂		11	132	7.5	3.7	0.97	11	38	72	999	<0.2	142	3.9	5.6	101	2.9	67	0.6
	SD	1.58	17.30	0.30	0.18	0.08	4.06	8.17	13.84	281.12	0.14	1.32	0.21	0.13	1.01	0.38	15.18	0.11
4♂		12	131	7.6*	3.6	0.92*	14	37	59*	809	<0.1**	144	3.8	5.6	101	3.0	79	0.7
	SD	2.22	20.14	0.32	0.20	0.08	6.24	12.05	8.27	220.38	0.00	2.64	0.32	0.20	2.24	0.47	22.95	0.11

SD Standard deviation

Level of significance: *P<0.05 in comparison with control value

**P<0.01 in comparison with control value

***P<0.001 in comparison with control value

Asterisks in parentheses indicate levels of significance using the method of least significant difference but not confirmed by Williams' test

Statistical analysis of urea nitrogen (BUN) and bilirubin levels was performed using the Kruskal-Wallis test

Statistical analysis of SGPT and creatinine levels was performed using log. transformed data

TABLE 7

(Blood chemistry - continued)

Week 52

Group		BUN mg%	Glu-cose mg%	Plasma protein g% Total	Plasma protein g% Alb	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq/l	K mEq/l	Ca mEq/l	Cl mEq/l	P mEq/l	Choles-terol mg%	Creat-inine mg%
1♀		13	115	8.0	4.2	1.11	7	30	63	544	<0.1	143	3.4	5.7	102	2.3	90	0.6
	SD	1.49	16.61	0.39	0.26	0.16	2.44	9.43	12.31	190.16	0.00	1.23	0.34	0.16	1.79	0.31	36.68	0.05
2♀		(**)16	110	7.9	4.5*	1.33**	6	36	(*)91	769	<0.1	143	3.3	5.6	102	(*)2.6	74	0.7
	SD	2.53	10.65	0.31	0.20	0.09	2.79	6.17	30.21	276.85	0.04	1.08	0.40	0.18	1.35	0.16	15.33	0.11
3♀		(*)15	114	8.0	4.5*	1.30**	7	29	59	660	<0.2	(***)141**	3.6	5.6	101	2.5	84	0.6
	SD	2.23	17.72	0.34	0.38	0.18	3.94	5.77	18.13	321.18	0.11	1.20	0.35	0.13	2.83	0.22	25.82	0.07
4♀		13	113	8.2	4.5*	1.26*	10	32	76	533	<0.1	141**	3.1	5.5*	101	2.6**	75	(***)0.8**
	SD	2.73	15.82	0.44	0.33	0.09	3.60	4.06	22.69	333.95	0.00	0.79	0.36	0.23	2.06	0.22	14.97	0.08

SD Standard deviation

Level of significance: *P<0.05 in comparison with control value

**P<0.01 in comparison with control value

***P<0.001 in comparison with control value

Asterisks in parentheses indicate levels of significance using the method of least significant difference but not confirmed by Williams' test

000067

TABLE 7

(Blood chemistry - continued)

Week 78

Group		BUN mg%	Glu-cose mg%	Plasma protein g% Total	Plasma protein g% Alb	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq/l	K mEq/l	Ca mEq/l	Cl mEq/l	P mEq/l	Choles-terol mg%	Creat-inine mg%
1♂		9	104	7.4	3.6	0.96	15	33	64	538	<0.1	146	4.0	5.5	104	2.6	69	1.0
	SD	1.50	18.74	0.13	0.05	0.05	2.09	4.53	11.01	196.84	0.07	1.51	0.36	0.10	1.01	0.16	20.02	0.09
2♂		10	108	7.2	3.7	1.05	15	40	67	635	<0.1	146	3.6**	5.6	102	2.5	89	1.1
	SD	2.03	18.85	0.26	0.11	0.07	3.47	17.49	14.11	428.25	0.09	1.20	0.21	0.15	1.97	0.27	39.65	0.13
3♂		10	112	7.1(*)	3.9**	1.21(***)**	15	38	70	563	<0.1	147	3.7*	5.5	102	2.5	84	0.8(***)*
	SD	1.29	15.44	0.24	0.15	0.15	4.38	10.94	15.81	334.47	0.05	2.15	0.21	0.11	1.38	0.23	27.51	0.04
4♂		15	115	7.3	3.8**	1.10**	16	37	70	582	<0.2	145	3.5(***)**	5.7	99(***)**	2.9	92	1.1*
	SD	16.98	23.58	0.25	0.35	0.16	5.00	13.01	15.47	327.31	0.11	1.92	0.27	0.55	3.34	1.13	31.45	0.76

SD Standard deviation

Level of significance: *P<0.05 in comparison with control value
**P<0.01 in comparison with control value
***P<0.001 in comparison with control value

Asterisks in parentheses indicate levels of significance using the method of least significant difference but not confirmed by Williams' test

Statistical analyses of urea nitrogen (BUN), albumin, calcium, phosphorus and creatinine levels were performed using the Kruskal-Wallis test

Statistical analysis of the A/G ratios was performed using log. transformed data

000068

TABLE 7

(Blood chemistry - continued)

Week 78

Group		BUN mg%	Glucose mg%	Plasma protein g% Total	Plasma protein g% Alb.	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bilirubin mg%	Na mEq/l	K mEq/l	Ca mEq/l	Cl mEq/l	P mEq/l	Cholesterol mg%	Creatinine mg%
1♀		17	97	7.6	4.0	1.11	10	37	63	469	<0.1	143	3.2	5.7	101	2.6	111	0.8
	SD	2.12	15.89	0.87	0.36	0.18	5.13	8.83	6.77	245.09	0.08	0.95	0.24	0.18	2.19	0.20	59.36	0.14
2♀		(**) 19	107	7.7	(*) 4.3	1.28	7	30	61	358	<0.2	142	3.4	5.6	100	2.5	93	0.7
	SD	3.84	15.66	0.22	0.40	0.24	2.55	5.46	14.01	274.91	0.13	1.00	0.33	0.14	2.20	0.19	27.23	0.14
3♀		18	(*) 114	7.9	4.2	1.17	8	(*) 24	53	435	<0.2	142	3.2	(*) 5.9	99	2.5	133	** 0.6
	SD	8.03	15.33	0.42	0.26	0.19	3.99	8.00	12.61	351.19	0.17	1.69	0.52	0.24	2.00	0.36	72.43	0.16
4♀		16	111	(***) 8.0	4.3	1.14	11	32	(*) 65	502	<0.1	143	3.1	5.8	** 97	2.5	86	(***) ** 0.5
	SD	2.01	13.64	0.38	0.23	0.13	4.35	14.83	39.53	351.39	0.07	1.20	0.37	0.09	2.54	0.19	15.65	0.07

SD Standard deviation

Level of significance: * $P<0.05$ in comparison with control value
** $P<0.01$ in comparison with control value
*** $P<0.001$ in comparison with control value

Asterisks in parentheses indicate levels of significance using the method of least significant difference but not confirmed by Williams' test

Statistical analyses of urea nitrogen (BUN), total protein and glutamic-oxaloacetic transaminase (GOT) levels were performed using the Kruskal-Wallis test

Statistical analysis of cholesterol levels was performed using log. transformed data

000069

000070

TABLE 7

(Blood chemistry - continued)

Week 104

Group		BUN mg%	Glu-cose mg%	Plasma protein g% Total	Plasma protein g% Alb.	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq/l	K mEq/l	Ca mEq/l	Cl mEq/l	P mEq/l	Choles-terol mg%	Creat-inine mg%
1♂		92	107	7.0	3.4	0.97	28	33	69	436	0.2	147	3.5	5.6	102	3.3	83	1.3
	SD	157.95	18.92	0.51	0.33	0.116	14.57	13.18	24.83	391.12	0.09	4.02	0.32	0.50	1.46	1.74	41.56	1.64
2♂		44	(*) 76	6.7	3.3	0.98	25	36	81	547	0.2	147	3.7	5.3	103	3.1	67	0.8
	SD	16.39	36.99	0.30	0.29	0.147	10.07	8.89	25.79	387.84	0.08	3.25	0.63	0.13	1.35	0.52	17.38	0.13
3♂		30	98	7.2	3.6	0.99	(**) 16	41	76	482	0.2	146	3.5	5.3	101	2.5	71	0.6
	SD	2.64	11.26	0.19	0.19	0.097	4.07	19.54	27.17	292.56	0.08	1.46	0.44	0.14	0.83	0.26	18.64	0.09
4♂		42	103	6.9	3.4	0.96	21	30	70	595	0.2	146	3.3	5.5	(*) 100	3.0	101	0.9
	SD	20.13	14.77	0.53	0.38	0.135	4.04	9.64	18.23	407.33	0.08	1.17	0.42	0.36	1.86	0.44	26.26	0.30

SD Standard deviation

Level of significance: *P<0.05 in comparison with the control value

**P<0.01 in comparison with the control value

Asterisks in parentheses indicate levels of significance using the method of least significant difference but not confirmed by Williams' test

Statistical analyses of urea nitrogen (BUN), calcium (Ca), phosphorus (P) and creatinine levels were accomplished using the Kruskal-Wallis test

Statistical analysis of alkaline phosphatase (AP) levels was accomplished using log. transformed data

TABLE 7

(Blood chemistry - continued)

Week 104

Group		BUN mg%	Glucose mg%	Plasma protein g% Total	Plasma protein g% Alb.	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bilirubin mg%	Na mEq/l	K mEq/l	Ca mEq/l	Cl mEq/l	P mEq/l	Cholesterol mg%	Creatinine mg%
1♀		30	108	7.7	4.2	1.18	14	38	74	329	0.2	143	2.8	5.5	98	2.6	83	0.7
	SD	5.59	19.25	0.29	0.05	0.059	2.16	11.04	19.93	182.15	0.12	1.30	0.22	0.10	2.95	0.26	30.52	0.05
2♀		34	104	7.5	4.1	1.23	16	31	67	476	0.2	144	3.0	5.5	98	2.5	91	(***) 0.6
	SD	3.64	19.86	0.55	0.31	0.189	8.97	6.95	9.90	374.68	0.16	2.57	0.33	0.20	1.00	0.27	31.78	0.07
3♀		35	138	7.4	4.1	1.23	(*) 24	34	85	282	0.1	145	(*) 3.4	5.4	101	2.6	85	0.7
	SD	7.63	64.41	0.26	0.26	0.092	3.30	9.15	38.31	133.27	-	1.73	0.54	0.13	2.75	0.17	14.51	0.10
4♀		31	98	7.6	4.0	1.14	13	39	93	247	0.1	145	3.2	5.5	101	2.7	68	0.7
	SD	3.77	6.80	0.45	0.29	0.099	1.15	18.16	52.53	99.81	-	1.26	0.26	0.14	3.40	0.13	13.02	-

SD Standard deviation

Level of significance: *P<0.05 in comparison with control value

*** P<0.001 in comparison with control value

Asterisks in parentheses indicate levels of significance using the method of least significant difference but not confirmed by Williams' test

Statistical analyses of glucose, alkaline phosphatase (AP) and glutamic oxaloacetic transaminase (GOT) levels were accomplished using log. transformed data

Statistical analysis of creatinine levels was accomplished using the Kruskal-Wallis test

000071

0000072

TABLE 8

Urinalysis - group mean values and observations

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0(Control)	1000	3000	10000

Week 24

Group		Volume ml/rat	pH	SG	Protein mg%	Total red. subs. ≠	Glucose ≠	Ketones ≠	Bile pigments ≠	Urobilinogen ≠	Haemoglobin ≠	Microscopy ≠						
												E	P	M	R	O	C	A
1♂		4.1	6.3	1053	82	0	0	0	0	0	0	0	1	0	0	1	0	1sp
	SD	2.29	0.22	7.92	93.07													
2♂		4.5	6.3	1050	36	0	0	0	0	0	+	0	0	0	0	1	0	0
	SD	1.77	0.29	10.30	34.06													
3♂		3.3	6.3	1053	52	0	0	0	0	0	+	0	0	0	0	1	0	1sp
	SD	1.83	0.18	6.46	87.66													
4♂		4.7	6.5*	1052	86	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	SD	1.79	0.30	6.66	93.24													

SD Standard deviation
≠ Most frequent observation
sp sperm
Level of significance (Student's 't' test): *P<0.05 in comparison with control value

TABLE 8

(Urinalysis - continued)

Week 24

Group		Volume ml/rat	pH	SG	Protein mg%	Total red. subs. ≠	Glucose ≠	Ketones ≠	Bile pigments ≠	Urobilinogen ≠	Haemoglobin ≠	Microscopy ≠						
												E	P	M	R	O	C	A
1♀		2.2	6.0	1053	10	0	0	0	0	0	0	0	1	0	0	1	0	0
	SD	1.78	0.22	7.92	16.04													
2♀		2.6	6.2	1050	7	0	0	0	0	0	0	0	0	0	0	1	0	0
	SD	0.96	0.40	10.30	11.60													
3♀		2.9	6.1	1053	26	0	0	0	0	0	0	0	0	0	0	1	0	0
	SD	0.72	0.20	6.46	40.33													
4♀		2.8	6.1	1052	7	0	0	0	0	0	0	0	0	0	0	1	0	0
	SD	1.10	0.14	6.66	9.49													

SD Standard deviation
≠ Most frequent observation

000073

TABLE 8

(Urinalysis - continued)

Week 49

Group		Volume ml/rat	pH	SG	Protein mg%	Total red. subs. ≠	Glucose ≠	Ketones ≠	Bile pigments ≠	Urobilinogen ≠	Haemoglobin ≠	Microscopy ≠						
												E	P	M	R	O	C	A
1♂		5.2	7.0	1052	279	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	SD	3.08	0.69	7.14	308.89													
2♂		6.4	6.7	1049	246	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	SD	2.22	0.14	6.40	147.57													
3♂		5.3	6.6	1056	289	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	SD	2.22	0.20	23.70	366.26													
4♂		5.5	7.1	1049	277	0	0	0	0	0	+	1	0	0	1	1	0	0
	SD	1.33	0.48	4.99	337.31													

SD Standard deviation
≠ Most frequent observation
sp sperm

000074

TABLE 8

(Urinalysis - continued)

Week 49

Group		Volume ml/rat	pH	SG	Protein mg%	Total red. subs./	Glu-cose /	Ket-ones /	Bile pigments /	Uro bili-nogen/	Haemo-globin/	Microscopy/						
												E	P	M	R	O	C	A
1♀		5.7	6.5	1041	132	0	0	0	0	0	0	0	0	0	0	1	0	0
	SD	3.12	0.21	6.39	105.49													
2♀		5.2	6.6	1041	96	0	0	0	0	0	0	0	0	0	0	1	0	0
	SD	3.60	0.26	11.85	140.20													
3♀		4.9	6.6	1040	297	0	0	0	0	0	0	0	0	0	0	1	0	0
	SD	1.88	0.33	4.71	331.80													
4♀		5.5	6.5	1039	74	0	0	0	0	0	0	0	0	0	0	1	0	0
	SD	2.25	0.25	5.29	100.58													

SD Standard deviation
/ Most frequent observation

0000075

000076

TABLE 8

(Urinalysis - continued)

Week 77

Group		Volume ml/rat	pH	SG	Protein mg%	Total red. subs ≠	Glu-cose ≠	Ket-ones ≠	Bile pigments ≠	Uro-bili nogen ≠	Haemo-globin ≠	Microscopy ≠						
												E	P	M	R	O	C	A
1♂		6.5	7.1	1045	371	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	SD	3.89	0.57	5.59	215.66													
2♂		8.1	7.0	1041	277	0	0	0	0	0	+	0	0	0	1	1	0	0
	SD	3.10	0.48	3.92	141.07													
3♂		8.3	6.7	1043	241	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	SD	4.30	0.32	9.43	199.37													
4♂		10.9*	6.8	1041	354	0	0	0	0	0	+	1	0	0	1	1	0	0
	SD	4.01	0.59	9.46	255.95													

SD Standard deviation
≠ Most frequent observation
sp sperm

Level of significance: * $P<0.05$ in comparison with control value

TABLE 8

(Urinalysis - continued)

Week 77

Group		Volume ml/rat	pH	SG	Protein mg%	Total red. subs ✓	Glu-cose ✓	Ket-ones ✓	Bile pigments ✓	Uro-bili-nogen ✓	Haemo-globin ✓	Microscopy ✓						
												E	P	M	R	O	C	A
1♀		7.8	6.3	1038	411	0	0	0	0	0	0	1	0	0	0	1	0	0
	SD	1.62	0.33	5.50	282.40													
2♀		10.0	6.5	1032	213	0	0	0	0	0	+	1	0	0	1	1	0	0
	SD	2.35	0.20	4.36	222.54													
3♀		11.2*	6.1	1036	453	0	0	0	0	0	+	1	0	0	1	1	0	0
	SD	2.37	0.53	7.20	288.43													
4♀		10.2*	6.4	1035	214	0	0	0	0	0	+	0	0	0	0	1	0	0
	SD	3.39	0.31	6.25	251.18													

SD Standard deviation

✓ Most frequent observation

Level of significance: * $P<0.05$ in comparison with control value

000077

0000078

TABLE 8

(Urinalysis - continued)

Week 102

Group		Volume ml/rat	pH	SG	Protein mg%	Total red. subs/	Glu-cose /	Ket-ones /	Bile pigments /	Uro-bili-nogen/	Haemo-globin/	Microscopy /						
												E	P	M	R	O	C	A
1♂		9.2	6.2	1039	389	0	0	0	0	0	+	1	0	0	1	1	0	0
	SD	4.27	0.33	10.39	240.44													
2♂		9.5	6.4	1041	488	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	SD	4.21	0.43	7.95	135.62													
3♂		9.5	6.3	1042	356	0	0	0	0	0	+	1	0	0	1	1	0	0
	SD	3.40	0.24	4.47	245.52													
4♂		(*) 13.4	6.0	1038	(*) 633	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	SD	3.35	0.14	5.96	242.21													

SD Standard deviation
/ Most frequent observation
sp sperm
Level of significance: *P<0,05 in comparison with control value
Asterisks in parentheses indicate levels of signficance using the method of least significant difference but not confirmed by Williams' test

TABLE 8

(Urinalysis - continued)

Week 102

Group		Volume ml/rat	pH	SG	Protein mg%	Total red. subs/	Glu-cose /	Ket-ones /	Bile pigments /	Uro-bili-nogen/	Haemo-globin/	Microscopy /						
												E	P	M	R	O	C	A
1♀		11.1	6.2	1033	690	0	0	0	0	0	0	1	0	0	0	1	0	0
	SD	2.93	0.29	7.82	1462.2													
2♀		10.2	6.2	1034	386	0	0	0	0	0	+	0	1	0	1	1	0	0
	SD	3.17	0.41	4.40	332.17													
3♀		12.0	6.3	1032	140	0	0	0	0	0	+	1	0	0	0	1	0	0
	SD	1.90	0.10	4.03	108.32													
4♀		*5.7	6.3	1039	172	0	0	0	0	0	0	0	0	0	0	1	0	0
	SD	4.60	0.26	5.89	117.98													

SD Standard deviation
/ Most frequent observation
Level of significance: *P<0.05 in comparison with control value
Statistical analysis of protein levels was performed using log. transformed data

0000079

000080

TABLE 9

Ophthalmoscopy - summary of observations

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0 (Control)	1000	3000	10000

Group	Week	No. of rats examined	No. of rats with abnormalities of:									
			Vitreous		Cornea					Lens		
			Hyaloid remnants	Hyaloid opacity	Opacity	Lack of lustre	Conjunc-tivitis	Dry cornea	Keratitis	Posterior polar opacity	Porphyrin staining	Bilateral discharge
1♂	Pre-treatment	50	1	2	1	5	1	1	1		1	1
4♂		50		3	1	4			1	1		
1♀		50		2		2						
4♀		50		2		2						

TABLE 9

(Ophthalmoscopy - continued)

Group	Week	No. of rats examined	No. of rats with abnormalities of		
			Retina	Cornea	Lens
			Increased luminescence	Keratitis	Opacities
1♂	26	50	1	1	1
4♂		48		1	
1♀		50			
4♀		50	1		

000081

TABLE 9

(Ophthalmoscopy - continued)

Group	Week	No. of rats examined	No. of rats with abnormalities of:				
			Cornea		Lens	Vitreous	Iris
			Opacity	Keratitis	Opacity	Hyaloid artery	Iritis
1♂	52	49	3	1	2	1	1
4♂		47	2	1			
1♀		49	2				
4♀		50					

280082

TABLE 9

(Ophthalmoscopy - continued)

Group	Week	No. of rats examined	No. of rats with abnormalities of:									
			Cornea						Lens		Uveal tract	Miscell-aneous
			Conjunct-ivitis	Vacuoles	Keratitis	Opacity	Oedema	Scar	Plaque opacity	Subcapsular opacity	Synechia	Epiphora
1♂	78	36	1	1	3	1	1		3		1	
4♂		43			2	1	1	3	7			
1♀		42			1				2	1		1
4♀		48							1	1		

000083

TABLE 9

(Ophthalmoscopy - continued)

Group	Week	No. of rats examined	No. of rats with abnormalites of:						
			Lens				Cornea		Panophthalmitis
			Opacity	Plaque opacity	Suture lines	Cataract	Keratitis	Opacity	
1♂	104	20	2	4		1	5	3	1
4♂		27	1	6	1		6	2	
1♀		15			1				
4♀		27						1	

000084

TABLE 10

Hearing test - summary of results

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0 (Control)	1000	3000	10000

Pre-dose

Group	No. of rats reacting to 10 kHz signal
1♂	50/50
4♂	50/50
1♀	50/50
4♀	50/50

Week 26

Group	No. of rats reacting to 10 kHz signal
1♂	50/50
4♂	48/48
1♀	48/50 (50/50)
4♀	49/50 (50/50)

Week 52

Group	No. of rats reacting to 10 kHz signal
1♂	42/49 (48/49)
4♂	42/47 (47/47)
1♀	41/49 (49/49)
4♀	43/50 (50/50)

Week 79

Group	No. of rats reacting to 10 kHz signal
1♂	36/36
4♂	43/43
1♀	42/42
4♀	48/48

Week 104

Group	No. of rats reacting to 10 kHz signal
1♂	20/20
4♂	27/27
1♀	15/16
4♀	26/28 (27/27)*

* One rat which did not react to the signal on the first occasion was sacrificed prior to the retest

Figures in parentheses represent the adjusted number of rats reacting to the signal after retesting those rats failing to respond in the first test.

000085

0000086

TABLE 11

Organ weights - group mean values (g) in rats killed at termination

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	Control	1000	3000	10000

Group		Body-weight	Brain	Heart	Liver	Kidney	Adrenals mg	Testes
1♂		773	2.2	2.4	27.8	7.0	150	4.7
	SD	120.38	0.09	0.47	4.46	1.54	178.13	1.38
2♂		770	2.2	2.2	26.6	6.2	107	5.2
	SD	91.90	0.13	0.32	4.50	0.97	27.42	1.51
3♂		805	2.2	2.2	26.6	6.4	138	5.2
	SD	147.70	0.19	0.26	4.84	1.02	146.36	0.95
4♂		720	2.2	2.2	25.9	6.5	104	4.8
	SD	134.26	0.15	0.39	4.46	1.49	41.21	1.18

SD Standard deviation

TABLE 11

(Organ weights - continued)

Group		Body-weight	Brain	Heart	Liver	Kidney	Adrenals mg	Ovaries mg
1♀		513	1.9	1.6	20.2	4.2	143	117
	SD	99.61	0.12	0.20	4.17	0.91	115.94	100.42
2♀		567	2.0	1.7	22.6	4.3	119	102
	SD	126.27	0.12	0.21	5.57	0.87	50.57	101.64
3♀		490	2.0	1.6	18.3	4.5	104	97
	SD	68.69	0.10	0.26	2.88	1.81	23.32	106.74
4♀		534	2.0	1.6	21.1	4.1	134	97
	SD	94.93	0.13	0.23	4.02	0.53	75.49	67.01

SD Standard deviation

000087

000088

TABLE 12

Statistical analysis of organ weights in rats killed at termination

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	Control	1000	3000	10000

Group	Body-weight	(A) Brain	Heart	(A) Liver	Kidney	(L) Adrenals mg	Testes
1♂	772.8	2.20 (2.20)	2.43	27.64 (27.77)	6.95	4.75 (150.4)	4.69
2♂	769.7	2.22 (2.22)	2.19	26.48 (26.55)	6.17	4.66 (107.4)	5.17
3♂	804.7	2.16 (2.17)	2.24	25.92 (26.59)	6.36	4.73 (138.2)	5.25
4♂	720.3	2.21 (2.20)	(*) 2.19	26.63 (25.86)	6.49	4.60 (104.5)	4.84
Residual variance	16363.2	0.020 (0.021)	0.139	16.347 (20.901)	1.716	0.217	1.557

Level of significance: Student's 't' test: *P<0.05 in comparison with control value

Asterisks in parentheses indicate levels of significance using the method of least significant difference but not confirmed by Williams' test

Where adjusted means have been analysed (A) the unadjusted group means and residual variance are given in parentheses

Where log. transformed data has been analysed (L) the untransformed group means are given in parentheses

TABLE 12

(Statistical analysis - continued)

Group	Body-weight	(A) Brain	(A) Heart	(A) Liver	(L) Kidney	(L) Adrenals mg	(A) Ovaries mg
1♀	513.0	1.95 (1.95)	1.59 (1.58)	20.43 (20.15)	1.64 (4.21)	4.81 (143.5)	122.3 (116.7)
2♀	567.0	1.97 (1.98)	1.68 (1.70)	21.98 (22.62)	1.65 (4.28)	4.71 (118.5)	89.0 (101.7)
3♀	489.8	1.98 (1.97)	1.67 (1.64)	19.02 (18.35)	1.67 (4.51)	4.63 (103.8)	110.5 (97.1)
4♀	534.3	2.01 (2.01)	1.61 (1.61)	21.00 (21.08)	1.63 (4.11)	4.80 (133.5)	95.5 (97.1)
Residual variance	10244.01	0.012 (0.014)	0.048 (0.051)	16.202 (18.970)	0.031	0.154	7788.3 (8874.2)

Where adjusted means have been analysed, (A), the unadjusted group means and residual variance are given in parentheses
Where log. transformed data have been analysed, (L), the untransformed group means are given in parentheses

000089

Major macroscopic post mortem findings:
summary of observations

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0(Control)	1000	3000	10000

Macroscopic post mortem findings are summarised in Table 13 (Main group), and Table 14 (Satellite group).

These tables consist only of major post mortem findings. Trivial post mortem findings, considered unrelated to treatment are excluded. These trivial findings include abnormalities of skin, fur, feet, pinnae, tail, incisor teeth and low incidence observations in several organs.

000090

TABLE 13

Summary of macroscopic findings in main group rats

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm)	0(Control)	1000	3000	10000

MALES

Macroscopic observation	Group							
	1♂		2♂		3♂		4♂	
	D	T	D	T	D	T	D	T
DIGESTIVE SYSTEM								
Tongue								
nodule	-	-	1	-	-	-	-	-
Salivary gland								
enlarged and cystic	-	1	-	-	-	-	-	-
Stomach (non-glandular epithelium)								
nodule	2	-	-	-	-	-	-	-
raised area(s) with central depression	2	-	4	1	5	-	4	-
Limiting ridge prominent or nodule(s)	4	1	2	-	1	-	-	1
ulceration	1	-	-	-	1	-	2	-
thickened	2	1	1	-	-	-	2	1
Stomach (Glandular mucosa)								
nodule(s)	1	1	2	2	-	1	1	1
raised area(s)	1	2	-	-	1	-	-	1
raised area(s) with central depression	3	-	3	-	1	-	1	-
ulceration	2	-	2	-	-	-	2	-
thickened or thickened area(s)	3	-	4	-	3	-	4	-
Small intestine								
mass	-	-	-	-	-	-	1	-
intussusception	-	-	1	-	-	-	-	-
No. of rats examined	36	14	39	11	36	14	31	19

000091

TABLE 13

(Macroscopic findings, main group - continued)

Macroscopic observation	Group							
	1♂		2♂		3♂		4♂	
	D	T	D	T	D	T	D	T
Liver								
mass	2	1	-	1	-	-	-	-
enlarged	11	2	12	2	7	3	6	2
swollen	12	3	7	1	9	2	7	1
pale	4	-	5	-	7	-	5	-
lobular markings accentuated	6	-	3	-	6	-	5	-
dark red area(s) or dark area(s) or black area(s)	8	3	11	4	10	4	6	7
pale area(s) or white area(s) or brown area(s) or cream area(s) or pink area(s) or yellow area(s) or light red area(s)	6	2	2	2	10	4	3	2
Pancreas								
mass(es) or nodule(s)	5	5	8	4	2	8	5	7
RESPIRATORY SYSTEM								
Lungs								
nodule(s)	1	-	-	-	-	-	-	1
firm or consolidated	2	-	-	-	2	-	-	-
congested	8	-	5	-	1	-	4	1
pale area(s) or cream area(s) or grey area(s) or white area(s)	2	1	2	-	5	1	5	3
grey foci or pale foci or cream foci or grey-green foci or white foci	5	2	4	5	4	3	2	7
petechiae	2	1	-	1	1	3	-	3
oedematous	-	1	1	-	-	-	-	-
URINARY SYSTEM								
Kidney(s)								
enlarged	14	10	20	5	16	10	18	10
cortical scarring	19	6	25	5	23	4	22	7
cyst(s)	-	-	2	1	1	-	2	-
mass	-	-	1	-	-	-	-	-
pale	2	-	4	-	3	-	5	-
hydronephrosis	1	-	1	-	-	2	-	-
Urinary bladder								
thickened or thickened area(s)	4	2	7	1	4	1	3	-
calculi	-	-	1	-	-	1	-	-
excrescence	-	-	-	-	-	-	1	-
No. of rats examined	36	14	39	11	36	14	31	19

000092

TABLE 13

(Macroscopic findings, main group - continued)

Macroscopic observation	Group							
	1♂		2♂		3♂		4♂	
	D	T	D	T	D	T	D	T
REPRODUCTIVE SYSTEM								
Testes/testis								
mass	-	-	-	-	1	-	1	-
enlarged	1	2	1	2	1	-	2	2
small and/or flaccid	2	5	8	2	10	2	6	5
Seminal vesicles								
nodule or swelling	-	-	1	-	-	1	-	-
small or empty	1	1	4	3	4	-	4	2
distended	2	-	1	-	1	-	-	-
Prostate								
mass	-	-	3	-	-	-	-	-
enlarged	-	-	1	-	2	-	-	-
small	1	-	2	-	-	-	-	-
Preputial gland								
enlarged and/or abscessed and/or cystic and/or discoloured and/or swollen and/or swellings	6	1	7	-	1	2	6	2
ENDOCRINE SYSTEM								
Pituitary								
mass and/or enlarged and/or haemorrahagic and/or haematomatous	13	-	11	4	14	3	12	6
Thyroid								
mass	1	-	-	-	-	-	-	-
enlarged	-	-	-	-	1	-	1	-
Parathyroids								
prominent or enlarged	4	1	7	-	10	-	4	3
Adrenal(s)								
mass	-	1	-	-	-	-	-	-
enlarged	12	6	16	6	11	7	9	5
congested	4	-	2	-	2	-	2	-
No. of rats examined	36	14	39	11	36	14	31	19

000093

TABLE 13

(Macroscopic findings, main group - continued)

Macroscopic observation	Group							
	1♂		2♂		3♂		4♂	
	D	T	D	T	D	T	D	T
CIRCULATORY SYSTEM								
Heart								
enlarged	9	8	22	4	12	4	11	5
thrombus or nodule	2	-	-	-	1	-	-	-
Aorta								
thickened and/or sclerosed and/or hardened and/or firm	1	1	2	-	5	-	2	1
Blood vessels								
aneurysms	1	3	3	-	5	1	3	1
LYMPHATIC SYSTEM								
Lymph nodes								
regionally enlarged and/or congested and/or cystic	6	5	8	2	14	3	8	7
generally enlarged and discoloured	-	-	-	-	-	-	1	-
Spleen								
enlarged	7	2	8	1	3	1	6	-
small	2	-	1	-	1	-	-	-
INTEGUMENTARY SYSTEM								
Skin								
nodule(s) or swelling(s) or excressence or mass	3	1	6	-	3	3	1	2
Subcutis								
mass(es)	6	5	13	3	3	5	4	6
mammary tissue cyst(s)	1	-	2	-	3	2	3	2
mammary tissue prominent	-	-	2	-	1	-	1	-
No. of rats examined	36	14	39	11	36	14	31	19

000094

TABLE 13

(Macroscopic findings, main group - continued)

Macroscopic observation	Group							
	1♂		2♂		3♂		4♂	
	D	T	D	T	D	T	D	T
MISCELLANEOUS								
Brain								
mass	1	-	-	1	2	-	1	-
haemorrhagic or congested area(s)	4	-	-	-	-	-	-	-
ventral depression	7	-	4	1	8	-	9	3
Meninges								
thickened and/or discoloured	-	-	1	-	1	-	-	-
Eye(s)								
Opacity	1	-	1	1	-	1	-	-
Thoracic cavity								
containing fluid	1	-	2	-	3	-	-	-
pleura: masses	1	-	-	-	-	-	-	-
Abdominal cavity								
mass(es)	-	-	1	1	-	-	-	-
containing fluid	-	-	1	-	1	-	-	-
abdominal wall mass	-	1	-	-	-	-	-	-
Adipose tissue								
nodule(s) or nodular	2	-	2	1	2	-	1	1
Omentum								
nodule	-	-	-	-	-	1	-	-
Intermuscular tissues								
mass	1	1	-	-	-	-	1	-
Lip								
nodule or excrescence	-	-	2	-	-	-	1	-
Tail								
swelling or papillomatous swelling	-	1	-	-	-	2	-	1
No. of rats examined	36	14	39	11	36	14	31	19

000095

TABLE 13

(Macroscopic findings, main group - continued)

FEMALES

Macroscopic observation	Group							
	1♀		2♀		3♀		4♀	
	D	T	D	T	D	T	D	T
DIGESTIVE SYSTEM								
Stomach (non-glandular epithelium)								
raised area(s) with central depression	4	-	1	-	1	-	3	-
thickened	2	-	1	-	-	-	2	-
limiting ridge prominent or thickened	3	-	2	-	3	-	2	-
Stomach (glandular mucosa)								
nodule(s)	2	1	1	2	2	1	-	1
raised area(s) with central depression	1	-	1	-	1	-	-	-
thickened	-	-	2	-	-	-	1	-
Duodenum								
swelling or raised area or nodule	-	1	-	1	1	-	-	1
Liver								
mass	1	-	-	-	1	-	1	-
enlarged	3	2	9	4	3	-	2	5
swollen	12	8	10	11	8	6	8	8
pale or pale brown	5	-	8	-	2	-	6	-
lobular marking accentuated	5	-	3	-	3	1	5	-
dark red area(s) or dark area(s) or black area(s)	12	3	5	6	7	7	9	8
pale area(s) or pink area(s) or cream area(s) or light brown area(s) or white area(s) or yellow area(s) or light red area(s) or yellow-orange area(s)	12	3	4	7	8	4	9	7
Pancreas								
mass or nodule(s)	2	1	2	1	-	3	-	2
No. of rats examined	36	14	30	20	31	19	27	23

TABLE 13

(Macroscopic findings, main group - continued)

Macroscopic observation	Group							
	1♀		2♀		3♀		4♀	
	D	T	D	T	D	T	D	T
RESPIRATORY SYSTEM								
Lungs								
nodule	-	-	-	-	-	1	-	-
firm or consolidated	1	-	2	-	-	-	-	-
congested	7	-	3	-	2	-	1	-
petechiae	1	5	1	7	2	3	2	9
pale foci or grey foci or cream foci or greenish foci or grey puncta or light brown puncta	2	1	1	4	4	3	-	6
grey areas or cream areas or pale areas	3	-	2	-	4	-	3	-
URINARY SYSTEM								
Kidney(s)								
enlarged	5	8	10	10	5	7	4	10
cortical scarring or depressions	13	4	11	8	14	7	8	10
cyst(s)	1	-	-	2	-	2	-	1
hydronephrosis	-	1	2	1	-	1	1	1
calculi	-	-	-	1	-	-	-	-
Urinary bladder								
thickened	7	1	2	1	4	2	-	-
calculus	-	-	-	1	-	-	-	-
REPRODUCTIVE SYSTEM								
Ovaries/ovary								
cyst(s) or peri-ovarian sac distended	5	6	2	3	5	5	3	6
enlarged	-	-	1	-	-	-	-	-
Uterus								
mass	3	-	-	1	-	-	2	-
nodule(s)	1	-	-	-	2	-	-	-
polyp	1	-	-	1	-	1	1	1
Cervix								
enlarged	-	1	-	-	-	1	-	-
No. of rats examined	36	14	30	20	31	19	27	23

000097

TABLE 13

(Macroscopic findings, main group - continued)

Macroscopic observation	Group							
	1♀		2♀		3♀		4♀	
	D	T	D	T	D	T	D	T
ENDOCRINE SYSTEM								
Pituitary								
enlarged and/or haemorrhagic and/or dark discoloured	25	8	18	10	23	10	18	13
Thyroid								
mass	-	-	-	-	-	2	2	-
enlarged	1	-	-	-	-	-	1	-
Parathyroids								
prominent	1	2	-	2	-	2	2	1
Adrenal(s)								
mass	-	-	-	-	4	-	-	1
enlarged	15	6	11	12	18	13	12	13
congested/dark/brown	5	2	5	-	8	-	9	2
CIRCULATORY SYSTEM								
Heart								
enlarged	-	-	4	-	1	2	2	-
Aorta								
thickened	-	-	1	-	-	2	1	-
Blood vessels								
aneurysms	3	3	1	2	1	2	1	-
LYMPHATIC SYSTEM								
Lymph nodes								
regionally enlarged and/or congested and/or cystic	5	1	5	3	5	7	6	2
generally enlarged and discoloured	1	-	-	-	-	-	-	-
No. of rats examined	36	14	30	20	31	19	27	23

000098

TABLE 13

(Macroscopic findings - main group - continued)

Macroscopic observation	Group							
	1♀		2♀		3♀		4♀	
	D	T	D	T	D	T	D	T
Spleen								
enlarged	3	2	5	-	1	1	7	-
mass	1	-	-	-	-	-	-	-
INTEGUMENTARY SYSTEM								
Skin								
nodule or swelling	2	1	-	-	1	1	1	2
Subcutis								
mass(es) or nodule(s)	29	11	19	13	25	12	19	21
mammary tissue cyst(s)	8	1	9	2	8	2	4	1
mammary tissue prominent or thickened	11	2	9	2	7	-	6	4
Pinna								
mass or nodule	-	1	-	-	1	-	-	-
MISCELLANEOUS								
Buccal cavity								
swelling	-	-	-	-	-	-	-	1
Rostrum								
excrescence	-	1	-	-	-	-	-	-
Adipose tissue								
mass or nodule(s)	4	1	2	3	1	-	-	2
Omentum								
nodule	-	-	-	1	-	-	-	-
Muscle								
mass	1	-	-	-	-	-	-	-
No. of rats examined	36	14	30	20	31	19	27	23

000099

TABLE 13

(Macroscopic findings, main group - continued)

Macroscopic observation	Group							
	1♀		2♀		3♀		4♀	
	D	T	D	T	D	T	D	T
Thoracic cavity								
mediastinal mass	1	-	1	-	-	-	-	-
Brain								
ventral depression	19	2	9	3	18	3	14	3
Trigeminal nerve								
swelling	-	-	1	-	-	-	-	-
No. of rats examined	36	14	30	20	31	19	27	23

D rats dying or killed during study
T rats killed at termination

000100

TABLE 14

Summary of macroscopic findings in satellite group rats

Group	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0(Control)	1000	3000	10000

MALES

Macroscopic observation	Group							
	1♂		2♂		3♂		4♂	
	D	S	D	S	D	S	D	S
DIGESTIVE SYSTEM								
Stomach (non- glandular epithelium)								
mass	-	-	-	-	-	1	-	-
limiting ridge prominent/ nodule	1	-	1	-	1	-	1	-
thickened	-	-	1	-	1	-	1	-
raised area(s) with central depression	-	-	2	-	1	-	2	-
ulceration	-	-	1	-	-	-	1	-
Stomach (glandular mucosa)								
nodule	1	-	-	-	1	-	-	-
thickened	1	-	4	-	1	-	-	-
Small intestine								
duodenum mass	-	-	1	-	-	-	-	-
jejunum diverticulum	-	-	1	-	-	-	-	-
Caecum								
nodules	-	-	-	-	1	-	-	-
Liver								
mass or nodule	-	-	2	-	1	-	-	-
enlarged	4	-	5	-	3	2	-	-
lobular markings accentuated	-	-	3	-	5	-	3	-
swollen	3	-	3	1	3	2	2	1
dark area(s) or dark red area(s)	1	1	8	1	4	-	5	1
pale area(s) or cream area(s) or grey area(s) or white area(s)	2	1	1	-	2	2	2	-
pale	1	-	3	-	2	-	1	-
Pancreas								
mass or nodule	-	1	2	1	2	3	1	-
No. of rats examined	14	6	17	3	14	6	17	3

000101

TABLE 14

(Macroscopic findings, satellite rats - continued)

Macroscopic observation	Group							
	1♂		2♂		3♂		4♂	
	D	S	D	S	D	S	D	S
RESPIRATORY SYSTEM								
Lungs								
congested	2	-	2	-	3	-	2	-
pale area(s) or cream area(s) or grey area(s)	1	-	2	-	-	-	3	-
petechiae	-	1	-	1	1	3	-	-
pale foci or grey foci or cream foci	2	2	1	1	1	2	1	1
firm or consolidated	1	-	3	-	1	-	1	-
URINARY SYSTEM								
Kidney(s)								
enlarged	7	4	6	1	8	4	8	3
cortical scarring	9	3	8	-	7	2	11	3
mass	1	-	-	-	-	-	-	-
pale	4	-	1	-	1	-	1	-
cyst(s)	2	-	-	-	1	-	1	-
Urinary bladder								
thickened	1	-	2	-	1	1	-	-
area of swelling	-	-	-	-	-	-	-	1
REPRODUCTIVE SYSTEM								
Testes/testis								
mass	1	-	-	-	-	-	-	-
enlarged	1	-	1	-	-	1	-	-
small and/or flaccid	4	1	5	1	2	-	4	1
Seminal vesicles								
small or empty	4	-	1	-	2	-	-	-
distended	-	-	1	-	1	-	2	-
Prostate								
mass	-	-	-	-	-	-	-	1
enlarged	-	-	-	-	1	-	-	-
No. of rats examined	14	6	17	3	14	6	17	3

000102

TABLE 14

(Macroscopic findings, satellite rats - continued)

Macroscopic observation	Group							
	1♂		2♂		3♂		4♂	
	D	S	D	S	D	S	D	S
Preputial gland								
enlarged and/or abscessed and/or cystic and/or distended and/or discoloured	1	-	2	1	-	1	2	-
ENDOCRINE SYSTEM								
Pituitary								
enlarged and/or haemorrhagic and/or haematomatous	3	1	3	-	6	1	7	-
Thyroid								
enlarged	-	-	-	-	-	-	1	1
Parathryoids								
prominent	3	1	4	-	2	1	5	-
Adrenal(s)								
enlarged	4	2	7	1	4	2	3	3
mass	-	-	-	-	-	1	-	-
congested	-	-	3	-	3	-	2	-
CIRCULATORY SYSTEM								
Heart								
enlarged	4	3	6	1	6	-	7	2
thrombus	1	-	1	-	-	-	1	-
Aorta								
thickened and/or sclerosed and/or firm	2	-	2	-	-	-	3	-
Blood vessels								
aneurysms	4	1	2	-	1	-	2	-
No. of rats examined	14	6	17	3	14	6	17	3

000103

TABLE 14

(Macroscopic findings, satellite rats - continued)

Macroscopic observation	Group							
	1♂		2♂		3♂		4♂	
	D	S	D	S	D	S	D	S
LYMPHATIC SYSTEM								
Lymph nodes								
regionally enlarged and/or cystic and/or congested	3	2	5	3	3	4	5	2
mass	-	-	-	1	-	-	-	-
Spleen								
enlarged	2	-	2	-	2	-	-	-
small	1	-	2	-	-	-	-	-
INTEGUMENTARY SYSTEM								
Skin								
mass or nodule(s) or swelling	1	4	5	-	3	4	5	2
Subcutis								
mass(es)	3	2	6	2	4	3	2	-
mammary tissue cyst(s)	2	1	-	-	4	-	1	-
mammary tissue prominent	2	-	-	-	2	-	1	-
MISCELLANEOUS								
Brain								
mass	1	-	-	-	-	-	-	-
ventral depression	3	1	3	-	2	-	6	-
Eye(s)								
opacity	-	1	-	-	2	1	2	-
Head								
infra-auricular mass	1	-	-	-	-	-	-	-
Intramuscular tissues								
mass	-	-	-	-	-	-	1	-
Abdominal cavity								
mass	-	-	1	-	-	-	-	-
No. of rats examined	14	6	17	3	14	6	17	3

000104

TABLE 14

(Macroscopic findings, satellite rats - continued)

Macroscopic observation	Group							
	1♂		2♂		3♂		4♂	
	D	S	D	S	D	S	D	S
Thoracic cavity								
containing fluid	-	-	2	-	-	-	1	-
Adipose tissue								
nodule	-	-	1	-	-	-	-	-
Tail								
excrescence or papillomatous swelling	-	1	-	-	-	-	1	-
No. of rats examined	14	6	17	3	14	6	17	3

000105

TABLE 14

(Macroscopic findings, satellite rats - continued)

FEMALES

Macroscopic observation	Group							
	1♀		2♀		3♀		4♀	
	D	S	D	S	D	S	D	S
DIGESTIVE SYSTEM								
Stomach (non-glandular epithelium)								
raised area(s) with central depression	1	1	1	-	1	-	1	-
thickened	-	-	1	-	-	-	-	-
limiting ridge prominent	2	-	-	-	-	-	1	-
Stomach (glandular mucosa)								
raised area(s) with central depression	-	-	-	-	3	-	1	-
nodules	1	-	-	-	-	-	-	-
raised area(s)	2	-	1	1	-	-	1	-
thickened	-	-	-	-	1	-	1	-
Duodenum								
nodule	-	-	-	-	-	-	1	1
Jejunum								
nodule	-	-	1	-	-	-	-	-
Liver								
masses	-	-	-	-	1	-	-	-
enlarged	4	-	4	2	3	-	3	-
swollen	3	1	6	5	6	1	4	-
pale or brown	3	-	1	-	3	-	2	-
lobular markings accentuated	1	-	-	-	2	-	2	-
dark area(s) or dark red area(s) or black area(s)	3	1	1	2	4	1	4	2
pale area(s) or cream area(s) or pink area(s) or yellow area(s) or light red area(s)	1	3	2	4	4	-	3	2
Pancreas								
nodule(s)	-	-	1	1	1	-	-	-
No. of rats examined	15	5	12	8	17	3	16	4

000106

TABLE 14

(Macroscopic findings, satellite rats - continued)

Macroscopic observation	Group							
	1♀		2♀		3♀		4♀	
	D	S	D	S	D	S	D	S
RESPIRATORY SYSTEM								
Lungs								
nodule(s)	-	-	-	-	1	-	-	-
consolidated	-	-	-	-	-	-	1	-
congested	3	-	-	-	2	-	2	1
petechiae	1	2	-	-	1	-	1	2
pale foci or grey foci	2	-	3	1	-	-	-	-
pale areas or grey areas or cream areas	2	-	1	1	1	-	2	1
URINARY SYSTEM								
Kidney(s)								
enlarged	5	2	2	3	6	1	3	-
cortical scarring	7	-	3	3	9	1	7	-
masses	-	-	-	-	1	-	-	-
pale or brown or yellow-brown	5	-	-	-	4	-	1	-
cyst(s)	-	-	-	-	1	-	-	-
hydronephrosis	-	-	-	-	-	-	1	1
Urinary bladder								
thickened	3	-	1	-	2	2	1	-
REPRODUCTIVE SYSTEM								
Ovaries/ovary								
cyst(s) or peri-ovarian sac distended	1	2	1	2	5	-	-	1
enlarged	-	-	-	-	1	-	-	-
Uterus								
mass	-	-	1	-	-	-	1	-
nodule(s)	1	-	1	-	-	-	-	-
polyp	-	-	-	-	-	1	-	-
No. of rats examined	15	5	12	8	17	3	16	4

000107

TABLE 14

(Macroscopic findings, satellite rats - continued)

Macroscopic observation	Group							
	1♀		2♀		3♀		4♀	
	D	S	D	S	D	S	D	S
ENDOCRINE SYSTEM								
Pituitary								
enlarged and/or haemorrhagic and/or nodule	11	2	12	8	8	2	8	2
Parathyroids								
prominent	1	-	-	-	1	-	1	-
Adrenal(s)								
mass or nodule or nodular	-	1	1	-	1	-	-	-
enlarged	8	3	7	4	9	-	8	2
congested or dark or dark red or haemorrhage	4	-	-	1	2	-	4	-
CIRCULATORY SYSTEM								
Heart								
enlarged	1	-	-	-	4	-	-	-
mass	-	-	-	-	1	-	-	-
thrombus	1	-	-	-	-	-	-	-
Blood vessels								
aneurysms	2	-	-	-	1	-	2	-
LYMPHATIC SYSTEM								
Lymph nodes								
regionally enlarged and/or cystic and/or congested	4	-	1	2	4	1	3	-
Spleen								
enlarged	3	-	1	1	4	-	4	-
INTEGUMENTARY SYSTEM								
Skin								
swelling	1	-	1	-	-	-	-	-
No. of rats examined	15	5	12	8	17	3	16	4

000108

TABLE 14

(Macroscopic findings, satellite rats - continued)

Macroscopic observation	Group							
	1♀		2♀		3♀		4♀	
	D	S	D	S	D	S	D	S
Subcutis								
mass(es)	12	3	9	6	15	1	11	2
mammary tissue cyst(s)	3	1	3	1	4	-	4	1
mammary tissue prominent or thickened	7	-	5	-	5	-	5	1
MISCELLANEOUS								
Head								
buccal swelling	-	-	-	-	1	-	-	-
infra-auricular mass	-	-	-	-	-	-	1	-
orbital swelling	-	-	-	-	-	-	-	1
Brain								
ventral depression	7	1	8	1	5	-	6	1
Adipose tissue								
nodule or nodular	1	1	-	2	1	-	2	1
No. of rats examined	15	5	12	8	17	3	16	4

D satellite rats dying or killed during study
S satellite rats killed at termination

000109

TABLE 15

Neoplastic findings in main group male rats

Rats with	Control		1000 ppm		3000 ppm		10000 ppm	
	D	T	D	T	D	T	D	T
Lymphoreticular								
Reticulum cell sarcoma		1					1	1
Lymphosarcoma							1	
Lymphoid leukaemia	2		1		1			
Myeloid leukaemia							1	
Lymph nodes								
Haemangioma				1	1			
Lungs								
Adenocarcinoma								1
Liver								
Benign liver cell tumour	1	1		1	1			
Malignant liver cell tumour	2							
Pancreas								
Islet cell adenoma	6	2	5	2	1	5	4	3
Islet cell adenocarcinoma		1				1	1	
Exocrine adenoma	1	2	1				1	1
Ileum								
Mucus secreting adenocarcinoma							1	
Salivary gland								
Mesenchymal tumour		1						
Testes								
Interstitial cell tumour	3	2[M]	2	2[1M]	1		3[2M]	2
Seminal vesicles								
Carcinosarcoma			1*					

D Rats dying or killed during the study
T Rats killed at termination
M More than one tumour of the same type
* Metastasising

000110

TABLE 15

(Pathology - continued)

Rats with	Control		1000 ppm		3000 ppm		10000 ppm	
	D	T	D	T	D	T	D	T
Thyroids								
Follicular adenoma		1			3			
Parafollicular cell adenoma	1							
Parafollicular cell carcinoma	1	3		1			1	2
Adrenals								
Cortical adenoma			1		1	1		1
Phaeochromocytoma	3		1	1	2	3 1M	1	3 2M
Malignant phaeochromocytoma		1	1				1	1
Pituitary								
Adenoma	14	4	16	4	17	6	16	11
Brain								
Astrocytoma			1*	1	2		1	
Ependymoma					1			
Meningioma	1	1		1				
Angioma	1							
Skin/subcutaneous								
Fibroma	6	2	11 3M		2	4	3	3 1M
Dermal fibroma	1				2			
Myxomatous fibroma	1						3	
Fibrosarcoma		1	2		1			
Lipoma		3	3 1M	1	1	1	1	2
Keratoacanthoma	1							1
Squamous cell papilloma			3			1	1	
Basal cell tumour			2					
Sebaceous adenoma			1					
Basal cell carcinoma				1				
Sebaceous cell carcinoma (Zymbals' gland)	1							
Mammary fibro-adenoma	1		1	1			1	
Mammary fibroma		1						
Mammary adenocarcinoma								1

D Rats dying or killed during the study
T Rats killed at termination
M More than one tumour of the same type
* Metastasising

000111

TABLE 15

(Pathology - continued)

Rats with	Control		1000 ppm		3000 ppm		10000 ppm	
	D	T	D	T	D	T	D	T
Miscellaneous								
Fibrosarcoma (skeletal muscle)							1	
Lipoma (intermuscular)		1						
Fibrosarcoma (abdomen)				1				
Myxoma (abdomen)								
Osteosarcoma (abdomen)	1*							
Leiomyosarcoma (feet/limbs)	1							
Squamous cell papilloma (tail)		1				1		1
Fibrosarcoma (stomach)				1				
Number of rats with tumours	29	12	31	9	26	13	24	17
Number of rats examined	36	14	39	11	36	14	31	19

D Rats dying or killed during the study
T Rats killed at termination
M More than one tumour of the same type
* Metastasising

000112

TABLE 16

Neoplastic findings in main group female rats

Rats with	Control		1000 ppm		3000 ppm		10000 ppm	
	D	T	D	T	D	T	D	T
Lymphoreticular								
Reticulum cell sarcoma	1						1	
Thymic lymphosarcoma	1		1					
Myeloid leukaemia	2							
Lungs								
Adenocarcinoma						1		
Liver								
Haemangiosarcoma	1							
Pancreas								
Islet cell adenoma	2	2		1		2		5
Islet cell adenocarcinoma						1		
Uterus								
Endometrial sarcoma	1						1*	
Squamous cell carcinoma	1							
Ovaries								
Tubular adenoma	2[1M]				3		1	1
Thyroids								
Follicular adenocarcinoma	2					1		
Parafollicular cell carcinoma	1	1	2	3		2	2[1*]	1
Adrenals								
Cortical adenoma	2							
Cortical carcinoma					3[2*]			1
Phaeochromocytoma	2							
Pituitary								
Adenoma	25	9	20	11	22[1M]	10	17	17
Carcinoma	1*				1		3*	

D Rats dying or killed during the study
T Rats killed at termination
M More than one tumour of the same type
* Metastasising

000113

TABLE 16

(Pathology - continued)

Rats with	Control		1000 ppm		3000 ppm		10000 ppm	
	D	T	D	T	D	T	D	T
Brain								
Meningioma			1					
Astrocytoma							1	
Skin/subcutaneous								
Fibroma	5			1	2	1	1	2
Lipoma	1		1	1				
Fibrosarcoma	2[1*]				3			
Osteosarcoma			1					
Anaplastic sarcoma			1				1	
Papilloma		1						
Mammary fibro-adenoma	21[10M]	10[5M]	16[11M]	12[9M]	17[6M]	10[5M]	14[7M]	22[14M]
Mammary adenoma			1		2		2	
Mammary adenocarcinoma	5[1M]	2[1M]	5[1M]	1	6	2	6[2M]	3[1M]
Mixed malignant mammary tumour	1							
Mammary fibroma			1					1
Miscellaneous								
Osteosarcoma (skeletal muscle)	1*							
Fibrosarcoma (head)								1
Fibrosarcoma (pinna)					1			
Squamosebaceous cell carcinoma (pinna)		1						
Lipoma (adipose tissue)	1							
Keratoacanthoma (feet/limbs)								1
Number of rats with tumours	36	12	26	17	30	14	25	23
Number of rats examined	36	14	30	20	31	19	26	24

D Rats dying or killed during the study
T Rats killed at termination
M More than one tumour of the same type
* Metastasising

000114

TABLE 17

Factors contributory to death

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:*	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Endometrial stromal cell sarcoma	0	0	0	0	0	0	0	1
Lymphosarcoma	0	0	0	0	0	0	1	0
Retroperitoneal tumour	0	1	0	0	0	0	0	0
Adrenal cortical carcinoma	0	0	0	0	0	3	0	0
Squamous cell carcinoma	0	0	0	0	0	0	0	0
Intestinal adenocarcinoma	0	0	0	0	0	0	1	0
Subcutaneous fibrosarcoma	0	0	1	0	1	1	0	0
Parafollicular cell carcinoma	0	0	0	0	0	0	0	2
Brain tumour	0	0	0	1	0	0	0	1
Pituitary adenoma	9	17	6	16	10	17	10	10
Pituitary carcinoma	0	1	0	0	0	1	0	3
Mammary tumour(s)	0	13	0	13	0	9	0	9
Subcutaneous fibroma	2	1	2	0	1	1	0	0
Subcutaneous mass(es)	1	0	6	1	1	0	2	0
Osteosarcoma	1	1	0	1	0	0	0	0
Anaplastic sarcoma	0	0	0	0	0	0	0	1
Astrocytoma	0	0	1	0	2	0	1	0
Ependymoma	0	0	0	0	1	0	0	0
Trichoepithelioma	0	0	0	0	0	0	0	0
Angioma of brain	1	0	0	0	0	0	0	0
Zymbal's gland carcinoma	0	0	0	0	0	0	0	0
Abdominal mass	0	0	0	0	0	0	0	0
Cutaneous mass	1	0	0	0	0	0	0	0
Renal liposarcoma	0	0	0	0	0	0	0	0
Pancreatic islet cell adenoma	0	0	0	0	0	0	0	0
Malignant liver cell tumour	2	0	0	0	0	0	0	0
Subcutaneous lipoma	0	0	0	0	0	0	0	0
Lymphoid leukaemia	2	0	1	0	1	0	0	0
Myeloid leukaemia	0	2	0	0	0	0	1	0
Sebaceous cell carcinoma	1	0	0	0	0	0	0	0
Fibrosarcoma	0	2	0	0	0	1	1	0
Reticulum cell sarcoma	0	1	0	0	0	0	1	1
Carcinosarcoma of seminal vesicles	0	0	1	0	0	0	0	0
Renal lesion(s)	8	2	13	3	11	1	10	3
Hepatic lesions	0	0	0	0	1	0	0	0
Foot lesions	0	0	0	0	1	0	1	0
Cutaneous ulceration	1	0	0	0	0	0	1	0
Urogenital lesion	0	0	0	0	0	0	1	0
Cerebral infarct	1	0	0	0	0	0	0	0
Gastric ulceration	1	0	0	0	0	0	0	0
Hindlimb ulceration	0	0	1	0	0	0	0	0
Preputial gland abscessation	1	0	0	0	0	0	0	0

* 70 animals on study, made up of 50 main group rats and 20 satellite group rats. Observations from satellite group rats are excluded from this table

000115

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Hindfeet ulceration	0	1	0	0	0	0	0	0
Hind paw(s) ulceration	0	0	0	0	1	0	0	0
Uterine lesion	0	0	0	1	0	0	0	0
Prostatic abscess	0	0	0	0	2	0	0	0
Accident	0	0	0	0	0	0	1	0
Spinal cord lesions	0	0	0	0	0	0	1	0
Bronchopneumonia	0	0	0	1	0	0	0	0
Foreign body bronchopneumonia	0	0	0	0	0	0	0	0
Uterine polyp	0	0	0	0	0	1	0	0
Cardiac thrombosis	1	0	0	0	1	0	0	0
Urinary tract lesions	0	0	1	0	0	0	0	0
Prostatitis	0	0	2	0	0	0	0	0
Severe hydrometra	0	0	0	0	0	1	0	0
Poor condition	2	0	0	0	0	0	0	0
Unknown	7	1	7	3	5	2	4	0

000116

TABLE 18

Histopathology - microscopic findings in rats dying or killed during the treatment period

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:*	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Aorta	36	36	37	30	36	31	31	26
Not Remarkable	36	35	33	28	29	31	27	24
Missing	0	0	0	0	2	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Granulomatous inflammation	0	1	0	0	0	0	0	0
Medial calcification	0	0	4	2	5	0	4	2
Trachea	36	36	37	30	36	31	31	26
Not Remarkable	26	32	35	28	29	24	28	25
Missing	0	0	0	0	1	0	0	0
Autolysis	0	0	0	1	0	0	0	0
Inflammatory infiltration	10	4	2	1	6	7	3	1
Ulceration	0	0	0	0	0	1	0	0
Heart	36	36	37	30	36	31	31	26
Not Remarkable	16	29	11	23	9	24	8	23
Missing	0	0	0	0	1	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Myocardial fibrosis	13	0	19	0	11	0	17	0
Inflammation	0	0	0	0	0	1	0	0
Atrial thrombus	2	0	0	0	1	0	0	0
Mineralisation	0	0	3	1	2	0	3	0
Myocarditis	7	2	6	1	12	5	4	1
Valvular mineralisation	0	0	0	0	0	0	1	0
Myocardial scarring	0	3	0	6	0	1	0	2
Medial calcification aortic arch	0	0	0	0	0	0	0	0
Medial calcification in blood vessels	0	0	0	1	0	0	0	0
Fibrous nodule	0	0	0	0	0	0	0	0
Fibrosis	5	0	0	0	0	0	0	0
Prominent lymphocytic infiltration	0	0	0	0	1	0	0	0
Ventricular hypertrophy	0	0	0	0	4	0	2	0
Endocardiosis	0	0	0	0	0	0	2	0
Ventricles distended with blood	0	0	0	1	0	0	0	0
Necrosis	0	0	0	0	0	1	0	0
Organising thrombus in auricle	0	0	0	0	1	0	0	0
Degeneration of muscle fibres	0	0	0	0	0	0	1	0
Lungs	36	36	37	30	36	31	31	26
Not Remarkable	8	0	16	1	10	0	9	0
Missing	0	0	0	0	1	0	0	0
Autolysis	4	0	1	1	2	0	0	0
Congestion	11	1	4	3	5	1	6	0
Perivascular lymphoid cuffing	2	1	2	0	0	0	2	0
Periarteritis	0	0	0	0	0	0	0	0
Oedema	2	0	1	0	0	0	0	0
Pneumonitis	2	1	2	1	2	1	2	1

* 70 animals on study, made up of 50 main group rats and 20 satellite group rats. Observations from satellite group rats are excluded from this table

000117

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Vascular mineralisation	9	18	7	15	4	9	8	12
Alveolar mineralisation	0	0	1	1	3	0	4	1
Aggregates of brown pigment laden macrophages	0	0	0	0	2	0	0	0
Subpleural aggregations of alveolar macrophages	0	0	1	0	0	0	0	0
Alveolar macrophages	1	1	1	1	0	1	1	2
Hypertrophy of arteriole walls	3	0	1	1	0	0	1	0
Interstitial pneumonitis	3	6	3	2	10	8	3	2
Increased numbers of alveolar macrophages	0	0	2	0	1	0	0	0
Subpleural adenomatosis	0	0	0	0	0	0	0	0
Pleural thickening	1	0	0	0	0	0	0	0
Lymphoid aggregates	14	32	5	25	13	31	4	25
Cholesterol clefts	0	0	0	0	0	0	0	0
Thickened alveolar septa	0	0	0	0	0	0	0	0
Adenomatosis	1	0	0	1	0	0	0	0
Ectopic osseous tissue	0	0	0	0	0	0	0	0
Peribronchial lymphoid aggregates	0	2	0	0	0	0	0	0
Peribronchiolar lymphoid aggregates	0	2	0	0	0	0	0	0
Alveolar epithelialisation	0	1	0	0	0	0	0	0
Cuboidal metaplasia of alveolar epithelium	0	2	1	1	0	0	0	0
Consolidation	0	0	0	1	0	0	0	0
Bronchopneumonia	0	0	0	1	0	0	0	0
Hyperdistension of alveoli	0	0	0	0	0	0	0	1
Giant cell granulomata	0	0	0	0	0	0	0	0
Foamy macrophages	0	0	0	0	0	0	0	0
Pieces of food material within the bronchioli	0	0	0	0	0	0	0	0
Squamous metaplasia	0	0	0	0	0	0	0	0
Epithelial hyperplasia	0	0	0	0	0	0	0	0
Subepithelial acinar formation	0	0	0	0	0	0	0	0
Fibrosis	0	0	0	0	0	0	0	0
Cuboidal metaplaasia of peribronchiolar alveoli	0	0	0	0	0	0	0	0
Inflammatory infiltration	0	1	0	0	0	0	0	0
Thymus	36	36	37	30	36	31	31	26
Not Remarkable	29	26	36	20	27	23	27	22
Missing	1	0	0	1	2	0	0	0
Autolysis	0	0	0	0	2	0	0	0
Congestion	2	0	1	1	1	0	1	0
Epithelial cyst(s)	0	2	0	1	0	0	2	0
Involution	6	8	0	6	5	6	2	4
Epithelial hyperplasia	0	0	0	0	0	1	0	0
Medullary hyperplasia	0	0	0	0	0	1	0	0
Haemorrhage	1	0	0	0	0	0	0	0

000118

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Lymph nodes	36	36	37	30	36	31	31	26
Not Remarkable	25	28	23	23	15	26	20	20
Missing	0	0	0	0	1	0	0	0
Autolysis	1	0	0	0	2	0	0	0
Congestion	7	5	1	1	3	0	0	1
Sinus histiocytosis	2	0	6	0	8	0	6	0
Lymphoid hyperplasia	3	2	2	5	6	4	2	3
Lymphadenitis	0	0	1	0	0	0	0	0
Cystic change	1	0	3	2	3	2	3	2
Sinus dilatation	1	0	1	0	2	0	0	0
Erythrophagocytosis	0	0	1	0	0	0	0	0
Siderocytes	0	0	0	0	2	0	0	0
Pericapsular fibrosis and inflammatory cells	0	0	0	0	0	0	0	0
Abscess	0	0	0	0	0	0	0	0
Granulomata	0	0	0	0	0	1	0	0
Oedema	0	0	0	0	3	0	0	0
Haemorrhage	0	0	0	0	2	0	0	0
Multilocular haemorrhagic cyst	0	0	0	0	0	0	1	0
Histiocytosis	0	0	0	0	1	0	0	0
Angiectasis	1	0	0	0	0	0	0	0
Multilocular haemorrhage	0	0	0	0	1	0	0	0
Liver	36	36	37	30	36	31	31	26
Not Remarkable	1	3	4	2	1	4	2	2
Missing	0	0	0	0	1	0	0	0
Autolysis	10	0	4	0	5	1	6	0
Vacuolation	15	12	12	14	9	13	8	12
Ballooned cells	7	0	2	0	4	0	3	1
Bile duct hyperplasia	7	9	10	9	11	13	13	5
Congestion	3	3	2	1	1	6	2	7
Subcapsular congestion	3	1	2	1	0	1	0	0
Subcapsular sinus dilatation	0	0	0	0	0	0	0	0
Peribiliary fibrosis	0	0	1	0	2	0	2	0
Pericholangitis	2	0	3	0	4	0	1	0
Periarteritis	0	0	1	0	0	0	0	0
Granulomata	0	0	2	0	0	0	0	0
Post mortem congestion	0	0	0	0	0	0	0	0
Basophilic hepatocytes	3	1	3	4	1	1	0	1
Vacuolated hepatocytes	2	1	2	3	0	1	1	1
Foamy vacuolated hepatocytes	0	0	0	0	0	0	1	0
Ground glass hepatocytes	1	0	3	0	2	0	0	0
Eosinophilic hepatocytes	1	0	0	0	0	0	0	0
Enlarged eosinophilic hepatocytes	0	0	0	0	0	0	0	0
Clear cells	0	0	0	0	0	0	0	0
Enlarged vacuolated hepatocytes	0	0	0	0	0	0	0	0
Foamy hepatocytes	0	0	0	0	1	0	0	0

000119

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Enlarged hepatocytes	0	0	0	1	0	1	0	0
Hepatocyte rarefaction	0	0	0	0	2	0	0	0
Necrosis	3	1	1	0	2	0	0	1
Infarction	0	0	0	0	1	1	0	0
Sinus dilatation	2	0	0	0	1	0	0	0
Fine vacuolation	0	0	2	0	0	0	3	0
Hepatitis	0	1	1	0	0	0	0	0
Inflammatory cells	0	18	0	14	0	13	1	14
Extramedullary haemopoiesis	0	0	0	1	3	0	0	0
Dilated bile ducts	0	0	0	0	0	0	0	0
Lymphocytic infiltration in portal tracts	11	7	1	1	11	6	3	1
Blood filled cyst under capsule	1	0	0	0	0	0	0	0
Margination of cytoplasm	3	1	1	1	0	3	0	0
Distorted	2	0	0	0	0	0	0	0
Chronic inflammatory infiltration	1	0	0	0	0	0	0	0
Degeneration under capsule	1	0	0	0	0	0	0	0
Degeneration	0	0	0	0	1	0	0	0
Chronic interstitial hepatitis	0	0	0	1	0	0	0	0
Lymphocytic infiltration in sinusoids	0	0	0	0	0	0	0	0
Leucocytosis	0	0	0	0	1	0	0	0
Centrilobular necrosis	1	0	0	0	0	0	0	0
Chronic pericholangitis	1	0	0	0	0	0	0	0
Congestion under capsule	0	0	0	0	1	0	0	0
Ground glass degeneration	0	0	0	0	1	0	0	0
Coagulative necrosis under capsule	0	0	0	0	1	0	0	0
Liver ORO	36	36	37	30	34	31	29	26
Not Remarkable	19	20	23	13	22	15	19	10
Missing.	0	0	0	0	0	0	0	0
Autolysis.	0	0	0	0	0	0	0	0
Lipid deposition	17	16	14	17	12	16	10	17
Spleen	36	36	37	30	36	31	31	26
Not Remarkable	27	8	23	4	22	10	19	4
Missing.	0	0	0	0	0	0	0	0
Autolysis.	3	0	0	0	1	0	0	0
Congestion	2	0	2	0	0	0	2	0
Haemosiderosis	2	20	7	16	8	15	4	16
Lymphoid hyperplasia	1	0	0	0	0	0	1	0
Increased cellularity of white pulp	1	0	0	0	0	0	0	0
Reduced extramedullary haemopoiesis	0	0	1	0	0	0	0	0
Increased extramedullary haemopoiesis	0	6	3	7	6	6	2	5
Infarct	0	1	0	0	0	0	0	0
Pericapsular cyst	0	0	0	0	0	0	0	1
Hyperplasia	0	0	0	2	0	0	0	0
Hyperplasia of reticulo endothelial cells	0	0	0	1	0	0	0	0
Atrophy	0	0	0	0	1	0	1	0

000120

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Pancreas	36	36	36	30	36	31	31	26
Not Remarkable	15	30	24	19	17	26	17	22
Missing	0	0	0	0	1	1	0	0
Autolysis	2	0	0	1	1	0	0	0
Aneurysmal dilatation	1	0	0	0	3	0	2	0
Thrombosis	1	0	0	0	0	0	0	0
Exocrine atrophy	2	2	2	5	2	1	3	3
Exocrine hyperplasia	0	0	1	0	1	0	0	0
Periarteritis	0	0	0	0	4	0	1	0
Dilatation	0	0	0	0	1	0	0	0
Vascular mineralisation	0	0	0	0	0	0	2	0
Ductular dilatation	0	0	0	0	1	0	0	0
Enlarged islet(s)	0	0	1	0	1	0	0	0
Pancreatitis	0	0	0	0	0	0	0	1
Fibrosis	0	0	0	2	1	0	0	0
Adipose infiltration	1	0	0	0	0	0	0	0
Pancreatic duct hyperplasia	0	0	0	0	1	0	0	0
Congestion	0	1	0	0	0	1	0	0
Interlobular oedema	0	0	0	1	0	0	0	0
Inflammation	6	0	1	1	2	0	2	0
Granulomata	0	0	0	1	0	0	0	0
Polyarteritis	0	1	0	1	0	0	0	0
Fibrinoid inflammation	0	1	0	0	0	0	0	0
Fibrosis of islets	1	0	0	0	0	0	0	0
Lymphocytic infiltration	1	0	3	0	1	0	0	0
Perivascular inflammatory infiltration	0	0	0	0	1	0	0	0
Prominent peri islet/periductular siderocytes	0	0	0	0	1	0	1	0
Islet hyperplasia	0	0	0	0	0	0	1	0
Acute inflammatory infiltration	0	0	0	0	1	0	0	0
Abscess formation	0	0	0	0	1	0	0	0
Chronic pancreatitis	1	1	0	1	1	2	0	0
Hypertrophy of artery wall	0	0	0	0	1	0	0	0
Kidneys	36	36	37	30	36	31	31	26
Not Remarkable	2	2	0	6	6	3	1	2
Missing	0	0	0	0	1	0	0	0
Autolysis	7	0	2	1	3	0	1	0
Progressive glomerulonephrosis	19	21	28	16	14	19	22	19
Cortical cyst(s)	2	0	1	0	0	1	3	0
Vascular mineralisation	0	0	0	0	0	0	0	0
Dilatation of renal pelvis	1	0	1	0	0	0	0	0
Tubular basophilia and dilatation	1	1	0	0	0	0	0	0
Mineralisation	1	13	1	8	1	5	0	4
Papillary necrosis	0	0	1	0	0	0	0	0
Pyelitis	0	0	1	0	0	0	1	0
Urothelial hyperplasia	2	1	1	0	0	0	2	0

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Acute pyelitis	0	0	1	0	0	0	0	0
Pelvic dilatation	0	0	0	0	0	0	1	0
Tubular basophilia	0	0	0	0	1	0	0	1
Mononuclear cells	0	0	0	0	1	0	0	0
Cortical microabscess(es)	0	0	0	0	0	0	1	0
Cortical granuloma	0	0	0	0	0	0	0	0
Dilated cortical tubules	3	1	0	0	1	0	0	0
Nephritis	0	0	0	0	0	0	0	0
Capsular scarring	0	0	0	0	0	0	0	0
Haemorrhagic cortical cyst	0	0	1	0	0	0	0	0
Capsular necrosis/fibrosis/mineralisation	0	0	1	0	0	0	0	0
Hydronephrosis	3	0	0	2	0	0	0	1
Polyarteritis	0	0	0	0	0	0	0	0
Ectopic adipose tissue	0	0	0	1	0	0	0	0
Inflammatory cells	0	0	0	0	0	0	0	0
Medullary inflammation	0	0	0	0	0	0	0	0
Cortical atrophy	0	0	0	0	0	0	0	0
Cystic pelvis	0	0	0	0	0	0	0	0
Cortical mononuclear cells	0	0	0	0	0	0	0	1
Depressed subcapsular area	0	0	0	0	0	0	0	0
Tubular cast	10	6	3	2	9	7	4	2
Tubular hyperplasia	9	3	5	1	7	7	4	2
Lymphocytic infiltration	10	4	5	1	11	6	4	2
Fibrosis	3	0	1	0	9	2	4	0
Pelvic nephrocalcinosis	1	0	0	0	0	2	0	1
Enlarged	0	0	0	0	1	0	0	0
Golden pigment in cortical tubules	0	0	0	0	0	0	1	0
Cortical vacuolation	0	1	0	0	0	0	1	0
Interstitial inflammatory cells	0	0	0	0	1	0	0	0
Cortical tubular basophilia and dilatation	0	0	1	0	0	0	0	0
Kidney ORO	36	36	37	30	32	31	29	26
Not Remarkable	35	35	36	29	31	31	28	26
Missing.	0	0	0	0	0	0	0	0
Autolysis.	0	0	0	0	0	0	0	0
Cortical tubular fat	1	1	1	1	0	0	1	0
Deposition of fat in glomeruli	0	0	0	0	1	0	0	0
Urinary bladder	36	36	37	30	36	31	31	26
Not Remarkable	33	35	31	28	34	27	27	24
Missing.	0	0	0	0	1	0	0	1
Autolysis.	0	0	0	2	0	1	0	0
Epithelial hyperplasia	2	0	3	0	0	1	1	1
Papillomatous hyperplasia of epithelium	0	0	0	0	0	0	0	0
Cystitis	0	0	4	0	0	0	2	0
Subepithelial inflammation	0	0	0	0	0	0	1	0
Dilated with urine	0	0	0	0	0	0	1	0

000122

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Subepithelial lymphoid cells	0	0	1	0	0	0	0	0
Dilated	0	0	0	0	0	1	0	0
Serosal inflammation	0	0	0	0	0	0	0	0
Mononuclear cells	0	1	0	0	0	0	0	0
Inflammatory infiltration	1	0	0	0	1	1	0	0
Uterus	0	36	0	30	0	31	0	26
Not Remarkable	0	26	0	22	0	21	0	19
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Dilated lumen	0	2	0	6	0	5	0	4
Cystic dilatation of uterine glands	0	3	0	3	0	6	0	3
Endometrial polyp	0	3	0	2	0	1	0	2
Cystic endometrial fibrotic polyp	0	0	0	0	0	0	0	0
Angiectasis	0	0	0	0	0	0	0	0
Congestion	0	0	0	0	0	0	0	0
Serosal cyst	0	0	0	0	0	0	0	0
Squamous metaplasia of epithelium	0	0	0	0	0	0	0	1
Cystic dilatation of sinusoids	0	0	0	1	0	0	0	0
Medial calcification in blood vessels	0	0	0	1	0	0	0	0
Endometritis	0	0	0	1	0	1	0	0
Hydrometra	0	2	0	0	0	3	0	0
Glandular squamous metaplasia	0	0	0	1	0	0	0	0
Adenomatous hyperplasia	0	0	0	1	0	0	0	0
Cervix	0	36	0	30	0	31	0	26
Not Remarkable	0	29	0	29	0	26	0	21
Missing	0	1	0	0	0	0	0	0
Autolysis	0	0	0	1	0	0	0	0
Hypertrophic fibrosis	0	0	0	0	0	0	0	1
Polyarteritis	0	0	0	0	0	0	0	0
Fibrosis and inflammatory cells	0	0	0	0	0	1	0	0
Cervicitis	0	3	0	0	0	4	0	4
Epithelial hyperplasia	0	1	0	0	0	0	0	0
Acute subepithelial inflammation	0	1	0	0	0	0	0	0
Inflammation	0	2	0	0	0	0	0	0
Ovaries	0	36	0	30	0	31	0	26
Not Remarkable	0	22	0	20	0	18	0	18
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	1	0	0
Tubular hyperplasia	0	6	0	3	0	2	0	3
Follicular cyst(s)	0	6	0	6	0	6	0	4
Mineralisation	0	0	0	0	0	1	0	0
No corpora lutea	0	1	0	1	0	0	0	0
Paraovarian cyst(s)	0	2	0	0	0	1	0	0
Inflammatory cells	0	0	0	0	0	0	0	0

000123

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Enlarged	0	1	0	0	0	0	0	0
Developing follicles	0	0	0	1	0	0	0	0
Cyst	0	0	0	0	0	1	0	0

000124

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Prostate	36	0	37	0	36	0	31	0
Not Remarkable	22	0	24	0	24	0	23	0
Missing	0	0	0	0	1	0	0	0
Autolysis	3	0	0	0	0	0	0	0
Prostatitis	4	0	9	0	2	0	4	0
Acinar dilatation	1	0	0	0	0	0	0	0
Vascular mineralisation	0	0	0	0	0	0	1	0
Inflammatory infiltration	4	0	0	0	6	0	3	0
Acini contain pus cells	1	0	0	0	0	0	0	0
Hyperplasia	0	0	1	0	0	0	0	0
Acute inflammatory infiltration	0	0	1	0	1	0	0	0
Abscess formation	1	0	0	0	3	0	0	0
Acute,chronic inflammatory infiltration	0	0	0	0	2	0	0	0
Pus formation	0	0	0	0	0	0	2	0
Lymphocytic infiltration	0	0	1	0	0	0	0	0
Seminal vesicles	36	0	37	0	36	0	31	0
Not Remarkable	22	0	22	0	20	0	24	0
Missing	0	0	1	0	1	0	0	0
Autolysis	3	0	0	0	0	0	1	0
Reduced colloid	1	0	1	0	0	0	1	0
Vesiculitis	0	0	2	0	0	0	0	0
Vascular mineralisation	0	0	0	0	0	0	1	0
Dilated	10	0	4	0	10	0	3	0
Distended with secretion	1	0	1	0	1	0	0	0
Absence of secretion	1	0	5	0	4	0	1	0
Testes	36	0	37	0	36	0	31	0
Not Remarkable	24	0	18	0	15	0	17	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	1	0	1	0	0	0
Periarteritis	5	0	10	0	6	0	5	0
Atrophy	3	0	4	0	9	0	6	0
Subcapsular inflammation	0	0	1	0	0	0	0	0
Interstitial cell hyperplasia	0	0	1	0	0	0	0	0
Reduced spermiogenesis	2	0	2	0	2	0	0	0
Vascular mineralisation	1	0	1	0	1	0	0	0
Mineral deposition	0	0	2	0	2	0	1	0
Vacuolation of epithelium (epididymal)	0	0	1	0	4	0	0	0
Congestion	1	0	0	0	0	0	0	0
Polyarteritis	0	0	0	0	0	0	0	0
Leydig cell hyperplasia	2	0	0	0	0	0	0	0
Lymphoid aggregates	1	0	0	0	0	0	0	0
Arteriolitis	0	0	0	0	1	0	2	0
Arteriolits (epididymis)	0	0	0	0	1	0	0	0
Empty (epididymis)	0	0	0	0	0	0	1	0

000125

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Interstitial haemorrhage	0	0	0	0	0	0	1	0
Haemorrhage (epididymis)	0	0	0	0	0	0	1	0
Inflammation (epididymis)	0	0	0	0	2	0	1	0
Prominent acute arteriolitis	0	0	0	0	1	0	0	0
Chronic inflammatory infiltration (epididymis)	0	0	0	0	0	0	1	0
Thyroids	36	36	37	30	36	31	31	26
Not Remarkable	28	30	30	26	24	28	23	24
Missing	1	1	0	0	1	0	0	0
Autolysis	1	0	1	0	2	0	1	0
Follicular hyperplasia	1	1	0	0	0	0	0	0
Parafollicular cell hyperplasia	2	0	1	0	5	0	2	0
Cystic follicle(s)	0	0	2	0	0	0	0	0
Follicular cyst(s)	0	0	1	0	0	0	0	0
Developemental cyst	0	0	0	0	0	0	1	0
Follicular distension	0	0	1	0	1	0	0	0
Ectopic thymic tissue	0	0	0	0	0	0	0	0
Mineralisation	0	1	1	0	0	0	1	0
Fibrosis	0	0	0	0	0	0	0	0
Cystic dilatation of follicles	0	0	0	0	0	2	0	0
Branchial cleft remnant	1	0	0	1	1	0	0	0
Prominent branchial cleft remnant	0	0	0	0	0	1	1	0
Basophilia	0	1	0	0	0	0	0	0
Prominent ultimobranchial nests	0	0	0	1	0	0	1	0
Prominent microfollicles	1	0	0	0	1	0	0	0
Parathyroids	36	36	37	30	36	31	31	26
Not Remarkable	26	28	30	18	18	28	20	16
Missing	5	6	1	8	3	2	3	7
Autolysis	0	0	0	0	0	0	0	0
Hyperplasia	5	2	6	4	15	1	8	3
Oxyphil cell hyperplasia	0	0	0	0	0	0	0	0
Adrenals	36	36	37	30	36	31	31	26
Not Remarkable	16	6	14	12	17	4	12	5
Missing	0	0	0	0	0	0	0	0
Autolysis	1	0	1	0	1	0	0	0
Cortical cyst	1	0	0	0	0	0	0	0
Congestion	1	6	1	1	1	3	0	6
Medullary hyperplasia	3	2	6	0	4	1	4	0
Cortical ballooning	2	0	0	0	0	0	0	0
Cortical hyperplasia	0	0	1	0	0	0	0	0
Cortical vacuolation	7	3	10	1	8	1	12	2
Cortical cell enlargement	0	0	1	0	0	0	0	0
Cortical enlarged eosinophilic cells	0	0	1	0	0	0	0	0
Cortical necrosis	0	0	1	0	0	0	0	0
Cortical haemorrhage	1	1	1	1	1	2	0	0

000126

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Ectopic bone tissue	1	0	0	0	0	0	0	0
Subcapsular enlarged foamy cells	0	0	0	0	1	0	0	0
Fibrosis	0	0	0	0	0	0	0	0
Cortical enlarged vacuolated cells	0	0	0	0	0	0	0	0
Necrosis	0	0	1	0	1	0	0	0
Cortical atrophy	0	0	0	0	0	1	0	0
Ceroid cells	0	0	0	0	0	0	0	0
Cortical enlarged zona fasiculata cells	0	0	0	0	0	0	0	1
Calcification	0	0	1	0	0	0	0	0
Cortical haemorrhagic necrosis	0	0	0	0	0	0	0	0
Cortical hypertrophy	0	0	0	0	0	0	0	0
Cystic degeneration	7	18	2	16	5	19	5	13
Cyst formation	0	0	0	0	0	1	0	0
Ballooning of cells	0	0	0	0	0	0	0	0
Salivary gland	36	36	37	30	36	31	31	26
Not Remarkable	36	36	37	28	33	31	29	26
Missing	0	0	0	1	1	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Inflammatory infiltration	0	0	0	1	2	0	2	0
Oesophagus	36	36	37	30	36	31	31	26
Not Remarkable	35	36	37	29	30	31	31	25
Missing	1	0	0	0	4	0	0	1
Autolysis	0	0	0	1	2	0	0	0
Dilated	0	0	0	0	0	0	0	0
Stomach	36	36	37	30	36	31	31	26
Not Remarkable	23	28	23	23	17	21	19	19
Missing	0	0	0	0	1	0	0	0
Autolysis	3	0	2	3	2	0	2	0
Ulceration (ng)	3	0	4	1	3	0	6	0
Oedema (ng)	3	2	3	1	2	0	3	0
Mineral deposition (g)	1	1	5	1	6	0	4	2
Hyperplasia of limiting ridge	0	0	0	0	0	0	0	0
Epithelial hyperplasia (ng)	5	1	4	0	5	0	2	0
Serosal mineralisation	0	0	0	0	0	0	1	0
Mineralisation of the muscularis	0	0	0	0	0	0	1	0
Serosal fibrosis	1	0	0	0	0	0	0	0
Granulation tissue	1	0	0	0	0	0	0	0
Epithelial cyst	1	0	0	0	0	0	0	0
Gastritis (g)	0	0	0	0	1	0	0	0
Subepithelial oedema (ng)	1	0	0	0	0	0	0	0
Inflammation (ng)	0	2	0	1	1	0	0	0
Gastritis	0	0	0	0	0	0	1	0
Perforating ulcer (ng)	1	0	0	0	0	0	0	1
Cyst	0	0	1	0	0	0	0	0

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Ectopic non glandular epithelium (g)	0	1	0	0	0	0	0	0
Thickening and hyperkeratosis (ng)	0	0	0	0	0	0	0	1
Submucosal fibrosis (ng)	0	1	0	0	0	1	0	2
Submucosal inflammation (ng)	0	1	0	0	0	0	0	2
Papillomatous hyperplasia	0	0	0	0	0	0	0	0
Ulceration (g)	0	0	1	0	1	1	0	0
Polyarteritis (g)	0	0	0	0	0	0	0	0
Serosal inflammation	0	0	0	0	0	0	0	0
Gastric hyperplasia (g)	0	2	0	1	0	3	0	2
Dilated lumen	0	0	0	0	0	0	0	0
Hyperkeratosis (ng)	1	0	0	0	2	0	0	1
Fibrosis (ng)	0	0	0	0	0	0	0	0
Submucosal oedema (g)	0	0	0	0	0	0	0	0
Distension of gastric glands (g)	2	2	1	1	5	4	0	1
Lymphocytes in mucosa (g)	0	0	0	0	1	0	0	0
Acute inflammation (ng)	0	0	0	0	0	0	0	0
Inflammation on serosal surface (g)	0	0	0	0	0	0	0	0
Inflammation (g)	0	0	0	1	0	0	0	0
Submucosal inflammation (g)	0	0	0	0	0	1	0	0
Subepithelial inflammation (ng)	0	0	0	0	1	0	0	0
Arteriolitis (g)	0	0	0	0	1	0	0	0
Cyst (g)	0	0	0	0	0	0	0	0
Acanthosis (ng)	1	0	0	0	0	0	0	0
Duodenum	36	36	37	30	36	31	31	26
Not Remarkable	31	35	36	27	27	29	27	26
Missing	0	1	0	0	1	0	0	0
Autolysis	5	0	1	3	6	1	4	0
Periarteritis	0	0	0	0	1	0	0	0
Aneursymal dilatation	0	0	0	0	0	0	0	0
Fibrosis	0	0	0	0	0	0	0	0
Ectopic pancreatic tissue	0	0	0	0	0	0	0	0
Congestion	0	0	0	0	0	0	0	0
Hyperplasia	0	0	0	0	0	1	0	0
Arteriolitis	0	0	0	0	1	0	0	0
Ileum	36	36	37	30	36	31	31	26
Not Remarkable	30	36	36	27	27	29	26	26
Missing	0	0	0	0	1	0	0	0
Autolysis	5	0	1	3	6	2	4	0
Lymphoid hyperplasia	0	0	0	0	0	0	1	0
Acute lymphadenitis of Peyer's patches	0	0	0	0	0	0	0	0
Dilated	0	0	0	0	0	0	0	0
Prominent germinal centres in GALT	0	0	0	0	0	0	0	0
Fibrosis and inflammation	0	0	0	0	0	0	0	0
Arteriolitis	0	0	0	0	1	0	0	0
Inflammatory infiltration	1	0	0	0	0	0	0	0

000128

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Acute inflammatory infiltration	0	0	0	0	0	0	1	0
Periarteritis	0	0	0	0	1	0	0	0
Jejunum	36	36	37	30	36	31	31	26
Not Remarkable	30	35	36	25	26	30	27	26
Missing	0	0	0	0	2	0	0	0
Autolysis	5	0	1	3	5	1	4	0
Dilated	0	0	0	0	0	0	0	0
Polyarteritis	0	1	0	0	0	0	0	0
Fibrosis	0	0	0	1	0	0	0	0
Epithelial hyperplasia	0	0	0	1	0	0	0	0
Granulomata	0	0	0	1	0	0	0	0
Acute inflammatory infiltration	0	0	0	0	1	0	0	0
Arteriolitis	0	0	0	0	1	0	0	0
Inflammatory infiltration	1	0	0	0	0	0	0	0
Periarteritis	0	0	0	0	1	0	0	0
Caecum	36	36	37	30	36	31	31	26
Not Remarkable	31	31	35	18	24	24	24	23
Missing	0	0	0	0	1	0	0	0
Autolysis	4	0	1	3	7	2	4	0
Submucosal oedema	1	0	0	0	1	0	2	0
Dilatation	0	0	1	0	0	0	0	0
Nematode(s)	0	0	0	2	0	0	1	0
Subepithelial oedema	0	0	0	0	0	0	0	0
Mucosal inflammation	0	0	0	0	0	0	0	0
Inflammation	0	0	0	0	0	1	0	0
Submucosal inflammation	0	0	0	0	0	0	0	0
Polyarteritis	0	1	0	1	0	0	0	0
Mineralisation	0	2	0	5	0	4	0	3
Submucosal granuloma	0	1	0	0	0	0	0	0
Prominent lymph follicles	0	0	0	0	0	0	0	0
Ulceration	0	0	0	0	2	1	1	0
Fibrosis	0	0	0	1	0	1	0	0
Granulomata	0	0	0	1	0	0	0	0
Oedema in lamina propria	0	1	0	0	0	0	0	0
Arteriolitis	0	0	0	0	1	0	0	0
Periarteritis	0	0	0	0	1	0	0	0
Colon	36	36	37	30	36	31	31	26
Not Remarkable	31	34	34	26	26	30	28	25
Missing	0	0	0	0	1	0	0	0
Autolysis	2	0	1	3	4	1	3	0
Nematode(s)	3	0	2	0	3	0	0	0
Dilated	0	0	0	0	0	0	0	0
Serosal inflammation	0	0	0	0	0	0	0	0
Polyarteritis	0	1	0	1	0	0	0	0

000129

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Inflammation	0	1	0	0	0	0	0	0
Mineralisation	0	0	0	0	0	0	0	1
Arteriolitis	0	0	0	0	1	0	0	0
Periarteritis	0	0	0	0	1	0	0	0
Skin	36	36	36	30	36	31	31	26
Not Remarkable	33	32	26	29	26	27	25	23
Missing	0	1	0	0	3	0	0	1
Autolysis	0	0	0	0	0	0	0	0
Cutaneous ulceration	1	3	1	1	0	3	2	0
Epidermoid cyst(s)	0	0	1	0	2	0	1	0
Epidermal hyperplasia	0	0	2	0	0	0	0	0
Abscess	0	0	1	0	0	0	0	0
Subcapsular congestion	0	0	0	0	1	0	0	0
Acanthosis	0	0	0	0	0	0	1	0
Congestion	0	0	0	0	0	0	1	0
Preputial abscess	0	0	0	0	0	0	1	0
Increased subcutaneous adipose tissue	0	0	0	0	0	0	1	0
Increased dermal collagen	0	0	1	0	1	0	0	0
Subcutaneous fibrosis	0	0	0	0	0	0	0	0
Granulation tissue	0	0	0	0	0	0	0	0
Subcutaneous inflammation	0	0	0	0	0	0	0	0
Dermal abscess	0	0	0	0	0	0	0	0
Dermal abscess (eyelid)	0	0	0	0	0	0	0	0
Epidermal hyperplasia (eyelid)	0	0	0	0	0	0	0	0
Dermal fibrosis	0	0	0	0	0	1	0	0
Epidermal hyperkeratosis	0	0	0	0	0	0	0	0
Keratin granuloma	0	0	1	0	0	0	0	0
Epidermal thickening	0	0	0	0	0	2	0	0
Dermal depression	0	0	1	0	0	0	0	0
Oedema	0	0	0	0	0	0	0	0
Fibrosis	0	1	0	0	1	0	0	1
Scab formation	0	1	0	0	0	0	0	0
Papillomatous hyperplasia	0	0	0	0	0	0	0	0
Empty hair follicles	1	0	0	0	1	0	0	0
Inflammatory infiltration	0	0	0	0	1	1	0	0
Epithelial hyperplasia	0	0	0	0	1	1	0	0
Fibrosis,round large hair follicles on eyelid	0	0	0	0	1	0	0	0
Crusty	0	0	0	0	0	0	0	0
Hyperkeratosis	0	0	1	0	0	0	0	0
Skeletal muscle	36	36	37	30	36	31	31	26
Not Remarkable	33	34	37	30	33	30	30	26
Missing	0	0	0	0	1	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Myositis /fibrosis	0	0	0	0	2	1	0	0
Adipose infiltration	1	0	0	0	0	0	0	0

000130

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Atrophy	0	0	0	0	0	0	0	0
Mononuclear cells	0	1	0	0	0	0	0	0
Chronic inflammatory infiltration	1	0	0	0	0	0	0	0
Degeneration	1	0	0	0	0	0	0	0
Mammary gland	36	36	37	30	36	31	31	26
Not Remarkable	16	9	13	10	13	5	11	9
Missing	14	1	20	0	12	0	11	1
Autolysis	0	0	0	0	0	0	0	0
Hyperplasia	6	26	4	15	9	22	9	16
Cystic structure	0	0	0	0	1	0	0	0
Galactocele (s)	0	3	0	0	1	3	2	1
Distended acini	0	0	0	0	1	0	0	0
Ductular dilatation	0	0	1	1	0	0	0	0
Fibrosis	0	0	0	1	0	0	0	1
Secretory activity	1	3	0	0	2	7	2	0
Acini/ducts distended with secretion	0	0	0	2	0	0	0	0
Eyes	36	36	37	30	36	31	30	26
Not Remarkable	30	35	33	28	32	30	27	26
Missing	1	0	0	1	1	0	0	0
Autolysis	4	0	1	1	2	1	2	0
Lenticular fibre degeneration	1	0	3	0	0	0	0	0
Retinal detachment	0	0	1	0	0	0	0	0
Retinal dysplasia	0	0	1	0	0	0	0	0
Panophthalmitis	0	0	0	0	1	0	0	0
Corneal ulceration	0	0	0	0	0	0	0	0
Congestion	0	0	0	0	0	0	0	0

000131

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Brain	36	36	37	30	36	31	31	26
Not Remarkable	24	16	32	19	22	13	21	13
Missing	0	0	0	0	1	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Compression pit	7	19	3	11	9	18	8	13
Gliosis	0	0	0	0	0	0	1	0
Organised blood clot (pineal body)	0	0	0	0	0	0	0	0
Infarction	1	0	0	0	0	0	0	0
Meningeal ossification	0	0	1	0	0	0	0	0
Encephalomalacia	0	0	0	0	0	0	0	0
Haemorrhage	0	1	0	0	0	0	0	0
Chronic inflammatory infiltration (meninges)	0	0	0	0	0	0	1	0
Chronic inflammatory infiltration in choroid plexus	0	0	0	0	0	0	1	0
Congestion in meninges	1	0	0	0	1	0	0	0
Inflammatory infiltration in meninges	0	0	0	0	1	0	0	0
Dilatation in meninges	1	0	0	0	0	0	0	0
Thrombosis of the meninges	1	0	0	0	0	0	0	0
Subventricular gliosis	0	0	0	0	0	0	0	0
Pituitary	36	36	37	30	36	31	31	26
Not Remarkable	15	5	18	5	15	5	11	2
Missing	2	0	0	0	3	0	0	0
Autolysis	2	0	0	0	0	0	0	0
Hyperplasia	2	4	3	5	0	2	3	4
Cyst	1	0	0	0	1	0	1	0
Congested sinusoids	0	0	0	0	0	0	0	0
Eosinophilic vacuolation	0	1	0	0	0	0	0	0
Congestion	0	0	0	0	0	1	0	0
Haemorrhage	0	0	0	0	0	0	0	0
Sciatic nerve	36	36	37	30	36	31	31	26
Not Remarkable	33	30	37	24	35	25	30	22
Missing	1	0	0	0	1	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Swollen / degenerate nerve fibres	1	5	0	6	0	6	1	4
Chronic inflammatory infiltration	2	0	0	0	0	0	0	0
Spinal cord	36	36	37	30	36	31	31	26
Not Remarkable	35	35	36	29	34	31	29	26
Missing	1	0	0	0	1	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Gliosis	0	0	0	0	0	0	1	0
Meningeal haemorrhage	0	0	0	0	0	0	0	0
Swollen / degenerate nerve fibres	0	0	0	1	1	0	1	0
Haemorrhage	0	1	0	0	0	0	0	0
Prominent mucocytes	0	0	0	0	0	0	1	0

000132

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Perivascular lymphoid cuffing	0	0	0	0	0	0	1	0
Bone marrow	36	36	37	30	36	31	31	26
Not Remarkable	35	33	35	29	34	31	29	26
Missing	0	0	0	0	1	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Osteodystrophia fibrosa	0	0	1	0	0	0	0	0
Hyperplastic	0	1	0	1	1	0	0	0
Bone	36	36	37	30	36	31	31	26
Not Remarkable	35	35	35	29	32	31	29	26
Missing	1	1	0	1	2	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Dystrophic osteofibrosis	0	0	2	0	2	0	1	0
Exostosis (xiphoid bone)	0	0	0	0	0	0	0	0
Harderian gland	36	36	37	29	36	31	31	26
Not Remarkable	21	25	31	20	20	20	25	21
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Atrophy	2	0	1	0	1	0	1	0
Inflammation	7	5	4	3	11	8	4	2
Perivascular lymphoid infiltration	0	0	0	0	0	0	0	0
Mononuclear cells	0	3	0	5	0	3	0	3
Porphyrin deposition	13	6	4	3	13	7	4	2
Lymphocytic infiltration	2	0	1	0	0	0	0	0
Hyperplasia	0	0	2	1	0	0	0	0
Chronic inflammatory infiltration	0	0	0	1	2	0	1	0
Squamous metaplasia	0	0	0	0	1	0	0	0
Lachrymal glands	10	0	8	0	9	0	7	0
Not Remarkable	2	0	1	0	1	0	1	0
Missing	0	0	1	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Harderianisation	5	0	5	0	5	0	4	0
Inflammation	1	0	0	0	0	0	0	0
Cytomegalic virus infections	2	0	1	0	3	0	2	0
Chronic inflammatory infiltration	0	0	0	0	0	0	0	0
Preputial glands	6	0	7	0	1	0	6	1
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Ductular dilatation	3	0	2	0	0	0	3	0
Inflammation	3	0	0	0	0	0	0	0
Abscessation	2	0	5	0	1	0	2	1
Cystic duct	0	0	0	0	0	0	0	0

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	25
Keratin filled cyst	0	0	0	0	0	0	2	0
Squamous metaplasia	0	0	0	0	0	0	1	0
Feet/limb	5	3	5	1	6	2	5	1
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	2	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Plantar ulceration	1	1	3	1	3	0	1	0
Cutaneous ulceration	0	0	0	0	0	1	1	0
Epidermal hyperplasia	1	0	1	0	1	0	1	0
Subcutaneous fibrosis	0	0	1	0	0	0	0	0
Inflammation	0	0	1	0	0	0	0	0
Synovitis (kneejoints)	0	0	0	0	0	0	0	0
Periostitis (kneejoints)	0	0	0	0	0	0	0	0
Hyperkeratosis	2	0	0	0	0	0	0	0
Subepidermal inflammation	0	0	0	0	1	0	0	0
Granulation tissue	0	0	0	0	0	0	0	0
Dermal inflammation	0	1	0	0	0	1	1	0
Subcutaneous haemorrhage	0	0	0	0	0	0	1	0
Subcutaneous inflammation	0	0	0	0	0	0	1	0
Myositis/arthritis	0	0	0	0	0	0	0	0
Subcutaneous oedema (forepaw digit)	0	0	0	0	0	0	0	0
Cutaneous inflammation	0	0	0	0	0	0	0	0
Osteoarteritis	0	0	0	0	0	0	0	0
Dermal fibrosis	0	1	0	0	0	1	0	0
Acanthosis	0	0	0	0	0	0	0	0
Planter epithelial hyperplasia	1	0	0	0	0	0	0	0
Muscular degeneration and fibrosis	0	1	0	0	0	0	0	0
Epidermal thickening	0	0	0	0	0	1	0	0
Epithelial hyperplasia	1	0	0	0	0	0	0	0
Epidermal ulceration	0	0	1	0	0	0	0	0
Tail	7	1	17	1	10	3	7	2
Not Remarkable	1	0	0	0	0	0	1	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Epidermoid cyst(s)	0	0	2	1	0	1	1	1
Scab(s)	1	0	2	1	2	1	1	1
Hyperkeratosis	1	0	1	0	1	0	1	0
Epidermal hyperplasia	1	0	0	0	1	0	0	0
Ulceration	0	0	0	0	0	0	0	0
Granulation tissue	0	0	0	0	0	0	0	0
Dermal abscess	1	0	14	0	5	1	3	1
Healed ulceration	0	0	0	0	0	0	0	0
Dermal inflammation	1	0	0	0	0	0	0	0
Folliculitis	1	0	0	0	0	0	0	0
Epidermal hyperkeratosis	0	0	0	0	0	0	0	0

000134

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Epidermal depression	0	0	0	0	0	0	0	0
Acanthosis	0	0	0	0	1	0	0	0
Thickening and keratinisation of epidermis	0	0	0	0	0	0	0	0
Necrosis	1	0	0	0	0	0	0	0
Inflammation	1	0	0	0	0	0	0	0
Dermal polyp	0	0	0	0	0	0	0	0
Epidermal thickening	0	1	0	0	0	0	0	0
Dermal fibrosis	0	0	0	0	0	0	0	0
Keratin granuloma	0	0	0	0	0	0	0	0
Dermal haemorrhage	0	0	0	0	0	0	0	0
Epithelial hyperplasia	2	0	1	0	0	0	0	0
Acute dermal inflammation	1	0	0	0	0	0	0	0
Gangrene	0	0	0	0	0	1	0	0
Enlargement	0	0	0	0	0	1	0	0
Epidermal cyst(s)	0	0	0	0	0	0	0	0
Chronic dermal inflammatory infiltration	1	0	0	0	0	0	0	0
Dermal depression	0	0	0	0	0	0	0	0
Ureter	0	0	1	1	0	0	0	0
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Thickening of the wall	0	0	1	0	0	0	0	0
Epithelial hyperplasia	0	0	0	0	0	0	0	0
Inflammatory cells	0	0	0	0	0	0	0	0
Dilated	0	0	0	1	0	0	0	0
Adipose tissue	2	4	3	3	3	1	1	0
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Haemorrhage	0	0	1	0	0	0	0	0
Fat necrosis	2	3	1	2	2	1	1	0
Spermatocele granuloma	0	0	1	0	0	0	0	0
Granulomata (mesentery)	0	0	0	0	0	0	0	0
Fibrosis	0	0	0	1	0	0	0	0
Granulomata	0	0	0	1	0	0	0	0
Bile duct	1	0	1	0	0	0	0	0
Not Remarkable	1	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Dilatation	0	0	1	0	0	0	0	0
Mural inflammation	0	0	0	0	0	0	0	0

000135

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Tongue	0	0	1	0	0	0	1	0
Not Remarkable	0	0	1	0	0	0	1	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Polyarteritis	0	0	0	0	0	0	0	0
Blood vessels	0	3	4	2	3	1	1	2
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	1	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Mural mineralisation (carotid arteries)	0	0	0	0	1	0	0	0
Mural mineralisation (mesentery)	0	0	1	0	0	0	1	0
Aneurysmal dilatation (pancreas)	0	0	2	0	0	0	0	0
Aneurysmal dilatation (duodenum)	0	0	0	0	0	0	0	0
Aneurysmal dilatation (mesentery)	0	0	0	0	0	0	0	0
Periarteritis (mesentery)	0	1	2	0	0	0	0	0
Periarteritis (pancreas)	0	0	1	0	0	0	0	0
Aneurysms (mesenteric)	0	1	0	1	0	0	0	1
Aneurysms (pancreatic)	0	2	0	0	0	0	0	0
Congested (pancreatic)	0	0	0	1	0	0	0	0
Congested (duodenal)	0	0	0	0	0	0	0	1
Haemorrhage (duodenal)	0	0	0	0	0	1	0	0
Hypertrophy (mesenteric)	0	0	0	0	1	0	0	0
Inflammatory infiltration (mesenteric)	0	0	0	0	1	0	0	0
Periarteritis	0	0	0	0	0	0	0	0
Dilatation (mesenteric)	0	0	1	0	0	0	0	0
Pinna	0	1	0	0	1	1	0	0
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Ossification	0	0	0	0	1	0	0	0
Cartilage hyperplasia	0	1	0	0	0	0	0	0
Fibrosis	0	1	0	0	0	0	0	0
Inflammation	0	1	0	0	0	0	0	0
Vena cava	0	0	0	0	1	0	0	0
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Dilated	0	0	0	0	1	0	0	0
Diffuse vasculitis	0	0	0	0	1	0	0	0

000136

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Head	2	1	0	0	0	0	0	1
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Exostosis (skull)	0	0	0	0	0	0	0	0
Haemorrhage and congestion in nasal sinuses	0	0	0	0	0	0	0	0
Haemorrhage (middle ear)	1	0	0	0	0	0	0	0
Inflammation and haemorrhage(external auditory meatus)	0	0	0	0	0	0	0	1
Ulceration (palate)	0	0	0	0	0	0	0	0
Inflammation (nasal turbinates)	0	0	0	0	0	0	0	0
Fibrous oesteodytrophy (cranium)	0	1	0	0	0	0	0	0
Penis	1	0	0	0	0	0	0	0
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Congested	1	0	0	0	0	0	0	0
Necrosis around the prepuce	1	0	0	0	0	0	0	0
Subcutis	0	1	0	1	0	0	0	0
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Oedematous	0	0	0	1	0	0	0	0
Mammary hyperplasia	0	1	0	0	0	0	0	0
Galactocele(s)	0	1	0	0	0	0	0	0
S/C mass(non- neo)	1	3	0	1	0	2	1	2
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
(B)Cystic preputial gland duct	1	0	0	0	0	0	0	0
Epidermoid cyst(s)	0	0	0	0	0	0	0	0
Mammary hyperplasia	0	2	0	0	0	2	0	1
Galactocele(s)	0	1	0	0	0	0	0	0
(B) Distended mammary acini	0	0	0	0	0	0	0	1
(D) Dilated duct	0	0	0	0	0	0	0	0
(B) Abundent adipose tissue	0	0	0	0	0	0	0	1
Haemorrhagic cyst	0	0	0	0	0	0	1	0
Inflammatory infiltration	0	1	0	0	0	0	0	0
Granulomatous swelling	0	0	0	0	0	0	0	0
(B) Cystic distension of preputial gland duct	0	0	0	0	0	0	0	0
(C) Necrosis	0	0	0	1	0	0	0	0
Fibrosis	0	0	0	0	0	0	0	0

000137

TABLE 18

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	36	36	39	30	36	31	31	26
Mesentery	0	0	1	0	0	0	0	0
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
S/C mass(malig)	0	8	2	7	1	8	0	7
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
S/C mass(benign)	7	25	12	16	2	20	4	13
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Mammary fibroma	0	0	0	1	0	0	0	0
Abdominal mass	1	0	0	0	0	0	0	0
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Cutaneous mass	1	0	2	0	1	0	0	0
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	1	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
(A) Epidermal erosion	0	0	0	0	0	0	0	0
Intermuscular mass	0	0	0	0	0	0	0	0
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0

000138

TABLE 19

Histopathology - microscopic findings in rats killed at termination of treatment

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Aorta	14	14	11	20	14	19	19	24
Not Remarkable	14	14	11	20	14	18	19	24
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Granulomatous inflammation	0	0	0	0	0	0	0	0
Medial calcification	0	0	0	0	0	1	0	0
Trachea	14	14	11	20	14	19	19	24
Not Remarkable	14	14	11	20	14	19	19	24
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Inflammatory infiltration	0	0	0	0	0	0	0	0
Ulceration	0	0	0	0	0	0	0	0
Heart	14	14	11	20	14	19	19	24
Not Remarkable	6	13	5	20	10	17	11	21
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Myocardial fibrosis	8	0	6	0	4	0	8	0
Inflammation	0	0	0	0	0	0	0	0
Atrial thrombus	0	0	0	0	0	0	0	0
Mineralisation	0	1	0	0	0	0	0	0
Myocarditis	0	0	0	0	0	0	0	0
Valvular mineralisation	0	0	0	0	0	0	0	0
Myocardial scarring	0	1	0	0	0	2	0	3
Medial calcification aortic arch	0	0	0	0	0	0	0	0
Medial calcification in blood vessels	0	0	0	0	0	0	0	0
Fibrous nodule	0	0	0	0	0	0	0	0
Fibrosis	0	0	0	0	0	0	0	0
Prominent lymphocytic infiltration	0	0	0	0	0	0	0	0
Ventricular hypertrophy	0	0	0	0	0	0	0	0
Endocardiosis	0	0	0	0	0	0	0	0
Ventricles distended with blood	0	0	0	0	0	0	0	0
Necrosis	0	0	0	0	0	0	0	0
Organising thrombus in auricle	0	0	0	0	0	0	0	0
Degeneration of muscle fibres	0	0	0	0	0	0	0	0
Lungs	14	14	11	20	14	19	19	24
Not Remarkable	10	0	4	0	9	0	6	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Congestion	0	0	0	0	0	0	0	0
Perivascular lymphoid cuffing	0	0	3	0	1	0	2	0
Periarteritis	0	0	0	0	0	0	0	0
Oedema	0	0	0	0	0	0	0	0
Pneumonitis	1	1	2	2	1	1	1	3

000139

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Vascular mineralisation	1	13	3	11	2	10	6	11
Alveolar mineralisation	0	0	0	0	0	0	0	0
Aggregates of brown pigment laden macrophages	0	0	0	0	0	0	0	0
Subpleural aggregations of alveolar macrophages	0	0	0	0	0	0	4	0
Alveolar macrophages	1	1	0	2	0	4	1	4
Hypertrophy of arteriole walls	0	0	0	0	0	0	0	0
Interstitial pneumonitis	0	0	0	0	0	0	0	0
Increased numbers of alveolar macrophages	1	0	0	0	0	0	0	0
Subpleural adenomatosis	0	0	0	0	1	0	0	0
Pleural thickening	0	0	0	0	0	0	0	0
Lymphoid aggregates	0	14	0	20	0	19	0	24
Cholesterol clefts	0	0	0	0	0	1	0	0
Thickened alveolar septa	0	0	0	0	0	0	0	2
Adenomatosis	0	0	0	0	0	1	0	0
Ectopic osseous tissue	0	0	0	0	0	0	0	0
Peribronchial lymphoid aggregates	0	0	0	0	0	0	0	0
Peribronchiolar lymphoid aggregates	0	0	0	0	0	0	0	0
Alveolar epithelialisation	0	0	0	0	0	0	0	0
Cuboidal metaplasia of alveolar epithelium	0	0	0	0	0	0	0	0
Consolidation	0	0	0	0	0	0	0	0
Bronchopneumonia	0	0	0	0	0	0	0	0
Hyperdistension of alveoli	0	0	0	0	0	0	0	0
Giant cell granulomata	0	0	0	0	0	0	0	0
Foamy macrophages	0	0	0	0	0	0	0	0
Pieces of food material within the bronchioli	0	0	0	0	0	0	0	0
Squamous metaplasia	0	0	0	0	0	0	0	0
Epithelial hyperplasia	0	0	0	0	0	0	0	0
Subepithelial acinar formation	0	0	0	0	0	0	0	0
Fibrosis	0	0	0	0	0	0	0	0
Cuboidal metaplasia of peribronchiolar alveoli	0	0	0	0	0	0	0	0
Inflammatory infiltration	0	0	0	0	0	0	0	0
Thymus	14	14	11	20	14	19	19	24
Not Remarkable	12	12	11	18	13	16	19	22
Missing	1	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Congestion	0	0	0	0	0	0	0	0
Epithelial cyst(s)	1	0	0	0	1	0	0	0
Involution	0	2	0	1	0	3	0	2
Epithelial hyperplasia	0	0	0	0	0	0	0	0
Medullary hyperplasia	0	0	0	1	0	0	0	0
Haemorrhage	0	0	0	0	0	0	0	0

000140

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Lymph nodes	14	14	11	20	14	19	19	24
Not Remarkable	6	13	7	16	6	11	5	19
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Congestion	0	0	1	0	2	1	1	1
Sinus histiocytosis	7	0	1	0	7	0	10	0
Lymphoid hyperplasia	1	1	0	4	0	6	4	4
Lymphadenitis	1	1	0	0	2	0	0	0
Cystic change	1	1	1	2	2	2	3	0
Sinus dilatation	0	0	0	0	0	0	1	0
Erythrophagocytosis	0	0	0	0	1	0	1	0
Siderocytes	0	0	0	0	0	0	1	0
Pericapsular fibrosis and inflammatory cells	0	0	0	0	0	0	0	0
Abscess	0	0	0	0	0	0	0	0
Granulomata	0	0	0	0	0	0	0	0
Oedema	0	0	0	0	0	0	0	0
Haemorrhage	0	0	0	0	0	0	0	0
Multilocular haemorrhagic cyst	0	0	0	0	0	0	0	0
Histiocytosis	0	0	0	0	0	1	0	0
Angiectasis	0	0	0	0	0	0	0	0
Multilocular haemorrhage	0	0	0	0	0	0	0	0
Liver	14	14	11	20	14	19	19	24
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Vacuolation	3	3	4	11	2	8	6	7
Ballooned cells	6	1	5	0	2	0	7	1
Bile duct hyperplasia	6	4	5	13	9	12	15	17
Congestion	0	2	0	1	0	2	0	5
Subcapsular congestion	0	0	0	0	0	0	0	0
Subcapsular sinus dilatation	0	0	0	0	0	0	0	0
Peribiliary fibrosis	0	0	1	0	4	0	8	0
Pericholangitis	2	0	3	0	5	0	5	0
Periarteritis	0	0	0	0	0	0	0	0
Granulomata	0	0	0	0	0	0	0	0
Post mortem congestion	0	0	0	0	0	0	0	0
Basophilic hepatocytes	0	1	0	0	0	0	0	1
Vacuolated hepatocytes	1	1	0	0	0	0	1	2
Foamy vacuolated hepatocytes	0	0	0	0	1	0	0	0
Ground glass hepatocytes	3	0	2	0	1	0	2	0
Eosinophilic hepatocytes	0	0	1	0	3	0	0	0
Enlarged eosinophilic hepatocytes	1	0	0	0	0	0	0	0
Clear cells	0	1	0	0	0	0	0	0
Enlarged vacuolated hepatocytes	0	0	0	0	0	0	0	0
Foamy hepatocytes	0	0	0	0	1	0	1	0

000141

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Enlarged hepatocytes	0	0	0	0	0	0	0	0
Hepatocyte rarefaction	1	0	0	0	0	0	1	0
Necrosis	0	0	0	0	0	1	0	0
Infarction	0	0	0	0	0	0	0	0
Sinus dilatation	0	0	0	0	1	0	0	0
Fine vacuolation	1	0	0	0	2	0	2	0
Hepatitis	0	0	0	0	1	0	0	0
Inflammatory cells	0	11	0	16	0	15	0	20
Extramedullary haemopoiesis	0	0	0	0	0	0	0	0
Dilated bile ducts	0	0	0	0	0	1	0	0
Lymphocytic infiltration in portal tracts	0	0	0	0	0	0	0	0
Blood filled cyst under capsule	0	0	0	0	0	0	0	0
Margination of cytoplasm	0	0	0	0	0	0	0	0
Distorted	0	0	0	0	0	0	0	0
Chronic inflammatory infiltration	0	0	0	0	0	0	0	0
Degeneration under capsule	0	0	0	0	0	0	0	0
Degeneration	0	0	0	0	0	0	0	0
Chronic interstitial hepatitis	0	0	0	0	0	0	0	0
Lymphocytic infiltration in sinusoids	0	0	0	0	0	0	0	0
Leucocytosis	0	0	0	0	0	0	0	0
Centrilobular necrosis	0	0	0	0	0	0	0	0
Chronic pericholangitis	0	0	0	0	0	0	0	0
Congestion under capsule	0	0	0	0	0	0	0	0
Ground glass degeneration	0	0	0	0	0	0	0	0
Coagulative necrosis under capsule	0	0	0	0	0	0	0	0
Liver ORO	14	14	11	20	14	19	19	24
Not Remarkable	12	1	11	0	12	6	15	8
Missing.	0	0	0	0	0	0	0	0
Autolysis.	0	0	0	0	0	0	0	0
Lipid deposition	2	13	0	20	2	13	4	16
Spleen	14	14	11	20	14	19	19	24
Not Remarkable	9	4	11	7	13	8	17	2
Missing.	0	0	0	0	0	0	0	0
Autolysis.	0	0	0	0	0	0	0	0
Congestion	0	1	0	0	0	1	0	0
Haemosiderosis	0	8	0	12	0	8	0	21
Lymphoid hyperplasia	1	0	0	0	0	0	0	0
Increased cellularity of white pulp	0	0	0	0	1	0	1	0
Reduced extramedullary haemopoiesis	1	0	0	0	0	0	1	0
Increased extramedullary haemopoiesis	3	1	0	1	0	2	0	1
Infarct	0	0	0	0	0	0	0	0
Pericapsular cyst	0	0	0	0	0	0	0	0
Hyperplasia	0	0	0	0	0	0	0	0
Hyperplasia of reticulo endothelial cells	0	0	0	0	0	0	0	0
Atrophy	0	0	0	0	0	0	0	0

000142

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Pancreas	14	14	11	20	14	19	19	24
Not Remarkable	6	10	6	16	6	15	10	16
Missing	0	0	0	0	0	0	1	0
Autolysis	0	0	0	0	0	0	0	0
Aneurysmal dilatation	0	0	0	0	0	0	0	0
Thrombosis	0	0	0	0	0	0	0	0
Exocrine atrophy	3	3	0	4	1	0	2	3
Exocrine hyperplasia	1	0	1	0	1	0	2	0
Periarteritis	1	0	0	0	2	0	1	0
Dilatation	0	0	0	0	0	0	0	0
Vascular mineralisation	0	0	0	0	0	0	0	0
Ductular dilatation	0	0	0	0	0	0	0	0
Enlarged islet(s)	0	1	2	0	0	0	2	0
Pancreatitis	0	0	0	0	1	0	0	0
Fibrosis	0	0	0	1	1	1	0	0
Adipose infiltration	1	0	0	0	1	0	0	0
Pancreatic duct hyperplasia	0	0	0	0	0	0	0	0
Congestion	0	0	0	0	0	0	0	0
Interlobular oedema	0	0	0	0	0	0	0	0
Inflammation	0	0	0	0	0	0	0	0
Granulomata	0	0	0	0	0	0	0	0
Polyarteritis	0	0	0	1	0	0	0	0
Fibrinoid inflammation	0	0	0	0	0	0	0	0
Fibrosis of islets	0	0	0	0	0	0	0	0
Lymphocytic infiltration	0	0	0	0	0	0	0	0
Perivascular inflammatory infiltration	0	0	0	0	0	0	0	0
Prominent peri islet/periductular siderocytes	0	0	0	0	0	0	0	0
Islet hyperplasia	0	0	0	0	0	0	0	0
Acute inflammatory infiltration	0	0	0	0	0	0	0	0
Abscess formation	0	0	0	0	0	0	0	0
Chronic pancreatitis	0	0	0	0	0	0	0	0
Hypertrophy of artery wall	0	0	0	0	0	0	0	0
Kidneys	14	14	11	20	14	19	19	24
Not Remarkable	1	0	1	0	1	1	2	1
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Progressive glomerulonephrosis	8	12	9	19	11	16	14	19
Cortical cyst(s)	0	0	0	1	0	0	0	1
Vascular mineralisation	0	0	0	0	0	0	0	0
Dilatation of renal pelvis	0	0	0	0	1	0	0	0
Tubular basophilia and dilatation	0	0	0	0	1	0	1	0
Mineralisation	0	4	0	4	0	5	0	5
Papillary necrosis	0	0	0	0	0	0	0	0
Pyelitis	0	0	0	1	0	0	0	1
Urothelial hyperplasia	4	0	1	0	1	0	2	0

000143

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Acute pyelitis	0	0	0	0	0	0	0	0
Pelvic dilatation	0	0	0	0	0	0	0	0
Tubular basophilia	0	0	0	0	0	0	0	0
Mononuclear cells	0	0	0	0	0	0	0	0
Cortical microabscess(es)	0	0	0	0	0	0	1	0
Cortical granuloma	0	1	0	0	0	0	0	0
Dilated cortical tubules	1	0	0	0	0	0	0	0
Nephritis	0	0	0	0	0	0	0	0
Capsular scarring	0	0	1	0	0	0	0	0
Haemorrhagic cortical cyst	0	0	0	0	0	1	0	0
Capsular necrosis/fibrosis/mineralisation	0	0	0	0	0	0	0	0
Hydronephrosis	0	0	0	1	0	0	0	1
Polyarteritis	0	0	0	1	0	0	0	0
Ectopic adipose tissue	0	0	0	1	0	0	0	0
Inflammatory cells	0	0	0	0	0	0	0	0
Medullary inflammation	0	0	0	0	0	0	0	0
Cortical atrophy	0	1	0	0	0	0	0	0
Cystic pelvis	0	1	0	0	0	0	0	0
Cortical mononuclear cells	0	1	0	0	0	0	0	0
Depressed subcapsular area	0	1	0	0	0	0	0	0
Tubular cast	0	0	0	0	0	0	0	0
Tubular hyperplasia	0	0	0	0	0	0	0	0
Lymphocytic infiltration	0	0	0	0	0	0	0	0
Fibrosis	0	0	0	0	0	0	0	0
Pelvic nephrocalcinosis	0	0	0	0	0	0	0	0
Enlarged	0	0	0	0	0	0	0	0
Golden pigment in cortical tubules	0	0	0	0	0	0	0	0
Cortical vacuolation	0	0	0	0	0	0	0	0
Interstitial inflammatory cells	0	0	0	0	0	0	0	0
Cortical tubular basophilia and dilatation	0	0	0	0	0	0	0	0
Kidney ORO	14	14	11	20	14	19	19	24
Not Remarkable	14	14	11	20	14	19	19	24
Missing.	0	0	0	0	0	0	0	0
Autolysis.	0	0	0	0	0	0	0	0
Cortical tubular fat	0	0	0	0	0	0	0	0
Deposition of fat in glomeruli	0	0	0	0	0	0	0	0
Urinary bladder	14	14	11	20	14	19	19	24
Not Remarkable	13	14	11	19	12	19	18	24
Missing.	0	0	0	0	0	0	0	0
Autolysis.	0	0	0	0	0	0	0	0
Epithelial hyperplasia	0	0	0	0	1	0	0	0
Papillomatous hyperplasia of epithelium	0	0	0	1	0	0	0	0
Cystitis	1	0	0	0	1	0	0	0
Subepithelial inflammation	0	0	0	0	0	0	0	0
Dilated with urine	0	0	0	0	0	0	0	0

000144

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Subepithelial lymphoid cells	0	0	0	0	1	0	1	0
Dilated	0	0	0	0	0	0	0	0
Serosal inflammation	0	0	0	0	0	0	0	0
Mononuclear cells	0	0	0	0	0	0	0	0
Inflammatory infiltration	0	0	0	0	0	0	0	0
Uterus	0	14	0	20	0	19	0	24
Not Remarkable	0	12	0	16	0	16	0	13
Missing.	0	0	0	0	0	0	0	0
Autolysis.	0	0	0	0	0	0	0	0
Dilated lumen	0	2	0	2	0	2	0	10
Cystic dilatation of uterine glands	0	1	0	2	0	2	0	8
Endometrial polyp	0	0	0	2	0	1	0	1
Cystic endometrial fibrotic polyp	0	0	0	0	0	0	0	0
Angiectasis	0	0	0	0	0	0	0	0
Congestion	0	0	0	1	0	0	0	0
Serosal cyst	0	0	0	0	0	0	0	0
Squamous metaplasia of epithelium	0	0	0	0	0	0	0	0
Cystic dilatation of sinusoids	0	0	0	0	0	0	0	0
Medial calcification in blood vessels	0	0	0	0	0	0	0	0
Endometritis	0	0	0	0	0	0	0	0
Hydrometra	0	0	0	0	0	0	0	0
Glandular squamous metaplasia	0	0	0	0	0	0	0	0
Adenomatous hyperplasia	0	0	0	0	0	0	0	0
Cervix	0	14	0	20	0	19	0	24
Not Remarkable	0	13	0	19	0	16	0	23
Missing.	0	0	0	0	0	0	0	0
Autolysis.	0	0	0	0	0	0	0	0
Hypertrophic fibrosis	0	1	0	0	0	1	0	0
Polyarteritis	0	0	0	1	0	0	0	0
Fibrosis and inflammatory cells	0	0	0	0	0	0	0	0
Cervicitis	0	0	0	0	0	0	0	0
Epithelial hyperplasia	0	0	0	0	0	2	0	1
Acute subepithelial inflammation	0	0	0	0	0	0	0	0
Inflammation	0	0	0	0	0	0	0	0
Ovaries	0	14	0	20	0	19	0	24
Not Remarkable	0	5	0	13	0	9	0	14
Missing.	0	0	0	0	0	0	0	0
Autolysis.	0	0	0	0	0	0	0	0
Tubular hyperplasia	0	5	0	6	0	2	0	5
Follicular cyst(s)	0	7	0	1	0	7	0	9
Mineralisation	0	0	0	1	0	0	0	0
No corpora lutea	0	0	0	0	0	0	0	0
Paraovarian cyst(s)	0	0	0	0	0	1	0	0
Inflammatory cells	0	0	0	1	0	0	0	0

000145

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Enlarged	0	0	0	0	0	0	0	0
Developing follicles	0	0	0	0	0	0	0	0
Cyst	0	0	0	0	0	0	0	0

000146

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Prostate	14	0	11	0	14	0	19	0
Not Remarkable	12	0	9	0	11	0	16	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Prostatitis	2	0	2	0	3	0	3	0
Acinar dilatation	0	0	0	0	0	0	0	0
Vascular mineralisation	0	0	0	0	0	0	0	0
Inflammatory infiltration	0	0	0	0	0	0	0	0
Acini contain pus cells	0	0	0	0	0	0	0	0
Hyperplasia	0	0	0	0	0	0	0	0
Acute inflammatory infiltration	0	0	0	0	0	0	0	0
Abscess formation	0	0	0	0	0	0	0	0
Acute,chronic inflammatory infiltration	0	0	0	0	0	0	0	0
Pus formation	0	0	0	0	0	0	0	0
Lymphocytic infiltration	0	0	0	0	0	0	0	0
Seminal vesicles	14	0	11	0	14	0	19	0
Not Remarkable	14	0	8	0	13	0	17	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Reduced colloid	0	0	2	0	0	0	0	0
Vesiculitis	0	0	0	0	1	0	0	0
Vascular mineralisation	0	0	0	0	0	0	0	0
Dilated	0	0	0	0	0	0	0	0
Distended with secretion	0	0	0	0	0	0	0	0
Absence of secretion	0	0	1	0	0	0	2	0
Testes	14	0	11	0	14	0	19	0
Not Remarkable	5	0	5	0	12	0	9	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Periarteritis	3	0	1	0	2	0	3	0
Atrophy	5	0	3	0	2	0	6	0
Subcapsular inflammation	0	0	0	0	0	0	0	0
Interstitial cell hyperplasia	0	0	0	0	0	0	0	0
Reduced spermiogenesis	0	0	1	0	0	0	0	0
Vascular mineralisation	0	0	0	0	0	0	3	0
Mineral deposition	1	0	2	0	0	0	0	0
Vacuolation of epithelium (epididymal)	0	0	0	0	0	0	0	0
Congestion	0	0	0	0	0	0	0	0
Polyarteritis	0	0	0	0	0	0	0	0
Leydig cell hyperplasia	0	0	0	0	0	0	0	0
Lymphoid aggregates	0	0	0	0	0	0	0	0
Arteriolitis	0	0	0	0	0	0	0	0
Arteriolits (epididymis)	0	0	0	0	0	0	0	0
Empty (epididymis)	0	0	0	0	0	0	0	0

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Interstitial haemorrhage	0	0	0	0	0	0	0	0
Haemorrhage (epididymis)	0	0	0	0	0	0	0	0
Inflammation (epididymis)	0	0	0	0	0	0	0	0
Prominent acute arteriolitis	0	0	0	0	0	0	0	0
Chronic inflammatory infiltration (epididymis)	0	0	0	0	0	0	0	0
Thyroids	14	14	11	20	14	19	19	24
Not Remarkable	10	10	7	16	14	14	13	18
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Follicular hyperplasia	0	0	0	1	0	0	0	0
Parafollicular cell hyperplasia	0	3	1	1	0	1	3	4
Cystic follicle(s)	0	0	2	0	0	0	1	0
Follicular cyst(s)	0	0	0	0	0	0	0	0
Developemental cyst	0	0	0	0	0	0	0	0
Follicular distension	0	0	0	0	0	0	0	0
Ectopic thymic tissue	0	0	0	0	0	1	0	0
Mineralisation	0	0	0	0	0	0	0	0
Fibrosis	0	0	0	1	0	0	0	0
Cystic dilatation of follicles	0	0	0	0	0	0	0	1
Branchial cleft remnant	0	0	0	0	0	0	0	0
Prominent branchial cleft remnant	0	0	0	0	0	0	0	0
Basophilia	0	0	0	0	0	0	0	0
Prominent ultimobranchial nests	0	0	0	0	0	0	0	0
Prominent microfollicles	0	0	0	0	0	0	0	0
Parathyroids	14	14	11	20	14	19	19	24
Not Remarkable	11	9	9	15	12	12	14	19
Missing	1	3	1	4	0	6	1	4
Autolysis	0	0	0	0	0	0	0	0
Hyperplasia	2	2	0	1	0	1	3	1
Oxyphil cell hyperplasia	0	0	1	0	2	0	1	0
Adrenals	14	14	11	20	14	19	19	24
Not Remarkable	4	1	2	0	3	1	6	1
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Cortical cyst	0	0	0	0	0	0	0	0
Congestion	0	3	0	7	0	4	0	5
Medullary hyperplasia	2	0	2	0	0	0	1	1
Cortical ballooning	0	0	0	0	0	0	0	0
Cortical hyperplasia	1	0	0	0	0	0	0	0
Cortical vacuolation	6	1	7	1	6	0	8	0
Cortical cell enlargement	0	0	0	0	1	0	0	0
Cortical enlarged eosinophilic cells	0	0	0	0	0	0	0	0
Cortical necrosis	0	0	0	0	0	0	0	0
Cortical haemorrhage	0	0	0	0	0	0	0	0

000148

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Ectopic bone tissue	0	0	0	0	0	0	0	0
Subcapsular enlarged foamy cells	0	0	0	0	0	0	0	0
Fibrosis	1	0	0	0	0	0	0	0
Cortical enlarged vacuolated cells	0	0	0	0	0	0	1	0
Necrosis	0	0	0	0	0	0	0	0
Cortical atrophy	0	0	0	1	0	0	0	0
Ceroid cells	0	0	0	0	0	0	0	0
Cortical enlarged zona fasiculata cells	0	0	0	0	0	0	0	0
Calcification	1	0	0	0	0	0	0	0
Cortical haemorrhagic necrosis	0	0	0	0	0	0	0	0
Cortical hypertrophy	0	0	0	0	0	0	0	0
Cystic degeneration	0	9	1	13	2	14	2	18
Cyst formation	0	0	0	0	0	0	0	0
Ballooning of cells	0	0	1	0	0	0	0	0
Salivary gland	14	14	11	20	14	19	19	24
Not Remarkable	13	14	11	20	14	19	19	24
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Inflammatory infiltration	0	0	0	0	0	0	0	0
Oesophagus	14	14	11	20	14	19	19	24
Not Remarkable	14	14	11	20	14	19	19	24
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Dilated	0	0	0	0	0	0	0	0
Stomach	14	14	11	20	14	19	19	24
Not Remarkable	10	12	9	18	14	15	15	22
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Ulceration (ng)	0	0	1	0	0	0	1	0
Oedema (ng)	0	0	0	0	0	0	0	0
Mineral deposition (g)	0	0	0	0	0	2	0	0
Hyperplasia of limiting ridge	0	0	0	0	0	0	1	0
Epithelial hyperplasia (ng)	3	0	1	0	0	0	1	1
Serosal mineralisation	0	0	0	0	0	0	0	0
Mineralisation of the muscularis	0	0	0	0	0	0	0	0
Serosal fibrosis	0	0	0	1	0	0	0	0
Granulation tissue	0	0	0	0	0	0	0	0
Epithelial cyst	0	0	0	0	0	0	0	0
Gastritis (g)	0	0	0	0	0	0	0	0
Subepithelial oedema (ng)	1	0	1	0	0	0	1	0
Inflammation (ng)	0	0	1	0	0	0	0	1
Gastritis	1	0	0	0	0	0	1	0
Perforating ulcer (ng)	0	0	0	0	0	0	0	0
Cyst	0	0	0	0	0	0	0	0

000149

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Ectopic non glandular epithelium (g)	0	0	1	0	0	1	1	0
Thickening and hyperkeratosis (ng)	0	1	0	0	0	0	0	0
Submucosal fibrosis (ng)	0	1	0	0	0	0	0	1
Submucosal inflammation (ng)	0	1	0	0	0	0	0	0
Papillomatous hyperplasia	0	0	0	0	0	0	0	0
Ulceration (g)	0	0	0	0	0	0	0	0
Polyarteritis (g)	0	0	0	2	0	0	0	0
Serosal inflammation	0	0	0	1	0	0	0	0
Gastric hyperplasia (g)	0	1	0	0	0	1	0	0
Dilated lumen	0	0	0	0	0	0	0	0
Hyperkeratosis (ng)	0	0	0	0	0	0	0	1
Fibrosis (ng)	0	0	0	0	0	0	0	1
Submucosal oedema (g)	0	0	0	0	0	0	0	0
Distension of gastric glands (g)	0	0	0	0	0	0	0	0
Lymphocytes in mucosa (g)	0	0	0	0	0	0	0	0
Acute inflammation (ng)	0	0	0	0	0	0	0	0
Inflammation on serosal surface (g)	0	0	0	0	0	0	0	0
Inflammation (g)	0	0	0	0	0	0	0	0
Submucosal inflammation (g)	0	0	0	0	0	0	0	0
Subepithelial inflammation (ng)	0	0	0	0	0	0	0	0
Arteriolitis (g)	0	0	0	0	0	0	0	0
Cyst (g)	0	0	0	0	0	0	0	1
Acanthosis (ng)	0	0	0	0	0	0	0	0
Duodenum	14	14	11	20	14	19	19	24
Not Remarkable	14	13	11	19	14	19	19	23
Missing.	0	0	0	0	0	0	0	0
Autolysis.	0	0	0	0	0	0	0	0
Periarteritis	0	0	0	0	0	0	0	0
Aneursymal dilatation	0	0	0	0	0	0	0	0
Fibrosis	0	0	0	1	0	0	0	0
Ectopic pancreatic tissue	0	1	0	0	0	0	0	0
Congestion	0	0	0	0	0	0	0	1
Hyperplasia	0	0	0	0	0	0	0	0
Arteriolitis	0	0	0	0	0	0	0	0
Ileum	14	14	11	20	14	19	19	24
Not Remarkable	13	14	11	20	13	19	19	24
Missing.	0	0	0	0	0	0	0	0
Autolysis.	0	0	0	0	0	0	0	0
Lymphoid hyperplasia	0	0	0	0	0	0	0	0
Acute lymphadenitis of Peyer's patches	0	0	0	0	1	0	0	0
Dilated	0	0	0	0	0	0	0	0
Prominent germinal centres in GALT	1	0	0	0	0	0	0	0
Fibrosis and inflammation	0	0	0	0	0	0	0	0
Arteriolitis	0	0	0	0	0	0	0	0
Inflammatory infiltration	0	0	0	0	0	0	0	0

000150

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Acute inflammatory infiltration	0	0	0	0	0	0	0	0
Periarteritis	0	0	0	0	0	0	0	0
Jejunum	14	14	11	20	14	19	19	24
Not Remarkable	13	14	11	19	14	19	19	24
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Dilated	0	0	0	0	0	0	0	0
Polyarteritis	0	0	0	1	0	0	0	0
Fibrosis	0	0	0	0	0	0	0	0
Epithelial hyperplasia	0	0	0	0	0	0	0	0
Granulomata	0	0	0	0	0	0	0	0
Acute inflammatory infiltration	0	0	0	0	0	0	0	0
Arteriolitis	0	0	0	0	0	0	0	0
Inflammatory infiltration	0	0	0	0	0	0	0	0
Periarteritis	0	0	0	0	0	0	0	0
Caecum	14	14	11	20	14	19	19	24
Not Remarkable	14	9	11	18	14	17	19	22
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Submucosal oedema	0	0	0	0	0	0	0	0
Dilatation	0	0	0	0	0	0	0	0
Nematode(s)	0	1	0	0	0	1	0	1
Subepithelial oedema	0	0	0	0	0	0	0	0
Mucosal inflammation	0	0	0	0	0	0	0	0
Inflammation	0	0	0	0	0	0	0	0
Submucosal inflammation	0	2	0	0	0	0	0	1
Polyarteritis	0	0	0	1	0	0	0	0
Mineralisation	0	1	0	0	0	1	0	0
Submucosal granuloma	0	0	0	0	0	0	0	0
Prominent lymph follicles	0	1	0	0	0	0	0	0
Ulceration	0	0	0	1	0	0	0	0
Fibrosis	0	0	0	0	0	0	0	0
Granulomata	0	0	0	0	0	0	0	0
Oedema in lamina propria	0	0	0	0	0	0	0	0
Arteriolitis	0	0	0	0	0	0	0	0
Periarteritis	0	0	0	0	0	0	0	0
Colon	14	14	11	20	14	19	19	24
Not Remarkable	13	13	9	19	12	19	17	24
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Nematode(s)	1	0	2	1	2	0	2	0
Dilated	0	0	0	0	0	0	0	0
Serosal inflammation	0	1	0	0	0	0	0	0
Polyarteritis	0	0	0	0	0	0	0	0

000151

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	♀	M	♀	M	♀	M	♀
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Inflammation	0	0	0	0	0	0	0	0
Mineralisation	0	0	0	0	0	0	0	0
Arteriolitis	0	0	0	0	0	0	0	0
Periarteritis	0	0	0	0	0	0	0	0
Skin	14	14	11	20	14	19	19	23
Not Remarkable	12	12	9	20	12	17	17	22
Missing.	0	0	0	0	0	0	0	0
Autolysis.	0	0	0	0	0	0	0	0
Cutaneous ulceration	1	0	0	0	1	0	1	0
Epidermoid cyst(s)	0	0	0	0	0	1	1	1
Epidermal hyperplasia	1	0	0	0	0	0	0	0
Abscess	0	0	0	0	0	0	0	0
Subcapsular congestion	0	0	0	0	0	0	0	0
Acanthosis	0	0	0	0	0	0	0	0
Congestion	0	0	0	0	0	0	0	0
Preputial abscess	0	0	0	0	0	0	0	0
Increased subcutaneous adipose tissue	0	0	0	0	0	0	0	0
Increased dermal collagen	0	0	0	0	1	0	0	0
Subcutaneous fibrosis	0	0	1	0	0	0	0	0
Granulation tissue	0	0	1	0	0	0	0	0
Subcutaneous inflammation	0	0	1	0	0	0	0	0
Dermal abscess	0	0	0	0	0	0	0	0
Dermal abscess (eyelid)	1	0	0	0	0	0	0	0
Epidermal hyperplasia (eyelid)	1	0	0	0	0	0	0	0
Dermal fibrosis	1	0	0	0	0	0	0	0
Epidermal hyperkeratosis	1	0	0	0	0	0	0	0
Keratin granuloma	0	0	0	0	0	0	0	0
Epidermal thickening	0	0	0	0	0	1	0	0
Dermal depression	0	0	0	0	0	0	0	0
Oedema	0	0	0	0	0	0	0	0
Fibrosis	0	0	0	0	0	0	0	0
Scab formation	0	0	0	0	0	0	0	0
Papillomatous hyperplasia	0	1	0	0	0	0	0	0
Empty hair follicles	0	0	0	0	0	0	0	0
Inflammatory infiltration	0	0	0	0	0	0	0	0
Epithelial hyperplasia	0	0	0	0	0	0	0	0
Fibrosis,round large hair follicles on eyelid	0	0	0	0	0	0	0	0
Crusty	0	0	0	0	0	0	0	0
Hyperkeratosis	0	0	0	0	0	0	0	0
Skeletal muscle	14	14	11	20	14	19	19	24
Not Remarkable	13	14	10	19	14	19	18	24
Missing.	0	0	0	0	0	0	0	0
Autolysis.	0	0	0	0	0	0	0	0
Myositis /fibrosis	0	0	0	0	0	0	0	0
Adipose infiltration	1	0	1	0	0	0	0	0

000152

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Atrophy	0	0	0	0	0	0	1	0
Mononuclear cells	0	0	0	1	0	0	0	0
Chronic inflammatory infiltration	0	0	0	0	0	0	0	0
Degeneration	0	0	0	0	0	0	0	0
Mammary gland	14	14	11	20	14	19	19	24
Not Remarkable	6	5	8	9	4	7	6	4
Missing	7	0	3	0	7	0	7	0
Autolysis	0	0	0	0	0	0	0	0
Hyperplasia	1	9	0	10	3	12	6	20
Cystic structure	0	0	0	0	0	0	0	0
Galactocele (s)	0	0	0	0	2	2	0	0
Distended acini	0	0	0	0	0	0	0	0
Ductular dilatation	0	0	0	0	0	0	0	0
Fibrosis	0	0	0	0	0	0	0	0
Secretory activity	0	0	0	0	0	0	0	0
Acini/ducts distended with secretion	0	0	0	0	0	0	0	0
Eyes	14	14	11	20	14	19	19	24
Not Remarkable	14	14	11	20	14	19	19	24
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Lenticular fibre degeneration	0	0	0	0	0	0	0	0
Retinal detachment	0	0	0	0	0	0	0	0
Retinal dysplasia	0	0	0	0	0	0	0	0
Panophthalmitis	0	0	0	0	0	0	0	0
Corneal ulceration	0	0	0	0	0	0	0	0
Congestion	0	0	0	0	0	0	0	0

000153

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Brain	14	14	11	20	14	19	19	24
Not Remarkable	13	12	8	17	14	16	16	21
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Compression pit	0	2	1	3	0	3	3	3
Gliosis	0	0	0	0	0	0	0	0
Organised blood clot (pineal body)	0	0	0	0	0	0	0	0
Infarction	0	0	0	0	0	0	0	0
Meningeal ossification	0	0	0	0	0	0	0	0
Encephalomalacia	0	0	0	0	0	0	0	0
Haemorrhage	0	0	0	0	0	0	0	0
Chronic inflammatory infiltration (meninges)	0	0	0	0	0	0	0	0
Chronic inflammatory infiltration in choroid plexus	0	0	0	0	0	0	0	0
Congestion in meninges	0	0	0	0	0	0	0	0
Inflammatory infiltration in meninges	0	0	0	0	0	0	0	0
Dilatation in meninges	0	0	0	0	0	0	0	0
Thrombosis of the meninges	0	0	0	0	0	0	0	0
Subventricular gliosis	0	0	1	0	0	0	0	0
Pituitary	14	14	11	20	14	19	19	24
Not Remarkable	8	2	4	2	4	1	2	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Hyperplasia	2	3	1	7	4	8	5	7
Cyst	0	0	2	0	1	0	2	0
Congested sinusoids	0	0	0	3	0	1	0	1
Eosinophilic vacuolation	0	0	0	0	0	0	0	0
Congestion	0	0	0	0	0	0	0	0
Haemorrhage	0	0	0	0	0	0	0	0
Sciatic nerve	14	14	11	20	14	19	19	24
Not Remarkable	14	12	11	16	14	14	19	16
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Swollen / degenerate nerve fibres	0	2	0	4	0	5	0	8
Chronic inflammatory infiltration	0	0	0	0	0	0	0	0
Spinal cord	14	14	11	20	14	19	19	24
Not Remarkable	14	13	11	18	14	17	18	21
Missing	0	0	0	1	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Gliosis	0	0	0	0	0	0	1	0
Meningeal haemorrhage	0	0	0	0	0	0	0	0
Swollen / degenerate nerve fibres	0	1	0	1	0	2	0	3
Haemorrhage	0	0	0	0	0	0	0	0
Prominent mucocytes	0	0	0	0	0	0	0	0

000154

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Perivascular lymphoid cuffing	0	0	0	0	0	0	0	0
Bone marrow	14	14	11	20	14	19	19	24
Not Remarkable	14	13	11	20	14	19	19	24
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Osteodystrophia fibrosa	0	0	0	0	0	0	0	0
Hyperplastic	0	1	0	0	0	0	0	0
Bone	14	14	11	20	14	19	19	24
Not Remarkable	14	14	11	20	14	18	18	22
Missing	0	0	0	0	0	0	1	1
Autolysis	0	0	0	0	0	0	0	0
Dystrophic osteofibrosis	0	0	0	0	0	0	0	0
Exostosis (xiphoid bone)	0	0	0	0	0	0	0	1
Harderian gland	14	14	11	20	14	19	19	24
Not Remarkable	11	13	9	18	13	18	14	24
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Atrophy	3	0	2	0	0	0	2	0
Inflammation	0	0	0	0	1	0	2	0
Perivascular lymphoid infiltration	0	0	0	0	0	0	2	0
Mononuclear cells	0	1	0	2	0	1	0	0
Porphyrin deposition	0	0	0	0	0	0	0	0
Lymphocytic infiltration	0	0	0	0	0	0	0	0
Hyperplasia	0	0	0	0	0	0	0	0
Chronic inflammatory infiltration	0	0	0	0	0	0	0	0
Squamous metaplasia	0	0	0	0	0	0	0	0
Lachrymal glands	0	0	0	0	0	0	0	0
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Harderianisation	0	0	0	0	0	0	0	0
Inflammation	0	0	0	0	0	0	0	0
Cytomegalic virus infections	0	0	0	0	0	0	0	0
Chronic inflammatory infiltration	0	0	0	0	0	0	0	0
Preputial glands	1	1	0	0	2	2	2	0
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Ductular dilatation	0	0	0	0	0	0	1	0
Inflammation	0	0	0	0	0	0	0	0
Abscessation	1	1	0	0	2	2	1	0
Cystic duct	0	0	0	0	0	0	0	0

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Keratin filled cyst	0	0	0	0	0	0	0	0
Squamous metaplasia	0	0	0	0	0	0	0	0
Feet/limb	7	1	2	0	2	4	4	4
Not Remarkable	0	0	0	0	0	0	1	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Plantar ulceration	4	0	1	0	1	3	2	1
Cutaneous ulceration	0	0	0	0	0	0	0	0
Epidermal hyperplasia	1	0	1	0	0	0	0	0
Subcutaneous fibrosis	0	0	0	0	0	0	0	0
Inflammation	0	0	0	0	0	0	0	0
Synovitis (kneejoints)	0	0	0	0	0	0	0	0
Periostitis (kneejoints)	0	0	0	0	0	0	0	0
Hyperkeratosis	0	1	0	0	0	0	0	0
Subepidermal inflammation	0	0	0	0	0	0	0	0
Granulation tissue	0	0	1	0	0	0	0	0
Dermal inflammation	0	0	0	0	0	0	0	2
Subcutaneous haemorrhage	0	0	0	0	0	0	0	0
Subcutaneous inflammation	0	0	1	0	0	0	0	0
Myositis/arthritis	0	0	0	0	1	0	0	0
Subcutaneous oedema (forepaw digit)	0	0	0	0	0	0	1	0
Cutaneous inflammation	1	0	0	0	0	0	0	0
Osteoarteritis	1	0	0	0	0	0	1	0
Dermal fibrosis	0	0	0	0	0	0	0	2
Acanthosis	0	0	0	0	0	0	0	0
Planter epithelial hyperplasia	0	0	0	0	0	0	0	0
Muscular degeneration and fibrosis	0	0	0	0	0	0	0	0
Epidermal thickening	0	0	0	0	0	0	0	0
Epithelial hyperplasia	0	0	0	0	0	0	0	0
Epidermal ulceration	0	0	0	0	0	0	0	0
Tail	3	3	4	4	8	5	15	9
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	1	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Epidermoid cyst(s)	0	1	0	0	0	0	0	1
Scab(s)	1	1	2	2	4	1	5	5
Hyperkeratosis	0	1	0	1	1	2	1	2
Epidermal hyperplasia	2	0	0	0	1	0	1	0
Ulceration	1	0	2	1	1	0	2	0
Granulation tissue	0	0	0	0	0	0	0	0
Dermal abscess	0	0	1	0	0	1	6	3
Healed ulceration	0	0	0	0	0	0	0	0
Dermal inflammation	0	0	1	0	0	1	1	0
Folliculitis	1	0	0	0	0	0	0	0
Epidermal hyperkeratosis	1	0	0	0	0	0	0	0

000156

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Epidermal depression	0	0	0	0	0	0	2	0
Acanthosis	0	0	0	1	0	1	0	0
Thickening and keratinisation of epidermis	0	0	0	0	0	0	0	2
Necrosis	0	0	0	0	0	0	0	0
Inflammation	0	0	0	0	0	0	0	0
Dermal polyp	0	0	0	0	1	0	0	0
Epidermal thickening	0	0	0	1	0	0	0	0
Dermal fibrosis	0	0	0	0	0	1	0	0
Keratin granuloma	0	0	0	0	0	0	0	0
Dermal haemorrhage	0	0	0	1	0	0	0	0
Epithelial hyperplasia	0	0	0	0	0	0	0	0
Acute dermal inflammation	0	0	0	0	0	0	0	0
Gangrene	0	0	0	0	0	0	0	0
Enlargement	0	0	0	0	0	0	0	0
Epidermal cyst(s)	0	0	0	0	0	0	0	1
Chronic dermal inflammatory infiltration	0	0	0	0	0	0	0	0
Dermal depression	0	0	0	0	0	0	1	0
Ureter	0	0	0	1	0	0	0	0
Not Remarkable	0	0	0	0	0	0	0	0
Missing.	0	0	0	0	0	0	0	0
Autolysis.	0	0	0	0	0	0	0	0
Thickening of the wall	0	0	0	0	0	0	0	0
Epithelial hyperplasia	0	0	0	1	0	0	0	0
Inflammatory cells	0	0	0	1	0	0	0	0
Dilated	0	0	0	0	0	0	0	0
Adipose tissue	0	1	1	4	1	1	1	2
Not Remarkable	0	0	0	0	0	0	0	0
Missing.	0	0	0	0	0	0	0	0
Autolysis.	0	0	0	0	0	0	0	0
Haemorrhage	0	0	0	0	0	0	0	0
Fat necrosis	0	1	1	4	1	1	0	2
Spermatocele granuloma	0	0	0	0	0	0	1	0
Granulomata (mesentery)	0	0	0	0	0	0	0	0
Fibrosis	0	0	0	0	0	0	0	0
Granulomata	0	0	0	0	0	0	0	0
Bile duct	0	0	1	0	1	0	1	0
Not Remarkable	0	0	1	0	1	0	0	0
Missing.	0	0	0	0	0	0	0	0
Autolysis.	0	0	0	0	0	0	0	0
Dilatation	0	0	0	0	0	0	0	0
Mural inflammation	0	0	0	0	0	0	1	0

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Tongue	10	10	10	10	12	10	10	10
Not Remarkable	10	10	10	9	12	9	10	10
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Polyarteritis	0	0	0	1	0	1	0	0
Blood vessels	3	3	0	2	1	2	1	0
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Mural mineralisation (carotid arteries)	0	0	0	0	0	0	0	0
Mural mineralisation (mesentery)	0	0	0	0	0	0	0	0
Aneurysmal dilatation (pancreas)	0	0	0	0	0	0	0	0
Aneurysmal dilatation (duodenum)	0	0	0	0	0	0	0	0
Aneurysmal dilatation (mesentery)	2	0	0	0	0	0	1	0
Periarteritis (mesentery)	3	0	0	0	1	0	1	0
Periarteritis (pancreas)	0	0	0	0	0	0	0	0
Aneurysms (mesenteric)	0	3	0	2	0	2	0	0
Aneurysms (pancreatic)	0	0	0	0	0	0	0	0
Congested (pancreatic)	0	0	0	0	0	0	0	0
Congested (duodenal)	0	0	0	0	0	0	0	0
Haemorrhage (duodenal)	0	0	0	0	0	0	0	0
Hypertrophy (mesenteric)	0	0	0	0	0	0	0	0
Inflammatory infiltration (mesenteric)	0	0	0	0	0	0	0	0
Periarteritis	0	0	0	0	0	0	0	0
Dilatation (mesenteric)	1	0	0	0	0	0	0	0
Pinna	0	1	0	0	1	0	1	1
Not Remarkable	0	0	0	0	0	0	1	0
Missing	0	0	0	0	1	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Ossification	0	0	0	0	0	0	0	0
Cartilage hyperplasia	0	0	0	0	0	0	0	0
Fibrosis	0	0	0	0	0	0	0	0
Inflammation	0	0	0	0	0	0	0	0
Vena cava	0	0	0	0	0	0	0	0
Not Remarkable	0	0	0	0	0	0	0	0
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Dilated	0	0	0	0	0	0	0	0
Diffuse vasculitis	0	0	0	0	0	0	0	0

000158

TABLE 19

(Pathology - continued)

	Control		1000ppm		3000ppm		10000ppm	
	M	F	M	F	M	F	M	F
Animals On Study:	70	70	70	70	70	70	70	70
Animals Logged:	14	14	11	20	14	19	19	24
Head	10	10	10	10	12	10	9	11
Not Remarkable	10	10	10	10	11	9	8	10
Missing	0	0	0	0	0	0	0	0
Autolysis	0	0	0	0	0	0	0	0
Exostosis (skull)	0	0	0	0	0	0	1	0
Haemorrhage and congestion in nasal sinuses	0	0	0	0	1	0	0	0
Haemorrhage (middle ear)	0	0	0	0	0	0	0	0
Inflammation and haemorrhage(external auditory meatus)	0	0	0	0	0	0	0	0
Ulceration (palate)	0	0	0	0	0	1	0	0
Inflammation (nasal turbinates)	0	0	0	0	0	1	0	0
Fibrous oesteodytrophy (cranium)	0	0	0	0	0	0	0	0

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APPENDIX 1

Cage mean food consumption (g/rat/week)

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0 (Control)	1000	3000	10000

Group	Week	Cage No.													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1♂	-2	132	160	157	167	165	164	170	147	171	162	165	170	166	158
	-1	169	192	194	202	202	188	199	181	189	189	199	196	192	181
	1	166	186	194	206	205	194	208	168	199	190	202	164	181	187
	2	177	187	190	204	201	196	192	165	193	188	201	191	184	180
	3	173	185	189	201	201	195	201	188	195	191	198	199	185	185
	4	172	180	188	204	200	191	200	182	196	192	185	192	185	186
	5	173	182	192	196	201	195	197	218	193	189	198	194	185	194
	6	172	198	192	201	202	193	207	193	200	198	193	205	187	190
	7	169	188	193	192	202	192	193	182	194	197	185	180	176	190
	8	158	182	145	197	194	187	204	179	192	195	179	182	187	184
	9	166	194	188	199	198	189	200	176	194	195	165	191	192	188
	10	172	184	189	195	194	194	203	177	200	189	184	194	190	186
	11	173	186	194	201	191	174	204	167	188	188	187	195	186	176
	12	168	171	181	202	190	182	204	178	195	182	184	166	180	172
	13	172	188	184	197	188	174	206	193	190	191	190	191	178	174
	14	172	194	189	198	194	180	211	189	196	198	185	193	185	178
	15	173	192	194	203	201	180	209	177	196	193	183	195	180	187
	16	159	179	186	189	189	178	200	181	189	189	187	191	167	185
	17	145	153	144	150	149	140	172	144	153	152	153	133	145	171
	18	166	184	177	176	201	173	175	165	161	176	184	178	173	181
	19	171	192	185	211	197	183	195	184	195	177	174	188	181	186
	20	173	191	182	202	187	181	205	173	199	186	173	183	176	181
	21	170	191	185	206	149	185	213	188	191	197	188	188	175	181
	22	173	181	182	192	205	182	202	187	180	186	183	201	179	174
	23	175	192	194	202	203	184	149	183	193	192	186	193	183	189
	24	161	189	184	195	192	188	217	172	182	191	181	188	162	177
	25	172	191	153	200	196	187	206	173	201	179	181	192	186	190
	26	161	184	204	194	188	185	175	169	189	192	162	187	158	167

APPENDIX 1

(Food consumption - continued)

Group	Week	Cage No.													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1♂	27	170	185	182	192	193	179	213	176	186	185	187	193	174	190
	28	178	190	174	198	186	178	193	173	191	184	169	187	155	166
	29	169	191	169	190	188	187	196	169	182	180	173	187	168	174
	30	157	184	180	195	187	189	190	170	185	184	178	191	173	177
	31	163	185	182	204	186	192	190	175	186	191	174	189	171	185
	32	155	182	184	199	184	179	199	176	180	198	174	192	176	178
	33	157	170	164	188	111	158	180	160	168	175	163	172	167	148
	34	170	189	186	178	192	169	177	175	167	177	175	180	166	178
	35	171	185	169	183	200	172	194	172	180	185	172	188	172	177
	36	161	190	181	187	180	187	195	163	179	168	178	190	180	178
	37	172	190	177	199	177	176	198	166	179	180	196	188	175	179
	38	168	186	174	198	178	181	182	164	179	175	169	179	172	161
	39	169	188	182	195	176	179	192	172	182	184	178	181	176	178
	40	173	189	182	195	180	181	192	172	188	182	171	185	178	178
	41	166	186	179	195	173	174	182	168	185	185	172	185	176	183
	42	178	195	187	186	181	190	190	176	176	187	179	188	180	186
	43	161	184	180	197	173	174	187	169	184	184	176	185	172	179
	44	171	195	190	195	179	194	195	169	185	189	185	168	173	180
	45	163	178	185	196	181	177	192	163	181	177	181	180	169	174
	46	162	173	170	193	174	169	187	161	181	188	176	187	182	168
	47	160	182	182	188	169	176	180	166	166	183	170	182	180	178
	48	174	176	179	196	182	186	192	192	182	196	195	188	178	182
	49	159	184	162	174	177	174	184	187	174	185	174	177	152	159
	50	158	185	182	189	164	177	176	168	169	188	170	169	174	176
	51	158	169	186	196	178	178	194	170	174	185	171	186	183	186
	52	150	188	175	194	191	178	181	167	178	177	161	170	175	176

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APPENDIX 1

(Food consumption - continued)

Group	Week	Cage No.													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1♂	53	157	177	177	188	195	181	178	170	176	179	172	160	172	177
	54	146	173	179	160	186	172	173	165	167	186	177	188	177	171
	55	150	168	183	173	175	164	176	158	169	174	170	169	180	174
	56	171	169	186	182	178	182	173	158	181	193	167	180	168	175
	57	186	190	188	185	194	187	193	175	191	197	181	198	180	180
	58	183	189	183	193	194	178	189	175	184	181	179	186	173	180
	59	176	209	177	187	181	190	193	165	187	191	170	179	180	174
	60	206	204	184	188	186	183	188	164	183	186	171	178	171	177
	61	190	208	167	185	191	190	181	169	179	188	177	181	180	174
	62	187	211	184	195	188	183	179	153	181	186	179	187	185	182
	63	189	210	187	185	181	181	187	134	180	186	167	184	184	177
	64	190	243	179	192	214	199	182	173	189	193	178	188	185	178
	65	189	196	185	182	177	180	199	171	176	190	166	181	176	170
	66	185	190	175	179	178	185	199	175	198	193	175	184	182	169
	67	182	200	175	193	179	189	195	171	184	194	176	167	187	170
	68	178	195	161	182	184	191	194	170	185	192	186	181	181	178
	69	188	203	157	175	186	184	192	172	185	173	182	185	183	177
	70	188	198	131	189	177	181	189	170	170	187	168	185	174	173
	71	181	202	187	204	180	179	195	174	176	181	171	185	177	176
	72	186	201	182	199	147	185	182	174	179	154	177	186	181	180
	73	184	193	175	203	192	182	180	175	179	162	173	192	180	175
	74	189	201	182	200	181	184	192	171	177	162	163	178	181	179
	75	187	207	179	199	185	184	197	177	185	150	153	192	185	140
	76	157	204	199	179	183	182	195	170	180	159	148	186	189	175
	77	169	211	194	203	187	189	192	179	186	167	150	180	178	167
	78	191	193	163	195	196	196	167	178	185	184	138	176	159	149

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APPENDIX 1

(Food consumption - continued)

GROUP	WEEK	CAGE NO. 1	2	3	4	5	6	7	8	9	10	11	12	13	14
1♂	79	191	197	176	199	194	182	195	171	190	180	134	159	184	181
	80	201	217	212	210	193	194	209	183	197	184	143	183	192	164
	81	178	203	164	209	189	189	208	180	192	186	149	197	192	190
	82	190	205	204	196	186	198	204	166	150	192	126	191	198	193
	83	197	196	193	176	184	198	206	156	196	187	134	195	194	191
	84	186	201	195	167	183	176	202	137	168	190	178	183	182	195
	85	202	220	198	203	201	189	216	176	181	188	176	172	190	196
	86	209	205	202	188	202	199	211	283	129	206	189	173	186	185
	87	207	199	196	215	193	202	208	197	195	188	179	188	191	184
	88	193	215	184	211	211	188	194	201	177	174	166	187	184	181
	89	176	208	192	206	186	187	196	190	186	170	180	179	187	180
	90	168	203	226	193	202	177	198	238	175	189	189	176	190	185
	91	147	206	197	214	201	191	211	189	201	179	177	174	177	171
	92	224	201	214	209	190	182	200	174	184	174	159	173	175	153
	93	191	202	198	168	194	189	203	190	172	187	181	114	191	150
	94	197	212	201	203	192	182	184	179	188	174	185	109	174	130
	95	182	204	194	190	187	188	173	170	184	173	166	200	170	114
	96	113	198	196	193	181	190	165	154	177	174	183	199	175	98
	97	210	200	185	200	163	195	126	185	192	172	190	192	132	178
	98	225	190	204	191	183	184	182	191	197	154	203	190	171	209
	99	200	215	190	215	188	191	188	192	198	148	198	210	192	191
	100	225	221	198	205	185	206	175	194	211	167	204	214	190	203
	101	198	239	192	192	185	205	242	178	200	193	215	245	229	159
	102	189	227	194	142	178	184	207	172	189	139	174	191	209	91
	103	172	203	174	195	188	209	209	163	164	153	178	182	184	95
	104	188	201	188	187	179	190	146	117	178	124	200	203	229	
	105	184	176	193	212	202	196	202	163	199	190	201	189	225	
	106	129	125	177	194	195	173	219	182	196	183	177	170	245	
	107	151	241	254	179	202	182	256	168	192	188	179	132	219	
	108	132	231	177	184	210	185	246	179	165	178	198	29	224	
	109	116	111	230	204	190	168	216	154	169	182	237		252	
	110	61	277	256	153	110	176	226	135	202	176	249		244	

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APPENDIX 1

(Food consumption - continued)

Group	Week	Cage No.													
		15	16	17	18	19	20	21	22	23	24	25	26	27	28
2♂	-2	146	156	157	166	137	160	159	167	163	161	175	161	158	165
	-1	180	170	196	198	172	194	183	194	190	185	200	191	183	192
	1	170	184	185	200	179	188	192	189	186	164	200	201	179	202
	2	174	176	184	205	179	188	196	165	191	199	204	194	175	188
	3	183	180	185	205	180	192	187	188	195	192	212	202	183	189
	4	179	172	186	200	180	190	192	190	184	184	206	197	188	191
	5	177	173	191	205	180	193	192	188	203	184	210	195	191	199
	6	192	180	198	205	174	188	190	196	209	186	213	204	190	204
	7	197	166	192	203	190	183	183	183	208	183	209	196	191	199
	8	182	167	187	195	186	184	181	191	200	181	213	189	191	200
	9	184	176	188	193	184	184	189	198	202	191	210	194	186	206
	10	189	176	196	192	184	186	191	185	210	190	230	195	188	204
	11	191	171	192	188	189	186	177	193	207	192	193	201	182	231
	12	176	172	185	185	199	186	172	173	196	190	181	191	176	199
	13	184	174	193	188	188	183	192	204	200	173	216	197	172	200
	14	185	176	198	203	192	193	183	189	207	197	210	197	196	206
	15	164	173	192	197	183	184	182	189	205	186	212	203	189	201
	16	195	168	190	193	173	182	172	184	198	178	213	195	184	195
	17	157	126	142	158	156	138	142	145	166	150	169	154	150	132
	18	175	177	193	181	173	177	178	157	195	185	192	189	182	183
	19	201	182	192	196	176	185	184	191	202	184	212	187	186	189
	20	182	183	194	202	183	188	177	190	201	190	201	184	184	178
	21	174	164	199	169	192	204	183	201	200	190	213	188	203	181
	22	184	162	190	192	193	162	177	152	203	184	205	183	196	173
	23	189	172	172	195	197	188	191	201	212	184	214	190	191	182
	24	185	179	201	189	190	184	191	189	202	186	225	190	105	178
	25	188	176	197	189	196	188	184	183	204	186	214	179	211	181
	26	191	176	146	196	189	187	165	178	200	184	221	207	178	164

APPENDIX 1

(Food consumption - continued)

Group	Week	Cage No.													
		15	16	17	18	19	20	21	22	23	24	25	26	27	28
2♂	27	187	165	204	193	183	182	179	177	198	173	183	198	179	185
	28	177	163	195	191	188	185	170	179	173	181	201	182	159	170
	29	164	160	192	180	184	183	169	174	196	185	218	174	172	186
	30	176	173	188	184	187	177	172	182	177	183	209	182	173	185
	31	179	168	189	173	186	180	177	186	196	182	202	180	185	181
	32	191	176	187	193	181	178	178	181	192	180	211	182	188	190
	33	164	160	166	173	168	162	148	155	164	157	185	166	156	161
	34	167	160	171	182	163	169	165	165	171	169	198	172	176	172
	35	180	166	191	179	183	181	170	180	192	155	195	188	181	179
	36	181	168	192	188	189	180	178	176	201	165	199	184	178	182
	37	184	177	190	196	187	185	182	179	199	178	203	181	176	179
	38	171	167	191	185	186	177	169	181	196	173	197	181	216	176
	39	179	175	193	183	183	175	181	179	195	182	199	182	182	177
	40	182	174	187	189	186	186	184	180	198	171	200	175	179	174
	41	182	170	190	195	187	183	176	166	193	158	196	189	194	176
	42	178	173	187	192	183	177	171	179	200	163	204	177	199	181
	43	176	178	196	193	180	195	172	178	205	166	202	183	191	203
	44	197	178	204	198	192	189	192	181	199	190	198	190	185	183
	45	180	170	186	185	183	186	176	173	200	188	196	177	183	175
	46	176	204	178	186	193	180	156	192	184	167	184	188	195	175
	47	173	179	191	180	193	172	178	175	184	184	189	185	183	179
	48	180	180	194	138	190	184	190	177	208	188	199	184	188	188
	49	166	182	182	215	179	183	176	181	193	182	189	184	167	167
	50	169	177	161	202	181	178	187	177	191	170	197	176	183	180
	51	176	187	187	190	174	169	178	176	186	166	180	185	182	186
	52	173	200	192	165	175	179	173	180	195	173	162	155	180	175

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APPENDIX I

(Food consumption - continued)

Group	Week	Cage No.													
		15	16	17	18	19	20	21	22	23	24	25	26	27	28
2♂	53	176	188	186	177	186	194	164	178	200	176	190	174	174	166
	54	172	185	179	182	160	173	172	175	180	171	184	183	184	180
	55	159	171	181	174	183	165	170	168	190	150	183	157	177	182
	56	173	180	188	169	181	176	172	167	176	166	179	173	169	180
	57	180	190	189	194	189	190	183	175	202	175	199	188	189	186
	58	174	196	189	191	192	184	176	184	200	178	262	163	189	185
	59	177	197	189	186	183	171	172	175	195	180	217	178	181	183
	60	176	192	188	189	174	174	175	180	196	187	217	173	185	177
	61	173	209	186	213	183	182	175	182	198	186	223	184	185	182
	62	167	191	179	199	185	187	168	176	198	184	221	177	188	186
	63	172	188	192	198	183	187	180	179	196	177	220	173	183	187
	64	169	192	191	194	181	183	183	175	216	188	209	176	167	184
	65	156	195	191	195	182	172	176	182	192	173	209	179	186	180
	66	174	207	186	201	186	185	169	172	203	175	225	168	172	184
	67	176	207	188	179	180	191	187	181	204	178	224	176	168	170
	68	172	187	187	180	191	185	176	179	209	174	209	171	190	185
	69	160	204	193	193	188	180	164	186	206	171	218	141	181	185
	70	163	201	192	187	184	180	183	182	208	188	229	183	179	183
	71	150	193	192	174	181	189	198	177	212	180	221	146	182	181
	72	173	230	185	158	170	181	161	181	202	176	202	155	190	181
	73	171	200	191	175	174	173	163	192	205	156	218	173	187	179
	74	164	209	200	191	181	187	176	168	204	176	206	167	186	186
	75	170	218	187	191	185	179	165	171	172	175	217	145	184	188
	76	170	218	191	173	186	175	170	171	207	179	225	171	190	188
	77	169	205	194	185	162	166	181	178	211	188	206	179	168	167
	78	153	194	206	196	180	162	183	164	207	190	208	178	155	160

APPENDIX 1

(Food consumption - continued)

GROUP	WEEK	CAGE NO. 15	16	17	18	19	20	21	22	23	24	25	26	27	28
2♂	79	151	198	203	188	180	147	161	155	210	180	206	172	172	184
	80	148	196	205	176	191	137	175	176	212	183	226	178	185	189
	81	191	189	195	183	179	186	169	176	180	187	222	178	193	185
	82	189	198	193	190	174	178	172	167	200	177	217	160	164	187
	83	177	199	196	201	163	190	147	168	179	175	212	172	198	179
	84	163	193	182	191	172	177	200	170	131	164	184	176	193	173
	85	184	198	216	188	172	172	198	181	158	171	187	175	195	181
	86	170	196	186	180	185	170	202	176	111	177	166	180	196	188
	87	140	180	204	178	172	183	216	166	132	171	239	180	187	193
	88	139	181	182	197	160	174	196	153	163	143	198	129	186	169
	89	127	177	185	208	160	154	181	171	198	163	229	162	179	170
	90	199	186	219	189	165	182	194	174	199	180	235	169	180	178
	91	194	177	214	187	166	194	180	175	126	174	380	178	178	175
	92	179	171	203	172	174	182	170	176	65	171	232	158	168	159
	93	140	185	199	171	199	185	192	165	55	183	207	147	141	172
	94	228	175	178	203	156	185	176	161		184	199	127	208	148
	95	187	168	175	199	199	160	186	145		174	197	144	202	138
	96	196	167	181	206	178	169	153	175		171	149	142	200	165
	97	179	177	208	199	185	175	162	183		168	210	135	196	113
	98	201	175	205	229	174	181	218	188		175	189	166	209	133
	99	198	173	225	214	229	184	218	171		175	200	145	200	195
	100	229	172	217	196	300	184	220	174		157	206	208	207	190
	101	245	169	222	232	205	185	223	189		159		208	219	169
	102	224	151	210	237	182	162	224	200		235		168	183	113
	103	229	173	209	217	190	196	186	168		218		152	193	91
	104		155	229	220	197	179	166	185		219		213	177	182
	105		167	229	205	199	195	245	198		204		223	205	191
	106		131	227	219	194	186	239	170		242		201	200	272
	107		169	213	230	188	136	178	189		214		243	210	195
	108		173	217		190	124	219	189		219		254	204	
	109		168	150		164	105	559	195		207		243	228	
	110		155	186		179	230	386	193		147			213	

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APPENDIX 1

(Food consumption - continued)

Group	Week	Cage No.													
		29	30	31	32	33	34	35	36	37	38	39	40	41	42
3♂	-2	153	171	152	156	161	166	165	161	165	161	172	157	163	171
	-1	196	196	193	196	192	195	200	182	188	198	198	192	193	191
	1	191	193	194	196	192	204	202	196	164	196	196	200	191	191
	2	205	187	193	195	191	205	194	199	185	195	195	178	191	193
	3	207	170	193	195	199	202	198	195	189	204	191	182	184	201
	4	182	171	184	189	182	174	194	194	186	199	195	161	184	201
	5	211	191	191	193	187	178	188	202	186	199	197	187	201	196
	6	197	194	198	194	195	192	193	196	190	204	202	194	192	200
	7	201	173	194	190	196	195	189	196	191	207	195	174	160	204
	8	197	195	180	188	180	192	191	195	189	200	192	206	173	205
	9	199	189	194	193	177	192	191	201	188	207	202	214	173	201
	10	209	194	200	207	188	196	196	201	184	220	201	218	192	186
	11	201	183	190	198	188	195	191	193	183	196	195	213	195	198
	12	201	182	197	192	179	188	185	196	182	210	194	197	183	198
	13	201	187	185	196	181	185	191	189	180	206	194	197	184	188
	14	203	209	190	195	185	177	197	190	182	211	195	195	185	198
	15	204	192	183	194	185	176	188	194	181	209	197	198	185	189
	16	200	191	185	196	165	167	198	195	178	206	190	196	181	193
	17	150	160	146	142	132	162	142	154	152	155	157	171	148	163
	18	182	182	172	174	189	184	181	178	180	207	191	199	175	173
	19	197	202	186	200	197	180	188	183	177	198	190	163	180	179
	20	203	178	183	175	186	193	196	184	185	197	200	206	186	180
	21	200	189	196	198	186	184	188	184	178	212	200	195	195	197
	22	197	191	187	191	175	186	191	182	172	202	198	189	177	199
	23	200	203	190	195	189	190	200	186	182	197	212	179	187	198
	24	200	196	210	191	194	188	188	153	182	205	206	197	180	172
	25	203	197	188	200	178	188	192	199	196	205	207	203	191	196
	26	202	201	192	197	179	177	186	165	181	206	191	191	171	167

APPENDIX I

(Food consumption - continued)

Group	Week	Cage No.													
		29	30	31	32	33	34	35	36	37	38	39	40	41	42
3♂	27	193	191	191	193	168	183	187	175	183	203	193	202	178	188
	28	196	185	170	191	172	185	184	161	170	194	193	191	163	165
	29	192	189	178	191	173	168	184	185	163	207	185	180	176	184
	30	196	189	177	193	179	177	177	180	173	201	188	182	176	183
	31	198	197	176	191	171	172	187	181	167	201	196	189	180	179
	32	203	192	186	198	174	176	190	188	172	203	214	198	189	202
	33	149	169	164	167	157	171	163	163	150	174	188	154	158	168
	34	185	179	167	173	159	167	191	164	162	184	178	175	173	176
	35	186	187	169	182	169	188	170	177	170	192	194	189	177	182
	36	193	191	179	189	176	176	177	174	166	197	197	162	182	190
	37	193	189	181	188	174	174	176	182	175	194	191	165	190	184
	38	191	190	178	190	169	175	173	174	168	186	184	179	173	181
	39	181	184	177	188	173	177	177	175	168	188	196	188	178	186
	40	189	187	180	182	176	173	179	181	167	193	183	188	178	176
	41	196	193	179	192	179	167	183	180	175	206	191	179	179	190
	42	204	194	180	192	176	174	187	181	172	198	202	195	179	191
	43	203	194	172	196	170	173	185	177	164	218	192	184	184	189
	44	201	174	175	192	184	200	186	183	181	202	192	188	176	186
	45	204	180	172	187	173	178	188	175	172	192	194	178	180	181
	46	198	179	171	179	176	187	182	174	172	194	189	178	180	183
	47	194	184	161	200	158	173	176	177	167	189	198	195	179	192
	48	196	184	177	196	175	191	187	189	176	198	210	202	182	198
	49	196	190	176	182	167	245	179	184	170	195	191	188	168	168
	50	188	191	171	182	161	181	179	173	165	156	170	187	188	184
	51	204	188	168	181	167	204	182	179	167	196	199	192	178	187
	52	190	187	166	184	160	172	177	176	169	178	174	158	177	193

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APPENDIX I

(Food consumption - continued)

Group	Week	Cage No.													
		29	30	31	32	33	34	35	36	37	38	39	40	41	42
3σ	53	186	187	153	183	162	171	174	176	163	190	187	178	178	186
	54	197	170	131	175	140	166	169	180	155	183	195	184	179	186
	55	186	168	122	168	158	150	168	165	148	165	178	176	162	172
	56	196	176	178	169	166	168	184	172	166	185	191	189	175	195
	57	202	190	183	188	166	178	186	178	153	181	208	190	185	202
	58	203	186	176	192	166	168	185	186	136	170	199	187	180	192
	59	187	181	168	184	167	163	173	178	172	159	199	183	174	188
	60	195	176	166	168	164	152	182	177	171	202	172	181	174	182
	61	197	185	169	187	167	164	174	178	168	196	199	185	179	185
	62	201	199	171	188	162	184	175	165	179	202	203	184	182	193
	63	205	194	176	187	162	170	181	168	171	198	190	183	180	176
	64	207	186	175	178	177	162	182	182	170	195	199	185	186	184
	65	196	187	175	179	157	170	183	173	176	196	190	179	168	186
	66	182	183	170	188	172	186	180	169	179	194	203	187	168	193
	67	193	190	176	192	156	165	187	153	178	203	203	182	170	193
	68	164	180	176	189	180	205	182	184	182	198	217	189	159	190
	69	194	181	185	188	168	197	177	177	159	189	198	187	159	190
	70	176	183	163	179	178	205	167	178	177	191	203	183	161	185
	71	181	175	174	189	168	177	184	188	180	178	186	196	167	182
	72	158	187	174	176	188	169	168	159	180	172	193	188	164	174
	73	167	173	170	192	161	143	173	160	182	167	192	178	160	177
	74	199	191	177	188	162	186	181	178	200	191	186	181	168	184
	75	203	165	176	187	176	204	177	170	174	184	205	189	171	163
	76	204	168	171	191	174	215	183	170	176	166	187	193	164	158
	77	191	186	173	194	137	229	179	199	182	157	177	190	159	180
	78	208	156	158	187	146	235	189	166	179	226	180	190	150	163

APPENDIX 1

(Food consumption - continued)

GROUP	WEEK	CAGE NO.													
		29	30	31	32	33	34	35	36	37	38	39	40	41	42
3σ	79	212	184	184	194	143	235	178	190	176	223	152	196	172	170
	80	218	185	191	198	147	208	179	188	177	244	190	189	209	191
	81	202	193	180	201	135	185	182	185	174	239	192	195	170	201
	82	212	196	173	193	122	192	171	162	189	226	186	182	206	189
	83	215	196	178	196	179	189	181	177	155	232	182	183	175	190
	84	210	181	190	190	217	253	148	162	173	233	188	179	175	197
	85	183	173	189	181	185	209	165	165	166	224	206	198	178	189
	86	211	181	202	199	189	221	179	199	176	229	204	195	180	202
	87	200	201	201	186	171	193	198	195	164	226	193	183	176	191
	88	193	187	201	188	189	169	172	172	126	222	183	178	181	198
	89	107	189	187	139	181	202	168	176	116	214	195	128	170	183
	90	169	206	196	179	203		145	180	123	214	204	164	194	184
	91	235	181	178	191	217		174	184	131	234	204	134	173	189
	92	212	170	178	196	194		175	184	141	221	153	138	176	176
	93	208	177	187	212	196		192	156	157	227	184	130	171	188
	94	148	151	192	217	183		202	164	236	209	172	153	169	192
	95	127	167	176	208	163		134	179	167	198	206	194	169	159
	96	129	164	167	203	217		174	182	117	212	219	196	173	167
	97	70	158	188	203	178		181	171	165	178	211	220	175	168
	98	44	126	182	200	213		171	165	173	194	214	204	190	185
	99		197	188	211	164		160	133	163	265	216	211	182	177
	100		193	188	201	214		123		183	224	228	221	177	191
	101		207	186	197	175		204		173	220	209	226	170	171
	102		197	180	204	168		202		177	148	196	190	158	185
	103		179	171	213	183		203		193	160	276	212	157	194
	104		147	182	136	204		190		144	201	225	184	187	188
	105		148	179	163	196		213		187	173	273	255	192	206
	106		242	189	215	197		233		177	236	253	355	186	211
	107		234	186	206	201		261		198	231	282	254	165	221
	108		226	183	204	193		231		186	215	248	227	174	207
	109		186	180	210	169		206		184	170	394	207	192	199
	110		201	163	169	189		248		175	231	390	201	166	203

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APPENDIX 1

(Food consumption - continued)

Group	Week	Cage No.													
		43	44	45	46	47	48	49	50	51	52	53	54	55	56
4♂	-2	159	157	162	156	171	165	170	150	155	159	157	179	141	168
	-1	192	179	186	179	197	192	198	165	176	180	192	218	194	190
	1	203	180	186	196	189	194	187	183	176	182	162	218	186	201
	2	200	176	192	103	195	192	193	168	182	189	189	218	188	199
	3	200	183	195	195	193	189	188	178	178	183	190	218	191	195
	4	196	185	193	168	186	179	181	192	179	192	182	238	195	195
	5	189	194	191	191	194	159	192	197	186	188	198	228	184	199
	6	195	188	200	187	194	198	186	193	180	189	185	240	187	192
	7	192	196	199	182	188	196	185	185	184	184	185	232	196	197
	8	197	185	197	180	190	180	191	186	184	179	182	246	193	193
	9	196	181	193	185	190	185	185	172	175	180	190	250	190	185
	10	210	163	197	180	194	194	137	202	178	185	199	258	214	200
	11	169	192	193	180	189	188	184	165	174	180	184	236	197	191
	12	186	182	192	160	184	184	189	176	187	176	183	250	204	194
	13	195	159	182	185	191	186	173	187	173	174	168	232	193	192
	14	189	198	189	166	199	187	180	190	174	181	187	236	197	196
	15	189	184	182	178	184	179	187	180	174	175	189	223	194	195
	16	190	177	185	183	182	185	173	178	173	182	183	218	192	198
	17	156	140	162	125	159	170	147	141	154	152	145	213	163	175
	18	184	188	177	178	165	170	191	176	171	176	173	232	192	168
	19	153	176	190	185	197	193	195	180	172	178	173	221	202	191
	20	196	161	187	186	184	178	192	180	170	178	179	218	210	186
	21	202	177	181	191	132	186	186	175	174	188	164	224	208	183
	22	197	181	189	169	184	182	187	177	172	170	178	211	196	199
	23	204	189	183	185	193	196	193	179	178	177	182	217	206	190
	24	202	176	185	183	186	192	183	182	183	183	196	232	199	169
	25	201	181	196	195	185	187	187	184	184	181	193	151	201	197
	26	201	183	189	181	183	200	190	182	171	175	174	183	179	159

APPENDIX 1

(Food consumption - continued)

Group	Week	Cage No.													
		43	44	45	46	47	48	49	50	51	52	53	54	55	56
4♂	27	192	176	183	175	180	186	188	176	173	172	178	202	192	187
	28	225	183	183	174	182	171	188	183	163	180	186	201	171	163
	29	193	178	178	155	179	192	171	178	164	164	171	205	195	183
	30	196	181	181	177	185	177	179	175	166	177	177	175	193	185
	31	195	179	185	174	183	177	178	180	169	174	182	210	180	195
	32	209	185	190	170	178	175	174	179	172	177	188	215	196	198
	33	167	152	161	159	151	160	159	160	158	158	163	200	172	179
	34	175	167	172	162	173	167	154	170	160	159	174	197	182	171
	35	190	181	183	175	176	177	179	177	167	172	167	178	195	179
	36	194	185	175	199	172	169	176	178	170	173	180	189	200	185
	37	185	178	180	182	176	162	176	172	170	173	177	220	197	188
	38	189	173	177	173	177	174	173	177	169	171	175	215	193	189
	39	191	181	178	182	170	179	177	177	171	168	176	216	193	187
	40	186	189	163	176	176	184	182	177	174	177	175	211	194	182
	41	187	182	181	176	176	184	184	175	176	177	179	205	190	187
	42	195	182	188	186	169	189	191	183	170	174	176	216	191	184
	43	196	176	181	170	181	187	178	176	176	174	185	210	199	192
	44	195	189	191	166	190	188	188	184	146	177	180	210	196	185
	45	189	179	182	162	204	176	180	179	172	175	168	191	192	182
	46	193	179	164	160	208	182	182	177	171	172	181	197	192	180
	47	187	179	177	172	179	173	177	177	174	169	165	183	192	184
	48	186	172	186	177	182	182	184	171	177	176	182	204	192	187
	49	182	181	184	177	182	182	175	180	172	170	184	211	182	155
	50	184	184	173	171	170	179	168	178	173	164	179	195	195	189
	51	165	177	173	174	173	173	176	172	171	167	170	202	187	189
	52	179	158	175	179	173	182	181	172	159	165	156	183	171	187

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APPENDIX 1

(Food consumption - continued)

Group	Week	Cage No.													
		43	44	45	46	47	48	49	50	51	52	53	54	55	56
4♂	53	179	171	177	177	178	176	173	178	163	158	170	199	203	181
	54	179	177	171	174	170	172	169	174	174	152	158	180	192	184
	55	170	164	168	155	153	160	159	158	153	123	132	177	186	171
	56	183	176	179	176	184	178	178	177	162	158	181	174	182	177
	57	189	188	185	174	185	181	180	181	171	178	190	177	199	195
	58	181	186	184	175	177	188	181	172	158	174	189	193	193	190
	59	175	183	184	173	181	187	176	178	165	118	186	196	199	187
	60	168	173	175	182	172	179	176	174	165	175	183	188	187	184
	61	174	177	178	180	172	184	181	177	167	173	183	211	197	186
	62	164	177	182	180	175	176	176	176	162	174	188	207	223	171
	63	170	180	178	175	185	160	180	171	173	166	186	198	216	182
	64	165	178	184	185	174	143	171	178	163	176	182	201	205	184
	65	161	168	173	179	172	140	174	174	169	171	178	197	179	172
	66	158	166	179	170	177	180	181	176	174	180	185	201	201	177
	67	193	163	179	183	182	172	175	177	172	143	190	194	205	179
	68	198	157	162	172	179	153	171	173	169	172	187	186	195	178
	69	196	137	186	155	177	175	184	178	169	174	187	191	203	182
	70	197	169	175	163	176	173	181	167	165	167	188	181	209	168
	71	194	175	182	158	177	183	173	176	167	176	222	168	193	174
	72	198	169	178	171	178	181	169	173	174	169	193	185	207	157
	73	186	171	174	172	180	185	172	154	161	170	169	193	205	164
	74	193	169	185	177	173	178	174	174	162	173	143	189	201	165
	75	183	151	180	183	179	178	136	182	165	178	131	192	194	192
	76	184	184	176	176	176	168	179	179	171	172	206	196	201	187
	77	190	175	178	180	174	181	175	184	169	178	216	194	172	163
	78	197	186	184	176	165	180	168	170	164	170	214	173	148	165

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APPENDIX 1

(Food consumption - continued)

GROUP	WEEK	CAGE NO.													
		43	44	45	46	47	48	49	50	51	52	53	54	55	56
4♂	79	194	182	185	175	175	193	180	180	176	171	200	174	158	165
	80	200	183	194	168	173	159	174	187	176	182	204	179	219	172
	81	197	191	190	170	176	190	178	183	167	179	203	170	182	162
	82	193	186	199	164	174	186	182	180	179	174	211	183	224	165
	83	205	203	188	153	167	180	165	176	177	175	191	169	224	210
	84	168	186	170	168	141	190	175	157	168	177	155	173	218	211
	85	172	194	183	177	178	188	173	183	172	177	219	163	212	227
	86	183	194	191	181	174	186	184	196	190	184	232	148	223	223
	87	181	201	202	175	173	161	188	176	177	177	223	147	218	234
	88	153	198	196	171	167	183	160	163	186	161	223	125	194	191
	89	172	203	168	160	170	176	162	183	177	151	224	110	209	233
	90	193	192	208	165	188	194	160	183	185	147	234	85	185	229
	91	150	204	164	167	171	200	144	180	170	149	224	228	217	241
	92	214	187	164	160	167	197	167	181	157	156	216	180	226	204
	93	229	192	149	161	173	196	136	163	153	135	220	196	221	210
	94	221	194	141	162	171	189	179	184	151	181	218	165	220	286
	95	205	182	143	156	166	181	176	170	131	185	213	196	204	230
	96	209	182	133	151	139	152	136	164	143	169	209	156	182	230
	97	217	140	148	155	147	184	179	152	193	181	207	167	198	252
	98	225	190	197	148	173	173	167	173	175	172	205	72	220	248
	99	231	199	185	143	178	168	181	173	168	154	221		222	251
	100	222	204	202	149	192	177	164	169	174	201	214		201	278
	101	247	207	204	168	187	198	158	166	169	174	221		187	263
	102	227	197	188	171	168	190	159	162	169	181	182		183	271
	103	218	204	187	163	153	171	170	152	185	154	183		81	265
	104	208	183	189	151	150	185	165	142	159	185	207		178	279
	105	198	203	181	179	169	185	152	144	175	191	152		179	283
	106	223	153	140	141	166	184	105	175	136	182	184		120	264
	107	233	198	211	169	144	185	176	187	192	176	184		225	261
	108	226	191	174	175	171	175	170	186	188	185	180		227	226
	109	161	187	201	173	162	185	167	167	173	166	190		223	210
	110	227	196	166	293	182	183	142	167	163	156	211		213	165

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APPENDIX I

(Food consumption - continued)

Group	Week	Cage No.													
		57	58	59	60	61	62	63	64	65	66	67	68	69	70
1♀	-2	128	118	102	136	116	126	119	116	113	114	120	120	128	128
	-1	130	132	121	124	127	131	131	131	123	122	127	133	138	132
	1	129	134	130	143	131	137	135	130	120	119	130	134	134	142
	2	128	141	134	130	135	141	140	138	128	124	136	136	142	138
	3	125	125	141	138	138	135	144	146	129	134	134	143	142	146
	4	132	139	139	124	136	130	140	140	132	138	134	133	140	142
	5	136	134	138	135	130	133	140	142	120	132	131	137	132	142
	6	130	134	132	128	140	137	133	137	118	132	131	136	134	137
	7	121	136	130	130	132	131	128	146	122	124	130	136	135	135
	8	118	130	132	130	126	129	132	136	122	125	126	135	131	141
	9	127	129	135	131	129	138	134	138	122	125	128	143	132	138
	10	125	133	129	126	129	129	134	136	122	123	128	142	132	138
	11	127	132	136	136	128	129	138	139	119	120	127	133	129	138
	12	125	130	129	128	122	136	139	133	117	124	124	135	133	137
	13	110	129	128	122	127	121	134	138	114	120	119	135	124	134
	14	110	127	125	122	121	115	130	132	119	121	116	129	118	140
	15	117	113	127	124	124	127	136	176	126	123	125	123	127	133
	16	115	121	123	116	115	126	129	130	123	116	117	124	129	132
	17	91	110	112	108	101	104	104	122	101	107	103	112	123	86
	18	106	111	120	119	122	103	125	131	116	118	116	129	121	128
	19	126	134	124	118	122	107	134	135	101	116	115	133	118	129
	20	115	138	128	123	117	124	137	139	116	131	120	127	104	134
	21	115	132	124	134	130	121	143	140	118	127	107	106	123	107
	22	123	137	128	125	127	133	142	135	134	125	126	131	129	134
	23	124	129	134	122	129	130	147	159	115	121	126	126	129	140
	24	114	137	133	118	120	117	121	142	106	126	126	130	119	124
	25	117	126	132	119	134	134	134	140	120	125	123	137	131	145
	26	115	129	139	121	120	128	127	136	118	119	124	120	115	116

APPENDIX 1

(Food consumption - continued)

Group	Week	Cage No.													
		57	58	59	60	61	62	63	64	65	66	67	68	69	70
1♀	27	117	136	125	124	125	128	130	142	134	127	114	132	130	138
	28	112	133	122	125	125	132	131	141	114	134	120	138	117	112
	29	129	121	129	128	128	118	130	147	113	130	130	127	128	138
	30	123	126	120	125	122	112	129	139	109	127	118	125	130	139
	31	123	129	136	127	124	115	126	120	118	129	125	128	129	148
	32	121	131	108	121	129	129	131	149	114	132	125	129	120	148
	33	122	130	125	116	131	124	120	139	114	123	123	127	120	132
	34	112	129	116	123	116	105	135	133	115	116	124	125	120	128
	35	91	126	115	130	122	132	129	127	129	124	121	131	128	128
	36	129	122	121	124	134	126	118	133	124	138	129	134	127	140
	37	127	138	99	124	130	123	139	143	113	125	133	128	121	140
	38	129	131	126	122	132	119	123	140	114	126	116	127	129	128
	39	132	137	122	116	132	109	132	149	114	114	127	122	124	137
	40	132	139	128	127	139	125	129	148	123	135	120	144	132	142
	41	126	133	131	126	129	134	133	150	115	140	124	126	123	140
	42	130	137	133	129	133	128	132	144	108	128	125	122	126	141
	43	131	131	126	125	133	131	156	134	111	126	133	129	132	139
	44	127	130	128	121	131	142	134	145	130	136	133	138	133	152
	45	136	131	102	111	109	124	127	123	101	109	133	125	107	126
	46	136	119	138	110	148	134	135	133	115	135	133	132	123	144
	47	129	124	136	125	138	135	141	137	135	130	131	128	128	147
	48	136	141	126	131	140	126	138	150	110	121	132	138	135	137
	49	128	131	137	123	122	127	129	135	116	124	130	140	114	129
	50	132	139	143	126	133	120	136	143	118	132	135	133	130	141
	51	125	143	135	119	125	130	145	176	120	126	133	134	128	148
	52	128	136	129	118	139	120	137	137	115	127	123	118	131	144

000177

000178

APPENDIX I

(Food consumption - continued)

Group	Week	Cage No.													
		57	58	59	60	61	62	63	64	65	66	67	68	69	70
1♀	53	131	119	136	131	134	129	131	145	121	131	113	134	133	141
	54	123	134	137	120	130	131	136	143	115	129	126	136	131	141
	55	129	126	134	131	128	134	134	140	127	131	129	132	144	145
	56	123	132	129	131	117	127	122	120	105	115	109	126	116	126
	57	130	143	138	109	136	132	148	143	130	140	133	150	126	154
	58	140	157	143	135	141	131	147	158	137	145	135	134	131	157
	59	142	142	135	135	132	121	146	152	120	147	132	140	131	155
	60	139	138	131	117	137	126	141	149	119	133	133	138	113	158
	61	143	145	142	128	132	132	151	146	118	148	135	141	127	156
	62	152	137	143	129	138	122	145	146	123	127	143	145	136	170
	63	143	145	142	124	137	128	141	144	128	139	141	137	141	167
	64	141	138	148	135	131	131	144	131	121	137	131	139	143	164
	65	147	145	141	129	146	134	125	147	125	138	124	146	138	160
	66	137	149	138	129	137	138	157	156	125	136	135	147	147	147
	67	147	144	135	142	138	138	145	146	121	135	135	137	134	184
	68	141	145	145	136	125	139	144	162	131	138	127	146	139	173
	69	152	145	147	134	140	142	139	154	121	128	138	142	138	168
	70	133	136	117	137	124	145	147	150	113	131	116	129	138	144
	71	148	138	141	136	145	141	142	165	129	132	132	129	131	181
	72	151	143	140	140	118	127	135	145	132	131	122	116	130	171
	73	125	139	145	128	138	129	158	149	125	124	127	122	130	161
	74	130	139	138	128	124	124	153	149	124	129	124	124	137	171
	75	136	140	117	128	131	121	146	160	124	125	111	129	132	164
	76	159	138	141	129	144	121	146	162	126	127	128	122	146	170
	77	153	159	144	136	136	122	146	168	128	124	130	147	126	155
	78	153	150	137	130	137	146	158	179	130	116	134	147	109	160

APPENDIX 1

(Food consumption - continued)

GROUP	WEEK	CAGE NO. 57	58	59	60	61	62	63	64	65	66	67	68	69	70
1♀	79	161	148	149	140	133	142	173	163	133	101	138	140	143	198
	80	154	146	134	140	141	146	173	177	134	123	133	140	142	192
	81	165	133	130	134	115	155	174	163	136	124	144	133	140	180
	82	159	140	142	134	133	137	157	179	143	127	144	159	146	189
	83	167	148	136	139	137	142	174	174	144	135	133	149	157	177
	84	156	154	157	124	140	139	144	195	103	144	144	141	151	180
	85	162	148	148	140	148	163	165	168	131	139	135	151	156	181
	86	155	150	150	135	146	160	134	173	135	133	155	139	159	183
	87	162	123	148	140	141	150	164	162	129	137	131	136	159	162
	88	154	129	142	134	149	149	146	150	135	125	135	143	123	171
	89	146	129	118	132	135	130	173	118	129	135	129	153	149	163
	90	153	123	103	142	126	137	179	120	137	128	133	146	154	153
	91	161	129	114	121	140	110	197	111	129	125	126	165	130	110
	92	163	114	105	124	134	108	192	125	116	130	108	154	157	191
	93	161	165	151	115	137	108	189	155	107	97	113	131	158	195
	94	163	141	164	111	157	97	186	148	108	134	103	136	161	196
	95	152	141	140	136	146	115	190	180	110	137	109	139	162	197
	96	147	137	154	138	154	90	184	177	136	89	136	184	150	193
	97	170	155	130	135	143	157	207	185	119	113	118	169	140	204
	98	160	150	165	136	134	145	219	255	135	130	124	198	155	201
	99	149	138	155	139	149	141	195	283	106	126	153	169	148	208
	100	171	117	160	148	156	157	203	204	160	134	152	191	159	222
	101	200	172	149	135	130	145	175	212	182	130	131	166	209	200
	102	182	160	147	125	63	142	221	184	139	137	144	180	159	185
	103	170	158	151	120		151	159	197	153	103	133	246	181	192
	104	208	159	141	144		147	166	198	113	125	148	138	176	216
	105	161	141	174	137		141	146	210	96	136	107	169	160	
	106	167	139	172	136		161	159	175	170	127	137	184	204	
	107														
	108														
	109														
	110														

0001179

APPENDIX I

(Food consumption - continued)

Group	Week	Cage No.													
		71	72	73	74	75	76	77	78	79	80	81	82	83	84
2♀	-2	112	84	124	127	110	127	116	118	120	117	112	109	122	114
	-1	124	119	133	132	116	135	121	125	131	130	126	140	131	123
	1	126	123	138	151	120	136	125	160	135	133	118	125	136	130
	2	156	124	144	144	125	136	122	134	133	130	122	127	139	132
	3	134	118	146	147	131	140	127	121	138	134	122	126	137	132
	4	132	125	143	148	126	138	122	140	136	136	126	130	138	133
	5	132	124	136	155	126	142	176	144	141	131	128	131	143	178
	6	131	128	138	144	125	138	119	128	134	128	124	128	128	127
	7	128	124	135	140	121	138	116	178	136	131	120	126	134	122
	8	124	120	133	145	117	135	121	137	140	132	122	123	131	119
	9	124	119	135	138	126	131	119	124	132	133	121	122	134	127
	10	129	125	132	140	127	128	120	128	141	128	124	119	137	126
	11	125	114	135	136	120	134	114	128	143	126	121	126	140	125
	12	126	117	135	134	113	128	117	127	133	127	120	123	136	118
	13	122	116	131	132	113	129	115	132	134	126	120	122	131	113
	14	118	115	131	136	115	133	120	129	129	127	118	117	134	118
	15	128	107	132	127	125	128	112	127	140	128	118	121	133	117
	16	126	113	123	140	121	118	110	126	128	121	117	117	129	105
	17	103	88	112	107	106	107	94	112	114	100	117	105	119	108
	18	120	103	126	117	109	121	103	121	119	114	104	97	130	116
	19	123	103	122	126	118	120	103	122	130	118	115	109	128	119
	20	124	109	124	122	116	124	113	122	132	117	124	109	106	125
	21	124	113	134	126	122	121	114	122	147	123	126	117	130	127
	22	124	117	132	124	117	131	128	127	123	116	109	113	137	120
	23	132	110	139	141	126	132	121	135	135	124	115	119	139	121
	24	122	113	138	132	117	132	121	123	127	122	112	128	124	120
	25	126	107	147	136	125	130	114	123	134	130	115	118	151	119
	26	126	120	134	127	122	129	111	124	128	132	119	113	128	105

0001180

APPENDIX 1

(Food consumption - continued)

Group	Week	Cage No.													
		71	72	73	74	75	76	77	78	79	80	81	82	83	84
2♀	27	130	111	147	137	113	126	128	122	132	126	119	114	137	127
	28	127	116	128	137	134	144	114	127	127	125	122	118	131	124
	29	127	115	132	131	123	136	106	129	119	119	123	118	137	129
	30	130	110	135	129	122	135	104	122	132	122	117	122	138	127
	31	131	114	133	133	111	134	108	129	130	114	124	125	145	127
	32	134	114	121	131	131	138	119	134	133	129	130	132	145	130
	33	121	105	121	114	117	125	103	131	130	122	120	107	136	121
	34	113	90	109	106	110	105	106	113	121	112	108	109	122	121
	35	129	124	121	131	112	135	109	125	126	125	119	114	140	125
	36	127	114	146	128	110	125	133	127	125	132	132	127	136	135
	37	119	114	136	136	121	133	118	130	126	128	132	123	132	121
	38	115	112	130	113	109	126	111	122	127	127	112	117	130	124
	39	119	109	130	115	116	127	113	125	131	120	120	116	134	127
	40	126	116	140	135	121	125	107	131	132	118	122	121	135	140
	41	121	114	128	138	110	135	121	133	133	125	122	125	143	127
	42	130	111	129	132	113	134	115	136	126	133	126	126	143	124
	43	130	117	148	134	116	141	118	132	126	136	128	127	146	103
	44	128	114	150	131	122	147	121	131	131	136	129	123	137	110
	45	135	114	119	133	119	149	125	137	148	135	115	117	140	116
	46	129	126	143	137	120	136	119	133	119	139	124	131	147	117
	47	135	113	160	130	120	147	117	134	136	120	118	122	131	134
	48	126	111	149	138	122	150	119	136	132	132	124	138	145	138
	49	126	112	137	136	119	139	114	127	135	127	124	129	119	150
	50	114	116	148	140	114	138	118	128	130	118	140	123	147	151
	51	134	118	143	135	117	124	104	134	127	128	116	130	156	130
	52	143	121	145	135	121	162	118	136	124	131	110	107	137	131

000181

000182

APPENDIX I

(Food consumption - continued)

Group	Week	Cage No.													
		71	72	73	74	75	76	77	78	79	80	81	82	83	84
2♀	53	136	108	139	137	124	143	127	126	147	136	129	128	147	138
	54	128	121	145	139	113	142	123	134	140	120	127	118	140	127
	55	115	118	134	134	123	122	129	117	124	135	136	128	127	128
	56	128	106	151	127	116	141	109	132	153	122	115	115	148	116
	57	141	133	153	147	123	153	132	146	146	139	151	152	156	134
	58	133	121	158	138	122	138	133	138	143	138	139	138	161	135
	59	136	124	154	147	122	145	121	133	139	134	130	132	145	138
	60	145	116	141	142	128	150	121	134	141	138	126	132	144	137
	61	142	125	148	145	116	144	122	141	136	137	132	132	148	131
	62	140	122	158	145	122	151	125	144	142	137	141	136	152	143
	63	141	129	150	151	134	165	122	144	147	141	140	139	151	140
	64	128	121	151	140	117	156	119	135	146	127	130	133	152	140
	65	130	125	157	142	128	153	121	138	146	132	135	131	151	137
	66	148	129	148	145	121	161	120	146	144	146	135	103	152	147
	67	137	121	160	140	130	152	134	129	149	130	148	131	147	144
	68	136	129	161	153	129	154	127	145	135	135	137	134	149	148
	69	135	126	157	130	123	155	129	138	145	135	125	129	157	132
	70	119	136	150	144	133	159	126	143	150	149	142	137	155	127
	71	113	129	148	150	125	152	129	138	142	139	138	138	161	133
	72	131	115	154	144	124	121	102	134	141	141	133	132	151	119
	73	131	130	149	141	118	147	123	137	144	144	137	128	135	141
	74	133	124	149	147	120	145	122	139	141	131	148	130	156	131
	75	131	118	148	136	134	149	121	155	134	139	128	127	159	95
	76	134	132	149	142	129	155	117	139	147	144	141	140	152	111
	77	146	130	156	150	139	167	127	146	148	145	138	139	149	117
	78	138	126	165	157	139	163	118	135	141	147	137	137	149	113

APPENDIX 1

(Food consumption - continued)

GROUP	WEEK	CAGE NO.													
		71	72	73	74	75	76	77	78	79	80	81	82	83	84
2♀	79	196	128	162	147	136	161	129	141	142	147	139	142	163	135
	80	145	125	165	152	150	207	130	150	162	146	149	149	174	144
	81	142	132	169	164	138	163	130	156	149	144	147	150	161	134
	82	140	135	168	164	142	149	125	155	151	149	156	155	167	168
	83	140	144	172	138	140	107	128	153	158	144	147	159	170	164
	84	148	126	170	137	140	106	129	138	147	133	150	156	164	153
	85	148	131	161	154	142	113	130	150	168	147	165	159	164	151
	86	153	144	163	164	149	104	135	166	236	150	155	152	171	162
	87	139	142	159	132	143	165	120	161	135	140	164	157	172	155
	88	125	162	145	172	158	125	133	146	122	149	154	142	160	157
	89	124	136	154	165	150	147	126	155	128	152	142	147	154	160
	90	126	140	164	167	154	100	137	151	137	154	143	149	157	165
	91	120	153	172	155	148	120	143	125	172	149	146	169	165	167
	92	89	151	155	170	145	147	140	153	163	150	150	156	145	147
	93	108	145	152	167	143	82	129	160	177	158	136	146	149	156
	94	116	146	131	169	135	116	131	162	170	147	163	153	159	141
	95	151	151	140	160	131	123	120	121	172	133	135	176	156	133
	96	133	154	137	161	143	75	120	153	152	164	150	158	154	142
	97	154	165	118	162	133	102	102	151	179	163	153	149	150	131
	98	166	161	117	158	123		110	151	179	165	158	197	166	164
	99	182	183	120	158	107		97	158	175	161	155	97	154	153
	100	181	194	117	141	91		118	163	176	178	161	114	136	161
	101	174	166	177	155	116		135	158	203	144	169	210	126	187
	102	136	156	157	169	110		130	158	180	184	179	126	141	163
	103	154	184	140	150	97		128	143	172	177	145	169	122	142
	104	162	209	157	150	154		141	156	180	172	180	340	177	184
	105	176	167	134	147	158		140	261	166	163	188	173	189	170
	106	172	187	143	128	175		145	207	189	175	185	220	179	181
	107														
	108														
	109														
	110														

000183

000184

APPENDIX I

(Food consumption - continued)

Group	Week	Cage No.													
		85	86	87	88	89	90	91	92	93	94	95	96	97	98
3♀	-2	112	115	114	122	112	121	111	113	105	119	122	112	140	120
	-1	121	121	126	135	124	128	120	127	117	132	135	123	135	127
	1	124	120	127	136	126	132	124	127	117	141	139	124	135	132
	2	134	126	127	136	131	136	132	128	121	139	138	138	141	138
	3	128	128	127	146	130	137	131	137	121	138	142	138	145	142
	4	126	126	121	138	128	127	128	134	113	138	139	130	133	143
	5	123	129	127	138	133	127	124	120	116	138	134	132	137	135
	6	123	125	118	134	127	128	123	124	110	138	135	131	137	132
	7	124	128	114	128	124	125	120	134	115	133	128	130	132	131
	8	119	126	122	133	124	122	121	120	116	136	136	132	134	133
	9	120	121	117	128	125	123	120	120	117	133	126	118	136	129
	10	144	134	112	133	127	131	130	121	116	136	128	129	140	132
	11	115	124	129	131	126	123	116	122	116	132	127	129	144	136
	12	119	122	118	126	120	118	116	115	114	124	126	129	134	131
	13	122	126	116	124	125	117	115	122	113	129	124	125	132	128
	14	118	130	116	128	119	121	115	108	113	129	127	128	131	125
	15	113	125	115	126	118	118	114	105	108	121	123	121	135	127
	16	109	123	109	122	116	119	115	112	111	124	128	118	131	134
	17	112	121	97	101	101	80	94	107	98	97	103	139	104	110
	18	113	114	108	110	116	118	112	108	94	117	110	119	119	135
	19	112	115	112	120	117	113	117	113	108	124	116	112	123	124
	20	115	115	108	118	118	120	109	128	103	125	123	124	132	129
	21	126	119	122	132	133	125	123	117	113	133	126	130	135	133
	22	116	117	119	125	122	127	117	117	110	126	119	123	131	134
	23	120	137	116	133	122	133	110	119	114	128	128	120	136	125
	24	129	131	122	129	117	119	120	142	110	118	124	134	119	117
	25	125	121	108	124	129	118	115	130	110	130	121	133	154	134
	26	159	131	114	129	127	130	119	124	101	122	119	110	119	118

APPENDIX 1

(Food consumption - continued)

Group	Week	Group No.													
		85	86	87	88	89	90	91	92	93	94	95	96	97	98
3♀	27	118	139	116	125	121	120	114	118	112	118	120	113	145	137
	28	124	132	116	128	126	126	116	127	118	126	120	123	122	124
	29	119	130	114	128	124	125	137	107	118	121	124	137	129	127
	30	119	124	121	138	124	122	120	123	115	123	121	127	128	134
	31	117	130	120	130	120	126	125	111	113	120	129	122	144	134
	32	125	135	127	134	125	121	125	129	115	133	142	136	149	142
	33	106	124	112	110	116	111	109	126	96	117	121	125	137	133
	34	102	118	101	114	116	108	101	102	109	115	111	114	136	117
	35	113	120	127	125	121	128	117	124	113	129	129	121	139	133
	36	121	132	113	129	126	124	110	132	118	125	129	130	140	135
	37	118	135	116	134	126	123	130	127	120	123	129	127	119	135
	38	111	123	116	131	119	122	117	119	108	121	127	132	136	132
	39	112	126	116	125	116	127	117	125	112	116	129	121	142	128
	40	114	134	115	130	124	135	122	127	113	128	130	132	138	139
	41	115	132	111	127	126	133	124	127	112	130	132	135	142	133
	42	120	135	119	131	126	130	125	127	115	133	133	135	143	130
	43	123	127	117	124	123	136	122	123	115	134	129	129	142	134
	44	118	139	122	134	127	134	107	127	117	130	129	138	152	127
	45	119	131	118	120	133	124	117	120	117	128	130	129	153	138
	46	121	133	122	120	135	128	119	138	115	134	129	152	149	141
	47	124	138	121	129	127	124	123	129	120	131	127	126	146	135
	48	130	146	114	130	134	129	128	138	121	138	142	140	155	150
	49	109	138	114	119	128	122	117	122	117	132	137	134	120	122
	50	124	132	117	125	119	120	118	129	116	126	120	135	133	133
	51	119	133	120	133	118	122	122	127	114	128	120	132	147	135
	52	119	140	122	136	133	136	120	129	116	130	115	96	137	122

0001185

000186

APPENDIX 1

(Food consumption - continued)

Group	Week	Cage No.													
		85	86	87	88	89	90	91	92	93	94	95	96	97	98
♀	53	122	138	123	138	126	129	119	132	116	133	123	137	147	141
	54	122	157	116	131	131	115	106	126	114	126	137	129	143	141
	55	113	122	110	124	112	101	104	116	118	127	142	125	145	139
	56	127	156	113	137	119	130	118	138	112	121	129	120	137	114
	57	128	142	122	145	135	144	120	137	122	133	142	146	128	139
	58	126	143	138	128	130	136	113	129	124	133	142	150	158	131
	59	123	132	114	140	124	138	107	124	123	132	143	140	157	132
	60	136	142	122	128	128	133	105	141	121	132	136	136	159	140
	61	134	129	124	136	125	138	111	129	115	132	142	136	163	151
	62	128	141	120	123	136	141	121	134	126	134	147	157	166	153
	63	131	140	130	139	139	139	118	138	129	139	132	150	162	149
	64	135	131	124	133	139	135	106	136	123	124	135	149	168	150
	65	125	134	128	139	129	138	116	139	119	130	132	143	139	149
	66	130	134	129	139	170	148	118	136	125	141	134	149	161	162
	67	135	120	123	150	141	133	127	134	116	123	122	154	175	158
	68	131	108	128	141	147	118	119	125	127	134	132	142	153	158
	69	136	126	131	143	151	135	124	128	129	141	137	150	173	148
	70	120	135	140	139	137	126	126	129	123	140	147	143	161	174
	71	126	132	109	106	137	127	122	132	124	134	148	142	171	153
	72	136	136	120	144	133	135	135	120	126	132	139	149	161	149
	73	127	136	110	136	136	124	121	119	112	119	156	143	159	151
	74	130	140	114	136	158	126	123	135	120	119	138	148	155	153
	75	133	146	122	136	139	135	142	135	124	130	144	145	163	148
	76	121	142	126	156	159	130	131	141	126	137	144	156	168	152
	77	137	144	112	155	149	140	137	144	124	130	152	151	143	148
	78	123	149	125	146	153	146	137	141	129	127	146	148	146	130

APPENDIX 1

(Food consumption - continued)

GROUP	WEEK	CAGE NO.													
		85	86	87	88	89	90	91	92	93	94	95	96	97	98
3♀	79	102	128	118	144	159	141	143	156	123	137	141	146	155	154
	80	123	144	113	146	159	140	137	149	130	142	161	146	153	158
	81	115	135	120	130	149	133	138	152	129	130	150	128	119	151
	82	119	153	126	144	173	140	135	148	120	118	157	157	171	148
	83	120	149	135	158	139	149	139	155	129	125	144	173	164	149
	84	104	150	111	161	161	134	140	156	124	128	155	172	161	153
	85	145	159	117	173	149	144	140	141	130	125	154	165	169	147
	86	140	158	132	160	128	138	139	143	140	150	173	178	156	174
	87	131	153	122	159	178	154	160	127	135	134	154	161	135	157
	88	129	156	134	155	179	142	151	120	139	149	155	150	134	158
	89	129	144	127	164	177	147	140	105	123	136	151	167	151	148
	90	137	140	123	167	187	164	156	94	127	145	166	169	129	146
	91	107	160	144	161	164	169	120	166	149	157	142	170	103	146
	92	95	143	134	153	179	157	140	153	116	150	145	164	179	165
	93	143	165	129	160	164	162	160	168	146	142	156	167	202	128
	94	131	141	129	158	170	172	157	146	137	168	166	137	214	158
	95	173	195	121	150	153	198	53	159	128	141	147	167	153	138
	96	156	188	136	171	174	160	135	139	128	149	146	148	156	129
	97	153	168	142	138	172	174	154	132	127	170	145	151	209	109
	98	180	176	156	167	154	156	127	118	137	157	144	158	231	96
	99	176	176	135	207	178	167	161	118	138	152	124	148		102
	100	168	159	136	153	155	164	148	115	148	161	106	162		87
	101	162	185	171	176	163	140	169	107	145	151	168	159		206
	102	178	153	141	151	150	124	202	113	136	175	156	132		147
	103	153	154	141	168	133	123	158	124	118	159	136	114		150
	104	176	150	120	159	137	149	165	117	137	157	194	160		162
	105	144	173	141	156	64	143	158	152	188	157	182	175		177
	106	164	165	148	109	86	138	164	139	164	145	192	170		179
	107														
	108														
	109														
	110														

0001187

0001188

APPENDIX 1

(Food consumption - continued)

Group	Week	Cage No.													
		99	100	101	102	103	104	105	106	107	108	109	110	111	112
4♀	-2	131	118	110	116	117	117	121	119	119	117	114	121	127	137
	-1	130	128	120	130	129	126	135	128	125	129	121	132	122	126
	1	138	123	128	130	129	125	134	134	127	131	127	138	132	130
	2	147	124	127	125	132	73	130	131	131	132	130	135	133	136
	3	146	130	131	126	156	156	135	132	141	136	130	136	134	134
	4	142	124	129	123	135	134	131	127	137	131	126	134	132	135
	5	138	125	128	136	137	137	132	140	125	132	131	126	132	132
	6	142	122	129	130	130	140	132	127	126	132	127	126	133	133
	7	133	124	127	119	132	134	133	121	128	122	135	121	131	131
	8	134	118	128	122	130	134	127	122	124	130	118	116	129	132
	9	137	119	125	122	128	132	128	120	122	140	121	122	129	135
	10	132	125	124	124	132	136	124	120	128	130	121	126	135	137
	11	137	120	124	123	129	128	127	120	118	130	124	123	115	120
	12	135	119	122	118	126	131	118	118	118	125	122	118	134	133
	13	131	117	125	118	130	137	127	118	122	124	121	125	135	132
	14	138	112	126	119	129	133	122	121	124	124	124	119	135	127
	15	132	115	125	113	126	126	115	115	121	124	114	124	133	131
	16	132	116	124	109	118	111	121	120	115	127	117	123	129	123
	17	106	105	109	98	89	108	116	105	92	110	103	103	113	108
	18	120	120	119	114	113	111	134	106	113	119	113	114	124	113
	19	132	118	126	113	121	123	118	111	115	122	122	120	129	104
	20	130	112	130	109	118	120	125	109	116	99	120	113	124	130
	21	121	118	123	118	123	128	119	105	113	129	132	124	132	127
	22	129	120	121	110	130	130	126	118	119	119	123	119	121	127
	23	134	123	129	107	127	129	118	120	123	118	122	122	130	132
	24	131	116	125	128	120	120	130	129	115	105	119	121	122	116
	25	134	115	133	117	126	139	130	122	116	127	128	123	140	133
	26	145	139	127	117	116	131	125	129	113	121	129	112	121	110

APPENDIX 1

(Food consumption - continued)

Group	Week	Cage No.													
		99	100	101	102	103	104	105	106	107	108	109	110	111	112
4♀	27	128	114	129	117	128	131	126	115	114	128	109	127	129	125
	28	133	118	129	117	126	136	143	112	109	123	118	121	127	116
	29	134	116	126	116	114	136	133	120	109	120	117	124	124	130
	30	138	116	137	122	111	127	122	120	116	120	124	123	130	136
	31	133	118	130	116	126	130	124	132	116	118	118	115	137	131
	32	145	115	136	116	124	121	131	127	118	132	130	125	149	147
	33	128	103	121	123	118	116	115	111	112	120	125	115	132	126
	34	115	104	121	100	112	126	110	115	104	114	97	112	131	126
	35	125	117	121	113	122	123	135	123	114	113	116	113	133	122
	36	128	114	120	122	116	119	120	122	109	116	127	121	136	136
	37	134	117	129	132	127	156	129	128	115	124	129	127	131	133
	38	131	116	121	118	127	122	128	118	116	117	123	117	129	132
	39	138	115	120	126	122	127	125	120	109	122	117	117	135	130
	40	132	117	129	116	123	133	133	137	119	130	126	118	133	135
	41	142	123	131	121	128	138	128	130	109	131	129	118	140	139
	42	145	116	126	121	120	130	133	128	104	125	119	121	137	128
	43	136	117	133	128	117	138	130	136	117	121	126	109	143	147
	44	138	108	141	122	115	127	137	112	97	126	107	136	144	139
	45	138	105	131	121	128	135	132	123	133	121	140	132	141	133
	46	145	117	137	126	127	129	133	133	117	119	132	123	136	132
	47	145	118	139	127	120	125	133	143	117	124	125	120	127	133
	48	146	123	146	127	138	132	141	152	122	123	137	114	146	141
	49	148	122	131	122	126	134	132	131	117	116	125	139	126	124
	50	144	114	130	117	118	137	123	121	114	121	124	143	135	125
	51	153	112	128	125	122	141	129	133	117	130	117	130	142	138
	52	144	115	132	125	129	142	122	136	116	128	99	115	145	140

000189

000190

APPENDIX 1

(Food consumption - continued)

Group	Week	Cage No.													
		99	100	101	102	103	104	105	106	107	108	109	110	111	112
4♀	53	136	119	131	121	126	146	129	124	125	122	123	140	142	139
	54	145	120	127	134	130	136	124	124	121	128	138	147	135	129
	55	155	123	125	123	123	119	117	126	131	134	117	132	131	150
	56	134	109	111	112	113	137	117	113	115	118	135	132	132	124
	57	151	120	149	137	124	152	139	132	128	123	148	169	127	144
	58	151	124	132	137	134	147	132	145	126	134	139	151	143	144
	59	150	128	137	133	127	143	128	141	126	127	139	154	155	133
	60	146	124	138	128	121	134	139	135	131	129	135	144	145	148
	61	152	121	144	126	133	142	126	140	128	137	130	152	145	139
	62	160	126	140	140	135	134	140	138	127	127	162	155	163	142
	63	154	132	146	126	141	133	135	131	130	134	145	146	148	150
	64	149	124	140	126	135	134	134	126	116	128	123	154	136	127
	65	158	126	143	133	135	132	136	134	133	125	142	147	136	148
	66	167	133	149	129	143	134	132	141	132	129	144	155	150	134
	67	160	126	142	135	136	132	132	129	129	121	153	148	151	138
	68	157	125	144	128	137	129	133	130	122	127	133	163	149	138
	69	150	125	143	137	138	114	122	131	135	133	135	160	145	138
	70	159	126	138	136	137	109	131	131	126	128	137	151	145	148
	71	160	128	134	130	137	110	131	142	126	141	149	151	149	153
	72	167	119	131	108	132	127	134	132	129	135	146	147	155	146
	73	149	130	143	143	129	121	131	122	127	128	129	148	149	160
	74	152	122	134	129	130	113	134	119	120	112	143	107	139	146
	75	155	125	143	135	137	126	142	133	123	128	156	156	143	162
	76	157	129	139	143	139	120	151	110	134	139	166	143	158	149
	77	162	125	142	135	137	126	143	132	135	133	157	234	129	128
	78	158	122	154	142	144	118	147	128	135	159	155	154	126	134

APPENDIX 1

(Food consumption - continued)

GROUP	WEEK	CAGE NO.													
		99	100	101	102	103	104	105	106	107	108	109	110	111	112
4♀	79	164	135	145	141	133	136	143	172	129	146	153	150	144	140
	80	168	136	150	139	139	154	145	160	136	142	155	162	158	156
	81	166	130	144	143	131	143	143	158	133	137	148	153	156	153
	82	178	147	152	138	140	137	149	172	139	146	156	156	148	143
	83	170	139	155	137	144	129	142	174	131	152	167	143	153	126
	84	161	134	150	130	146	119	149	174	134	137	154	115	155	156
	85	171	158	136	131	143	122	142	177	138	143	162	111	150	167
	86	162	141	155	138	150	113	149	164	138	140	169	151	156	171
	87	170	121	143	124	153	145	156	167	133	153	168	103	154	150
	88	159	160	154	127	143	122	148	146	128	138	173	166	161	131
	89	134	145	151	128	139	110	138	141	133	143	148	158	145	138
	90	151	130	141	112	138	103	142	140	144	145	174		159	140
	91	154	138	166	102	156	128	142	85	155	167	159		140	125
	92	167	176	151	125	151	126	138	110	133	140	138		151	161
	93	164	153	154	144	140	137	141	135	138	146	149		137	156
	94	178	159	140	120	157	143	140	76	136	145	147		147	139
	95	173	152	127	139	139	152	124	81	109	134	135		144	119
	96	179	168	130	152	144	144	132	96	117	152	144		181	137
	97	189	157	127	133	147	162	125	258	133	144	142		189	123
	98	174	164	129	136	161	164	129	173	142	151	161		173	168
	99	185	174	131	148	148	134	135	178	146	136	127		162	166
	100	189	178	134	123	151	183	274	160	157	163	138		140	136
	101	187	155	126	140	134	163	201	164	171	168	146		179	172
	102	168	156	123	111	116	171	189	171	160	137	114		258	150
	103	176	152	123	115	117	144	179	146	145	157	151		196	138
	104	168	155	127	114	151	175	215	206	177	167	166		292	154
	105	169	151	113	147	146	215	178	209	173	151	182		219	155
	106	146	147	145	175	152	213	216	216	158	160	166		174	178
	107														
	108														
	109														
	110														

001191

APPENDIX 2

Individual bodyweights (g)

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0 (Control)	1000	3000	10000

GROUP CAGE	♂ RAT NO.	...WEEK... -3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
1	1	146	186	236	286	322	340	362	378	393	416	428	430	431	456	464	464	476
	2	138	177	239	291	321	346	371	389	392	410	424	441	456	476	487	492	496
	3	130	186	236	281	314	344	376	391	409	421	424	438	446	466	484	492	492
	4	125	184	239	289	306	352	384	392	416	439	443	411	439	457	473	482	499
	5	154	206	271	322	361	396	429	444	466	491	502	504	521	529	542	545	552
	MEAN:	139	188	244	294	325	356	384	399	415	435	444	445	459	477	490	495	503
2	6	126	181	229	286	336	378	402	419	434	455	469	470	482	491	506	496	514
	7	133	184	252	300	344	379	412	425	448	491	524	522	526	558	582	571	609
	8	137	192	261	316	364	406	429	434	462	491	509	514	539	552	566	557	581
	9	147	200	266	321	359	392	424	444	461	489	511	511	534	554	571	563	576
	10	155	192	246	306	329	356	372	389	402	426	446	448	464	472	483	476	500
	MEAN:	140	190	251	306	346	382	408	422	441	470	492	493	509	525	542	533	556
3	11	123	160	209	254	289	314	336	352	376	392	396	396	394	411	421	424	426
	12	130	166	224	266	301	334	366	391	416	451	461	477	482	509	511	524	542
	13	141	206	262	352	421	478	527	559	586	622	638	666	681	712	736	742	759
	14	147	191	249	306	339	369	391	411	436	461	474	478	489	512	536	541	556
	15	155	211	276	334	374	416	442	461	472	496	514	521	534	551	566	568	581
	MEAN:	139	187	248	302	345	382	412	435	457	484	497	508	516	539	554	560	573
4	16	129	166	239	302	346	392	429	462	476	504	522	542	564	589	610	627	651
	17	152	192	272	326	364	396	429	451	462	499	504	513	526	541	549	561	562
	18	116	152	221	274	322	360	390	419	429	454	462	470	484	499	516	527	534
	19	136	182	252	304	346	381	406	424	432	461	476	491	502	519	532	547	552
	20	159	194	266	331	382	432	464	494	512	546	569	590	611	624	652	656	664
	MEAN:	138	177	250	307	352	392	424	450	462	493	507	521	537	554	572	584	593
5	21	138	199	262	332	389	436	471	491	522	539	556	561	569	588	600	597	612
	22	121	174	242	302	361	416	441	474	496	521	542	558	579	596	614	600	596
	23	146	187	241	288	333	352	384	412	439	463	479	491	502	519	542	542	564
	24	159	216	292	361	394	476	502	554	589	616	624	639	654	671	687	692	709
	25	135	204	266	326	382	421	456	484	509	526	546	558	569	587	600	608	629
	MEAN:	140	196	261	322	372	420	451	483	511	533	549	561	575	592	609	608	622
6	26	136	200	264	329	392	434	476	504	531	561	576	591	604	621	639	644	652
	27	119	174	234	289	344	374	409	421	462	484	500	509	529	556	564	562	574
	28	147	202	262	312	354	388	414	439	458	476	491	498	511	524	534	531	549
	29	152	197	254	294	331	362	390	401	422	441	454	460	474	482	496	492	491
	30	132	196	256	318	376	414	452	471	502	532	554	567	581	596	611	612	626
	MEAN:	137	194	254	308	359	394	428	447	475	499	515	525	540	556	569	568	578
7	31	143	216	279	342	405	436	494	527	559	593	616	633	644	669	696	702	724
	32	142	179	241	306	384	394	441	464	502	526	542	556	572	599	612	624	644
	33	134	199	261	316	366	384	399	427	436	463	491	508	526	546	566	572	581
	34	122	172	219	259	299	319	349	352	384	405	414	421	438	461	474	474	486
	35	160	219	279	336	361	409	449	466	494	516	529	540	551	564	578	582	594
	MEAN:	140	197	256	312	363	388	426	447	475	501	518	532	546	568	585	591	606

000192

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	1♂ RAT NO.	...WEEK... 14	15	16	17	18	19	20	21	22	23	24	25	26
1	1	483	496	497	492	499	505	511	520	520	520	526	539	537
	2	504	516	522	525	535	549	553	564	566	570	581	585	598
	3	511	521	519	519	538	555	559	573	570	586	597	617	622
	4	504	520	522	511	512	530	546	547	548	557	555	541	572
	5	574	577	582	585	595	605	615	617	624	631	632	634	637
	MEAN:	515	526	528	526	536	549	557	564	566	573	578	583	593
2	6	519	529	527	521	550	560	570	570	569	577	574	585	577
	7	640	648	644	653	683	696	711	713	723	725	746	752	760
	8	595	621	616	612	620	637	648	651	654	667	672	693	695
	9	588	604	611	598	617	584	603	625	630	642	654	654	671
	10	511	526	528	531	538	555	562	560	565	566	578	580	581
	MEAN:	571	586	585	583	602	606	619	624	628	635	645	653	657
3	11	429	436	441	437	443	449	463	469	468	475	487	460	489
	12	552	562	567	564	575	584	592	602	607	616	625	606	636
	13	777	800	817	794	805	822	842	851	860	872	885	834	883
	14	574	590	607	587	616	631	644	642	642	652	669	644	667
	15	602	624	633	624	642	651	665	674	674	691	698	670	705
	MEAN:	587	602	613	601	616	627	641	648	650	661	673	643	676
4	16	661	678	684	669	679	712	713	716	736	778	793	806	823
	17	571	583	591	592	611	614	616	634	635	652	667	662	671
	18	546	554	568	568	565	586	598	606	575	561	570	575	577
	19	563	575	579	570	588	599	610	623	631	649	653	663	675
	20	683	701	703	686	674	741	737	769	772	781	804	814	828
	MEAN:	605	618	625	617	623	650	655	670	670	684	697	704	715
5	21	622	638	652	620	637	660	669	655	672	689	707	711	724
	22	616	639	649	640	646	664	672	635	674	683	695	713	733
	23	564	581	591	588	592	600	607	577	596	615	621	627	637
	24	711	724	740	713	736	757	766	717	745	765	776	779	791
	25	649	660	672	665	668	687	696	663	693	722	730	739	740
	MEAN:	632	648	661	645	656	674	682	649	676	695	706	714	725
6	26	676	684	697	683	694	721	734	744	737	734	760	763	776
	27	589	583	601	606	619	619	621	625	620	638	630	643	644
	28	562	583	570	538	583	594	596	611	619	616	632	639	642
	29	506	515	526	532	533	533	533	544	541	557	560	566	571
	30	642	653	655	648	675	690	707	719	726	734	747	762	767
	MEAN:	595	604	610	601	621	631	638	649	649	656	666	675	680
7	31	734	748	755	760	765	788	798	820	812	770	814	829	808
	32	643	668	676	675	689	707	719	722	718	685	724	737	719
	33	591	613	623	602	616	630	638	649	651	629	658	678	663
	34	506	518	516	523	537	548	562	571	572	549	584	599	585
	35	611	602	630	622	630	639	644	646	643	611	655	665	645
	MEAN:	621	630	640	636	647	662	672	682	679	649	687	702	684

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	RAT NO.	...WEEK... 27	28	29	30	31	32	33	34	35	36	37	38	39
1	1	537	545	551	551	551	552	544	549	546	588	567	569	579
	2	607	620	629	627	634	646	631	642	645	654	684	677	687
	3	629	629	651	661	650	662	659	664	662	669	673	692	685
	4	568	558	555	567	564	564	554	573	569	567	588	592	599
	5	646	650	661	660	664	661	663	670	664	681	694	696	704
	MEAN:	597	600	609	613	613	617	610	620	617	632	641	645	651
2	6	585	539	574	584	595	601	589	603	610	611	611	614	628
	7	756	775	755	779	789	802	775	801	802	813	831	833	849
	8	709	716	722	727	736	741	740	751	764	772	774	782	796
	9	679	687	699	691	708	718	702	722	723	726	750	740	756
	10	588	593	607	591	599	602	595	619	616	623	633	631	637
	MEAN:	665	672	681	674	685	693	680	699	703	709	720	720	733
3	11	492	498	497	505	509	515	513	522	535	536	540	542	547
	12	641	646	649	647	663	673	664	675	682	688	699	701	711
	13	901	910	908	919	920	940	929	947	966	964	965	978	971
	14	669	674	681	685	699	706	691	708	717	738	749	751	761
	15	720	724	739	737	747	752	740	762	772	777	787	786	791
	MEAN:	685	690	695	699	708	717	707	723	734	741	748	752	756
4	16	832	343	842	851	865	875	849	867	874	891	899	919	928
	17	672	677	674	685	691	689	682	693	693	706	716	720	724
	18	581	591	579	584	583	578	583	595	594	609	599	591	605
	19	682	699	703	721	727	733	731	735	735	749	732	759	773
	20	838	350	860	866	878	885	883	894	893	907	905	938	955
	MEAN:	721	732	732	741	749	752	746	757	758	772	770	785	797
5	21	728	724	734	723	721	740	679	726	739	749	760	769	775
	22	734	747	753	761	750	762	706	759	773	784	786	797	806
	23	644	654	667	666	655	675	626	674	695	696	706	718	723
	24	794	803	804	802	796	792	751	792	805	820	833	844	846
	25	750	771	774	780	771	775	729	768	782	800	807	802	808
	MEAN:	730	740	746	746	739	749	698	744	759	770	778	786	792
6	26	785	787	803	811	819	828	807	821	833	847	857	871	875
	27	651	652	657	664	672	675	667	678	684	696	700	711	721
	28	655	661	661	669	680	683	675	690	694	709	711	726	734
	29	562	563	571	571	581	587	579	586	587	597	594	605	612
	30	773	781	787	799	811	815	795	816	828	845	852	865	867
	MEAN:	635	689	700	703	713	718	705	718	725	739	743	756	762
7	31	846	864	868	869	877	839	874	884	865	904	911	902	925
	32	747	760	760	765	771	783	766	789	799	816	831	820	829
	33	694	706	720	711	720	736	731	742	753	764	777	774	784
	34	599	612	614	621	634	643	642	653	654	669	679	668	691
	35	669	680	679	684	690	706	702	715	723	731	738	730	741
	MEAN:	711	724	728	730	733	751	743	757	763	777	787	779	794

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	1♂ RAT NO.	...WEEK... 40	41	42	43	44	45	46	47	48	49	50	51	52
1	1	585	587	600	606	615	613	614	614	631	624	622	575	559
	2	694	702	716	722	729	723	734	743	749	759	764	777	777
	3	700	699	712	713	698	694	704	715	713	713	719	729	730
	4	600	604	599	605	615	613	622	623	631	620	631	641	629
	5	708	716	726	735	736	735	746	739	759	756	770	774	774
	MEAN:	657	662	671	677	679	676	684	687	697	694	701	699	694
2	6	630	635	644	647	643	648	646	651	651	649	656	657	652
	7	832	855	864	870	871	874	877	886	884	887	888	851	842
	8	802	798	807	812	810	808	807	812	822	828	845	845	847
	9	761	754	752	789	805	801	798	811	807	819	793	823	834
	10	640	648	648	656	654	659	656	660	662	664	672	667	670
	MEAN:	737	740	749	755	757	758	757	764	765	769	771	769	769
3	11	553	546	556	562	562	564	574	576	586	583	587	593	592
	12	715	724	727	737	743	740	742	749	751	759	762	772	770
	13	993	994	1019	1023	1036	1037	1036	1041	1045	1067	1054	1070	1059
	14	768	763	775	782	804	801	801	809	814	819	820	831	829
	15	739	798	808	817	824	826	830	836	842	858	858	867	863
	MEAN:	764	765	777	784	794	794	797	802	808	817	816	827	823
4	16	938	933	944	958	963	969	975	990	992	991	1002	1007	1020
	17	736	729	721	732	735	745	751	756	759	762	760	773	730
	18	618	599	593	613	614	621	643	644	642	646	649	647	649
	19	770	762	777	786	784	795	814	804	806	801	806	819	819
	20	965	963	970	992	999	957	1020	1025	1021	1033	1040	1052	1062
	MEAN:	805	797	801	816	820	817	841	844	844	847	851	860	866
5	21	730	770	787	793	811	811	813	818	821	823	817	841	849
	22	816	815	831	835	838	843	852	851	868	872	869	876	892
	23	739	744	754	762	762	772	780	781	791	794	780	807	812
	24	858	862	871	875	866	884	891	887	904	911	907	924	937
	25	809	809	813	811	817	811	800	796	798	789	795	619	-
	MEAN:	800	800	811	815	823	824	827	827	836	838	834	813	873
6	26	881	875	895	908	913	882	899	928	942	946	953	972	974
	27	720	719	725	734	734	736	744	754	765	766	760	765	776
	28	746	726	725	764	765	766	754	777	788	794	805	818	821
	29	620	617	628	632	633	631	639	644	643	651	649	660	659
	30	871	875	892	905	903	899	904	916	918	927	932	931	949
	MEAN:	768	762	773	789	790	783	788	804	811	817	820	829	836
7	31	923	928	939	928	952	951	954	963	971	971	985	999	996
	32	832	830	834	838	840	850	862	853	872	873	866	889	887
	33	801	799	807	807	808	801	809	829	845	856	851	866	865
	34	688	697	702	708	717	732	727	721	731	735	732	736	746
	35	751	757	762	769	775	775	777	787	801	802	797	807	805
	MEAN:	779	802	810	810	818	822	826	831	844	847	846	859	860

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	1♂ RAT NO.	53	54	55	56	57	58	59	60	61	62	63	64	65
		...WEEK...												
1	1													
	2	767	734	722	758	771	786	788	794	784	809	828	836	841
	3	739	741	698	729	736	734	733						
	4	638	640	619	641	655	655	653	658	674	674	679	686	693
	5	765	772	766	785	789	792	798	806	813	817	827	833	830
	MEAN:	727	722	701	728	738	742	743	753	757	767	778	785	788
2	6	660	657	649	663									
	7	847	852	858	855	862	881	898	911	912	920	933	931	938
	8	656	863	876	876	879	871							
	9	842	843	841	847	847	853	862	877	875	891	883	891	903
	10	683	695	682	697	698	695	699	704	703	715	718	724	725
	MEAN:	778	780	781	788	822	825	820	831	830	842	845	849	855
3	11	586	602	600	608	611	619	619	619	624	619	623	626	634
	12	770	775	774	791	791	796	789	802	804	810	823	817	827
	13	1065	1071	1068	1089	1086	1093	1093	1100	1106	1101	1113	1111	1107
	14	838	833	818	836	832	838	832	836	828	820	817	812	
	15	862	863	850	863	862	870	863	865	864	859	854	847	845
	MEAN:	824	829	822	837	836	843	839	844	845	842	846	843	853
4	16	1024	1029	1001	1035	1041	1049	1046	1049	1041	1049	1054	1050	1049
	17	792	787	778	796	805	810	809	816	807	815	820	821	824
	18	643	637	633	640	630	639	647	658	647	658	664	669	675
	19	820	824	820	839	843	845	846	845	832	842	835	842	846
	20	1069	1072	1062	1075	1050	1059	1079	1088	1073	1093	1094	1100	1094
	MEAN:	868	870	859	877	874	880	885	891	880	891	893	896	898
5	21	857	856	836	853	856	857	860	859	859	861	865	860	867
	22	895	895	871	895	897	905	903	906	916	925	920	927	930
	23	818	828	815	835	842	853	851	852	858	864	865	874	866
	24	940	947	944	958	972	985	979	975	975	974	978	979	979
	25													
	MEAN:	878	882	867	885	892	900	898	898	902	906	907	910	911
6	26	977	972	981	988	993	999	1011	996	1000	1012	1026	1033	1036
	27	794	768	786	787	777	793	798	803	805	811	813	823	824
	28	826	819	836	835	835	837	846	862	869	880	888	886	892
	29	659	649	653	671	667	672	675	673	676	682	686	697	688
	30	950	934	949	956	953	971	973	962	965	977	965		
	MEAN:	839	828	841	847	845	854	861	859	863	872	876	860	860
7	31	996	1007	1003	1016	1016	1034	1030	1036	1029	1033	1054	1059	1059
	32	878	875	860	870	876	875	870	877	877	830	864	853	838
	33	857	861	852	869	877	880	883	894	876	897	899	922	918
	34	745	746	749	762	759	766	774	766	762	757	771	782	794
	35	795	774	766	783	781	794	803	806	811	814	829	819	824
	MEAN:	854	853	846	860	862	870	872	876	875	866	883	887	887

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	1♂ RAT NO.	...WEEK... 66	67	68	69	70	71	72	73	74	75	76	77	78
1	1													
	2	853	851	860	869	864	866	872	873	881	889	870	863	867
	3													
	4	673	687	695	710	709	714	714	713	727	732	716	710	730
	5	839	841	844	846	852	849	859	867	872	875	870	862	869
	MEAN:	795	793	800	808	808	810	815	818	827	832	819	312	822
2	6													
	7	924	923	933	938	944	921	921	941	937	954	948	947	933
	8													
	9	907	908	919	921	922	919	936	943	952	967	972	983	984
	10	731	728	730	735	734	730	739	756	742	746	753	747	746
	MEAN:	854	353	861	865	867	857	865	880	877	889	891	892	888
3	11	639	637	641	648	653	659	649	636	665	659	664	671	657
	12	828	826	825	830	831	831	836	835	840	837	847	848	823
	13	1105	1085	1070	999	916								
	14													
	15	838	832	821	826	812	806	798	786	771	754	755	741	691
	MEAN:	853	845	839	826	803	765	761	752	759	750	755	753	724
4	16	1040	1037	976	937	882								
	17	830	824	836	838	842	850	835	849	857	863	858	855	859
	18	664	683	687	698	707	697	707	722	728	720	715	726	711
	19	844	850	856	855									
	20	1102	1117	1128	1134	1142	1143	1142	1153	1168	1175	1161	1174	1168
	MEAN:	900	902	897	892	893	897	895	908	918	919	911	918	913
5	21	878	868	870	865	865	872	868	881	889	894	890	890	904
	22	940	939	939	951	938	939	923	945	947	966	967	970	957
	23	849	837	842	837	830	821	823	829	827	827	836	847	855
	24	997	999	1012	1015	1009	1003	1000	1011	1049	1041	1036	1034	1035
	25													
	MEAN:	916	911	916	917	911	909	904	917	928	932	932	935	938
6	26	1051	1060	1054	1066	1040	1076	1066	1063	1096	1086	1091	1094	1102
	27	827	834	844	841	842	840	847	862	861	872	872	871	871
	28	904	905	912	911	914	915	922	938	944	961	953	962	964
	29	690	694	698	704	705	709	705	704	704	707	707	709	713
	30													
	MEAN:	868	873	877	881	875	885	885	892	901	907	906	909	913
7	31	1057	1052	1053	1058	1060	1060	1074	1067	1079	1074	1070	1067	1046
	32	840	844	845	917	921	928	933	938	931	937	941	941	917
	33	928	930	943	951	957	968	957	970	975	979	983	979	966
	34	800	801	807	812	813	824	805	811					
	35	830	846	848	861	862	870	870	871	881	883	881	884	869
	MEAN:	891	895	899	920	923	930	928	931	967	968	969	968	950

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	1σ RAT NO.	...WEEK... 79	80	81	82	83	84	85	86	87	88	89	90	91
1	1													
	2	871	878	840	852	813	866	868	877	897	906	895	897	901
	3													
	4	751	730	715	722	706	721	721	719	712	677	652	607	531
	5	876	883	873	851	870	900	916	916	929	940	942	946	952
	MEAN:	826	830	809	808	796	829	835	837	846	841	830	817	795
2	6													
	7	925	941	940	947	938	946	946	948	946	957	950	938	928
	8													
	9	979	1000	983	983	977	974	988	977	962	982	981	972	977
	10	748	751	748	777	742	743	750	746	749	753	748	754	749
	MEAN:	884	897	890	902	886	888	895	890	886	897	893	888	885
3	11	662	665	674	686	673	661	660	689	695	688	694	702	702
	12	819	850	847	845	852	854	854	856	856	859	854	864	868
	13													
	14													
	15													
	MEAN:	741	758	761	766	763	758	757	773	776	774	774	783	785
4	16													
	17	851	853	873	867	866	867	872	852	862	869	866	880	879
	18	719	728	732	731	732	715	711	698	710	718	718	730	723
	19													
	20	1176	1186	1179	1184	1156	1119	1125	1124	1148	1156	1159	1168	1186
	MEAN:	915	922	928	927	918	900	903	891	907	914	914	926	929
5	21	900	899	903	911	905	905	909	914	915	916	911	896	909
	22	983	987	988	994	992	1004	1002	998	1007	998	1011	985	1019
	23	869	849	879	880	884	897	901	910	924	918	903	913	931
	24	1036	1024	1025	1044	1032	1046	1040	1042	1036	1027	1023	1011	1011
	25													
	MEAN:	947	940	949	957	953	963	963	966	971	965	962	951	968
6	26	1097	1111	1102	1120	1129	1103	1101	1106	1116	1137	1125	1140	1137
	27	867	866	867	879	879	876	878	881	880	883	880	881	875
	28	962	976	973	995	1004	995	1001	1007	1016	1023	1020	1034	1042
	29	708	716	735	729	722	725	726	731	738	740	734	736	733
	30													
	MEAN:	909	917	919	931	934	925	927	931	938	946	940	948	947
7	31	1054	1067	1059	1067	1069	1081	1073	1085	1083	1070	1066	1061	1062
	32	930	949	956	967	965	895	903	994	996	1000	1007	1014	1009
	33	969	975	985	988	992	976	1001	994	994	988	985	984	990
	34													
	35	868	879	886	894	898	907	906	908	907	910	909	905	904
	MEAN:	955	968	972	979	981	965	971	995	995	992	992	991	991

000198

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	♂ RAT NO.	92	...WEEK... 93	94	95	96	97	98	99	100	101	102	103	104
1	1													
	2	911	868	859	872	871	859	860	840	827	830	800	793	787
	3													
	4													
	5	963	944	923	893	783								
	MEAN:	937	906	891	883	827	859	860	840	827	830	800	793	787
2	6													
	7	936	933	935	943	928	923	912	915	904	905	897	894	879
	8													
	9	984	990	1000	1004	1013	1012	996	1008	993	1010	1015	1009	1008
	10	755	743	746	745	740	746	740	744					
	MEAN:	892	889	894	897	894	894	883	889	949	958	956	952	944
3	11	714	721	718	726	723	725	726	721	716	708	687	679	653
	12	879	875	885	887	882	887	874	865	867	872	876	875	891
	13													
	14													
	15													
	MEAN:	797	798	802	807	803	806	800	793	792	790	782	777	772
4	16													
	17	885	863	877	888	884	889	877	874	871	873	833	856	862
	18	727	690	705	710	709	715	704	706	691	678	653	668	670
	19													
	20	1192	1162	1172	1195	1187	1207	1199	1205	1192	1207	1158	1184	1184
	MEAN:	935	905	918	931	927	937	927	928	918	919	881	903	905
5	21	911	906	906	894	893	892	882	885	877	866	855	844	827
	22	1012	1022	1031	1044	1046	1025	1022	1021	1020	1015	1012	1007	1013
	23	946	953	955	955	958	943	946	935	935	929	908		
	24	1015	1026	1002	1016	1005	983	989	981	956	962	947		
	25													
	MEAN:	971	977	974	977	976	961	960	956	947	943	931	926	920
6	26	1105	1092	1066	1066	1032	1007	956	939					
	27	873	885	877	887	890	898	890	890					
	28	1047	1051	1050	1052	1058	1073	1066	1071	1063	1066	1057	1060	1056
	29	734	731	728	725	721	728	736	721	712	715	700	698	679
	30													
	MEAN:	940	940	930	933	925	927	912	905	888	891	879	879	868
7	31	1052	1038	1029	991	975	963	941	932					
	32	1029	1046	1038	1015	1019	1026	1011	999	981	972	956	947	905
	33	994	1004	1001	1016									
	34													
	35	917	916	913	911	877	779							
	MEAN:	998	1001	995	983	957	923	976	966	981	972	956	947	905

000199

(Bodyweights - continued)

GROUP CAGE	1♂ RAT NO.	...WEEK... 105	106	107	108	109	110
1	1						
	2	772	732	724	668	628	597
	3						
	4						
	5						
	MEAN:	772	732	724	668	628	597
2	6						
	7	802	784				
	8						
	9	1037	1018	1011	996	934	940
	10						
	MEAN:	920	901	1011	996	934	940
3	11	628	623				
	12	905	892	916	925	880	892
	13						
	14						
	15						
	MEAN:	767	758	916	925	880	892
4	16						
	17	844	840	833	826		
	18	676	675	675	686	680	676
	19						
	20	1177	1197	1201	1201	1226	
	MEAN:	899	904	903	904	953	676
5	21	826	810	813	817	799	800
	22	1023	1013	1019	1027	1025	940
	23						
	24						
	25						
	MEAN:	925	912	916	922	912	870
6	26						
	27						
	28	1048	1025	1011	979	971	971
	29	665	652	657	657	655	637
	30						
	MEAN:	857	839	834	818	813	804
7	31						
	32	908	904	909	890	903	906
	33						
	34						
	35						
	MEAN:	908	904	909	890	903	906

000200

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	1♂ RAT NO.	-3	...WEEK... -2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
8	36	124	189	242	292	339	368	399	422	444	471	481	488	495	504	526	531	546
	37	128	174	239	292	346	394	434	456	472	500	509	522	532	546	559	557	567
	38	140	186	215	262	302	334	354	377	404	425	429	439	456	459	476	488	502
	39	149	189	244	300	338	376	406	432	456	476	476	484	492	506	529	526	542
	40	158	206	276	336	391	426	452	484	515	539	556	577	584	596	619	627	649
	MEAN:	140	139	243	296	343	380	409	435	458	482	490	502	512	522	542	546	561
9	41	115	226	292	339	392	419	449	474	496	511	531	534	546	566	576	585	592
	42	129	192	246	272	309	336	359	372	378	400	412	424	423	441	452	454	463
	43	137	199	263	304	352	384	412	436	454	493	496	510	529	552	572	578	598
	44	144	206	274	321	394	439	482	506	529	562	572	589	594	609	616	617	652
	45	163	206	272	312	354	382	409	427	434	452	470	477	486	504	511	515	516
	MEAN:	138	206	269	310	360	392	422	443	458	484	496	507	516	534	545	550	564
10	46	130	192	252	304	344	379	404	422	446	459	482	500	504	524	549	553	563
	47	144	174	234	272	306	341	377	400	419	442	461	473	483	494	490	484	509
	48	119	176	236	291	338	364	386	409	429	453	482	495	512	523	542	544	552
	49	137	194	259	329	392	454	499	536	566	582	609	617	634	636	661	677	683
	50	162	214	282	329	362	392	429	471	490	515	532	542	564	576	596	610	626
	MEAN:	138	190	253	305	348	386	419	448	470	490	513	525	539	551	568	574	587
11	51	136	196	254	316	356	392	421	432	442	461	476	482	484	496	514	517	523
	52	123	179	239	298	352	399	434	456	473	496	511	517	531	544	567	567	579
	53	146	211	279	342	394	438	472	493	511	532	552	561	579	599	619	617	636
	54	156	186	239	308	359	398	431	462	471	496	506	519	531	546	566	570	584
	55	134	192	252	309	354	389	414	432	451	477	486	498	511	532	554	563	574
	MEAN:	139	193	253	315	363	403	434	455	470	492	506	515	527	543	564	567	579
12	56	135	171	229	269	291	319	336	362	376	404	409	415	426	444	461	468	474
	57	124	182	250	302	334	379	412	432	466	497	482	491	511	526	556	559	571
	58	146	210	269	329	369	404	444	462	482	511	512	533	554	576	600	608	622
	59	156	211	264	311	346	378	400	411	424	452	456	468	484	500	509	508	521
	60	134	186	256	312	361	409	449	479	512	542	559	580	596	616	642	644	656
	MEAN:	139	192	254	305	340	378	408	429	452	481	484	497	514	532	554	557	569
13	61	149	196	250	294	308	334	344	369	379	402	409	420	429	442	454	455	462
	62	138	192	250	299	332	376	406	426	439	461	474	482	493	512	521	527	536
	63	132	189	252	318	364	409	436	466	476	502	526	543	559	583	600	610	624
	64	126	184	251	302	339	374	402	411	441	462	464	466	472	492	509	510	511
	65	156	206	274	334	376	421	459	483	504	533	552	568	574	600	620	634	639
	MEAN:	140	193	255	309	344	383	409	431	448	472	485	496	505	526	541	547	554
14	66	125	176	227	281	321	356	381	408	422	442	452	452	467	472	482	478	482
	67	128	190	256	320	381	426	462	494	519	543	560	570	586	611	621	631	641
	68	141	192	252	301	341	382	409	434	456	481	504	513	529	563	583	582	596
	69	146	196	242	282	309	331	352	369	384	404	411	411	424	436	446	444	454
	70	157	210	269	316	354	379	406	427	444	466	481	483	500	511	524	527	534
	MEAN:	139	193	249	300	341	375	402	426	445	467	482	486	500	519	531	532	541
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		139	192	253	307	350	387	417	439	460	485	499	508	521	538	555	558	570
MEAN CHANGE:			53	61	54	44	36	30	22	21	25	14	10	13	17	16	3	13

000201

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	1♂ RAT NO.	14	15	16	17	18	19	20	21	22	23	24	25	26
			...WEEK...											
8	36	554	561	561	566	563	561	573	574	572	585	596	604	601
	37	584	584	589	596	606	621	621	636	637	638	639	636	642
	38	506	507	526	498	512	519	521	533	538	549	551	561	558
	39	549	561	572	567	571	572	575	582	587	595	604	605	591
	40	663	670	664	671	688	694	715	726	728	733	744	745	757
	MEAN:	571	577	582	580	588	593	601	611	612	620	627	630	630
9	41	622	624	636	636	647	656	661	669	659	673	684	690	704
	42	471	474	475	471	487	494	504	507	505	507	493	530	525
	43	609	633	635	635	644	658	670	686	688	697	684	720	726
	44	676	683	683	655	677	714	728	741	734	747	749	755	777
	45	524	529	535	532	541	555	563	575	569	579	580	585	575
	MEAN:	580	589	593	586	599	615	625	636	631	641	638	656	661
10	46	583	594	603	595	609	601	608	617	620	627	647	657	668
	47	524	540	554	533	555	566	578	591	577	560	570	590	603
	48	564	576	590	574	589	578	594	613	613	618	628	644	642
	49	704	705	731	693	692	728	729	741	739	749	773	782	783
	50	642	666	676	664	687	702	712	713	726	743	768	779	783
	MEAN:	603	616	631	612	626	635	644	655	655	659	677	690	696
11	51	532	540	541	529	531	552	542	551	554	560	569	575	561
	52	586	599	607	609	599	609	609	627	625	635	649	659	658
	53	656	672	690	670	698	702	697	718	724	731	744	751	729
	54	600	611	623	607	620	638	639	649	653	666	675	682	674
	55	577	584	600	596	599	624	616	634	643	653	660	677	658
	MEAN:	590	601	612	602	609	625	621	636	640	649	659	669	656
12	56	480	491	497	491	498	515	524	518	522	528	542	549	552
	57	576	589	596	597	616	625	636	638	651	664	662	687	679
	58	641	641	657	644	646	661	676	675	687	697	706	719	739
	59	531	541	551	511	531	550	571	571	596	601	615	617	622
	60	674	676	682	663	675	695	706	702	719	727	732	740	737
	MEAN:	580	588	597	581	593	609	623	621	635	643	651	662	666
13	61	473	480	482	490	510	519	529	523	526	539	541	553	564
	62	542	557	558	536	541	556	561	566	575	571	577	594	600
	63	639	643	659	632	640	662	684	682	697	703	703	715	714
	64	519	528	529	508	536	540	560	537	556	564	566	579	587
	65	656	663	671	666	675	689	695	697	714	725	721	752	731
	MEAN:	567	574	580	566	580	593	606	601	614	620	622	639	639
14	66	499	509	520	524	533	542	550	553	552	560	569	584	587
	67	650	649	667	668	679	695	703	701	693	702	705	717	706
	68	606	628	636	639	630	675	694	708	707	724	731	748	743
	69	463	473	484	484	487	492	499	513	516	532	529	535	534
	70	546	562	570	577	595	607	613	618	616	622	630	639	639
	MEAN:	553	564	575	578	585	602	612	619	617	628	633	645	642
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		584	594	602	594	606	620	628	633	637	644	654	662	666
MEAN CHANGE:			11	8	-8	12	14	9	5	4	7	10	7	4

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	1♂ RAT NO.	...WEEK... 27	28	29	30	31	32	33	34	35	36	37	38	39
8	36	608	623	625	623	635	647	638	651	664	663	670	672	682
	37	652	659	660	652	656	671	666	667	667	681	689	690	698
	38	563	566	565	573	574	585	576	581	584	594	595	596	603
	39	597	599	599	594	600	613	612	626	633	639	647	652	654
	40	756	772	767	765	773	787	777	795	797	800	816	811	825
	MEAN:	637	644	643	641	648	661	654	664	669	675	683	684	692
9	41	702	709	713	722	733	739	735	749	749	759	775	785	798
	42	529	534	531	536	541	547	543	547	555	559	560	563	573
	43	731	737	739	744	755	768	753	769	776	781	779	807	813
	44	796	802	805	803	811	816	762	789	803	806	807	775	787
	45	582	583	578	588	592	595	580	592	605	608	627	613	626
	MEAN:	668	673	673	679	686	693	675	689	698	703	710	709	719
10	46	674	682	666	684	695	709	673	711	716	725	730	732	749
	47	622	632	635	646	645	661	657	664	672	677	677	681	688
	48	649	648	652	652	658	661	659	666	670	672	674	675	688
	49	792	800	811	815	824	849	818	843	851	859	868	876	882
	50	796	811	818	810	822	839	836	849	852	870	890	893	906
	MEAN:	707	715	720	721	729	744	733	747	752	761	768	771	783
11	51	573	583	581	581	582	585	575	589	597	604	608	611	608
	52	657	671	685	679	684	698	685	703	707	714	721	719	719
	53	755	772	754	749	758	771	756	772	789	807	808	819	828
	54	664	698	696	700	703	716	675	706	713	723	735	741	754
	55	682	682	664	686	697	704	705	703	708	715	724	726	730
	MEAN:	672	681	680	679	685	695	679	695	703	713	719	723	728
12	56	558	568	566	573	573	577	572	578	585	596	605	598	609
	57	683	700	703	716	730	743	743	754	767	782	803	797	816
	58	739	748	751	752	767	775	770	774	793	796	801	786	785
	59	632	639	622	636	639	653	649	662	658	676	685	688	693
	60	755	772	768	774	776	787	770	786	789	792	806	808	806
	MEAN:	673	685	682	690	697	707	701	711	718	728	740	735	742
13	61	550	551	548	551	555	564	555	568	568	581	598	594	605
	62	598	603	599	603	604	616	607	612	621	628	633	639	638
	63	727	729	743	747	754	769	773	786	793	813	825	825	823
	64	573	573	562	586	597	606	602	606	606	614	618	621	626
	65	742	739	737	723	726	753	748	765	776	784	795	804	816
	MEAN:	638	640	642	642	647	662	657	667	673	684	694	697	702
14	66	590	595	603	605	619	624	599	625	636	645	666	660	665
	67	718	724	704	713	732	734	692	737	734	749	757	768	771
	68	758	754	766	777	738	799	772	797	814	824	844	841	856
	69	547	557	549	565	569	579	549	577	580	586	591	592	604
	70	630	637	645	641	645	656	606	645	654	669	671	676	673
	MEAN:	653	653	653	660	671	678	644	676	684	695	706	707	714
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		674	681	685	687	693	703	688	705	711	721	729	732	740
MEAN CHANGE:			7	3	2	6	9	-15	17	6	10	8	3	8

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	1σ RAT NO.	40	41	42	43	44	45	46	47	48	49	50	51	52
			...WEEK...											
8	36	691	698	708	718	715	715	721	728	731	737	744	754	754
	37	678	706	714	720	721	713	720	723	735	740	733	740	740
	38	613	614	616	616	632	630	632	635	642	634	649	655	663
	39	659	659	674	672	662	682	687	692	692	695	702	710	714
	40	830	829	837	833	831	836	842	848	839	851	852	851	863
	MEAN:	698	701	710	712	712	716	720	725	728	731	736	742	747
9	41	798	804	810	808	817	817	819	839	846	844	841	855	866
	42	531	575	577	590	587	583	588	588	593	596	587	597	609
	43	813	822	827	839	846	846	854	858	871	870	859	872	879
	44	794	788	780	790	790	793	806	813	829	825	826	816	826
	45	634	639	643	647	641	648	659	652	652	661	642	661	664
	MEAN:	724	726	728	735	736	737	745	750	758	759	751	760	769
10	46	746	761	773	782	735	789	799	809	827	836	838	846	846
	47	693	692	685	716	717	723	728	733	740	752	759	757	766
	48	677	678	680	689	691	684	692	687	691	692	700	701	700
	49	884	894	906	917	921	921	935	941	963	961	977	981	986
	50	903	924	930	938	952	948	959	959	970	986	997	998	1003
	MEAN:	731	790	795	808	813	813	823	826	838	845	854	857	860
11	51	616	615	621	629	630	630	635	635	634	643	643	651	643
	52	725	735	739	747	754	746	779	773	781	783	792	794	786
	53	829	337	848	858	368	863	880	893	893	903	915	905	917
	54	758	759	768	772	780	784	779	779	782	799	795	796	791
	55	735	730	751	750	751	754	765	774	774	782	790	790	787
	MEAN:	733	735	745	751	757	755	768	771	773	782	787	787	785
12	56	610	606	621	625	627	628	628	636	640	638	643	634	644
	57	814	818	827	822	832	830	844	845	858	854	855	866	859
	58	783	783	763	780	771	739	772	777	781	773	773	772	772
	59	696	708	722	727	715	716	714	723	757	763	767	767	772
	60	827	816	828	829	839	841	846	846	860	860	857	871	869
	MEAN:	746	746	756	757	757	751	761	765	779	778	779	782	783
13	61	605	606	616	624	623	623	620	627	634	623	653	643	647
	62	641	641	658	666	664	663	671	674	679	670	678	690	693
	63	830	829	845	857	661	856	888	881	887	880	891	900	908
	64	632	639	640	641	640	635	639	638	645	641	647	655	653
	65	839	840	853	863	861	869	870	903	912	903	914	925	940
	MEAN:	709	711	722	730	730	729	738	745	751	743	753	763	768
14	66	671	679	699	703	699	687	709	714	719	721	731	744	740
	67	772	782	775	787	792	791	781	799	802	792	811	829	816
	68	859	831	886	891	893	876	898	894	905	896	902	907	923
	69	612	610	622	627	631	629	638	636	649	644	633	636	635
	70	683	684	688	691	694	691	692	694	700	700	712	718	712
	MEAN:	721	727	734	740	743	739	744	747	755	751	758	767	765
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	69
GROUP MEAN :		746	748	756	763	766	765	773	778	785	787	790	794	799
MEAN CHANGE:			2	8	7	4	-1	7	5	7	2	3	4	5

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	1♂ RAT NO.	...WEEK... 53	54	55	56	57	58	59	60	61	62	63	64	65
8	36	768	759	777	768	772	781	789	793	798	803			
	37	748	744	750	747	756	764	775	769	778	779	790	777	802
	38	668	670	668	679	669	677	676	683	683	684	681	683	681
	39	725	721	725	726	733	739	737	739	740	743	753	758	765
	40	875	871	877	864	870	876	866	869	870	873	884	874	877
	MEAN:	757	753	759	757	760	767	769	771	774	776	777	773	781
9	41	881	879	810	820	824	848	852	856	865	868	875	885	886
	42	620	617	625	625	640	643	646	653	655	661	660	669	665
	43	884	879	887	893	898	904	902	903	900	912	911	910	
	44	831	837	848	846	850	863	863	864	860	845	843	849	863
	45	662	659	663	661	670	676	686	690	684	690	699	701	710
	MEAN:	776	774	767	769	776	787	790	793	793	795	798	803	781
10	46	850	856	870	864	851	869	883	882	883	884	869	900	914
	47	758	767	771	773	777	771	778	787	784	785	791	789	797
	48	707	711	719	716	716	716	716	724	720	723	722	730	734
	49	985	991	979	990	999	994	999	1007	1004	1010	1009	1021	1025
	50	1008	1006	1016	1037	1038	1037	1047	1066	1069	1066	1087	1099	1107
	MEAN:	862	866	871	876	876	877	885	893	892	894	896	908	915
11	51	652	650	660	657	662	668	668	667	665	675	667	682	677
	52	796	798	807	811	817	833	830	824	831	837	834	845	847
	53	936	933	943	944	960	963	961	963	970	971	960	958	974
	54	785	785	803	798	798	804	796	800	801	801	799	800	800
	55	796	797	802	802	805	810	808	804	820	821	823	831	837
	MEAN:	793	793	803	802	808	816	813	812	817	821	817	823	827
12	56	646	651	652	653	659	658	654	655	655	661	655	656	657
	57	868	871	880	880	897	899	890	904	906	919	925	937	927
	58	768	773	766	766									
	59	773	779	795	793	803	816	813	815	822	827	827	834	831
	60	865	874	873	865	874	881	871	872	872	871	876	872	866
	MEAN:	784	790	793	791	808	814	807	812	814	820	821	825	820
13	61	652	653	658	663	662	661	662	662	666	668	670	668	660
	62	697	695	705	703	701	699	693	712	720	719	721	726	733
	63	927	919	920	938	940	947	938	945	953	967	969	980	991
	64	650	655	639	634	640	635	636	638	640	644	642	649	651
	65	942	951	957	941	939	950	968	954	963	975	998	995	1013
	MEAN:	774	775	776	776	776	778	779	782	788	795	800	804	810
14	66	738	750	742	760	764	766	771	772	767	781	787	779	792
	67	826	838	824	837	831	829	826	839	831	830	837	835	829
	68	899	896											
	69	638	644	629	631	635	638	647	652	657	669	676	679	676
	70	714	704	704	724	723	728	730	736	733	742	747	749	753
	MEAN:	763	766	725	738	738	740	744	750	747	756	762	761	763
GROUP SIZE =		68	68	67	67	65	65	64	63	63	63	62	61	59
GROUP MEAN :		805	806	802	811	816	822	823	828	829	834	838	840	842
MEAN CHANGE:			0	-3	8	6	6	1	5	1	4	5	2	2

000205

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	♂ RAT NO.	66	67	68	69	70	71	72	73	74	75	76	77	78
			...WEEK...											
8	36													
	37	811	811	813	826	821	823	835	844	848	854	871	871	874
	38	685	693	691	695	694	696	705	711	718	715	713	717	713
	39	759	771	773	757	778	773	775	790	789	784	789	792	785
	40	885	886	881	889	890	894	889	898	896	891	901	903	900
	MEAN:	785	790	790	792	796	797	801	811	813	811	819	821	818
9	41	879	872	873	885	882	866	881	889	892	902	901	910	888
	42	676	676	688	685	683	689	689	701	703	702	710	701	702
	43													
	44	862	875	868	869	866	860	841	835	829	845	849	857	866
	45	720	719	729	734	728	729	733	758	755	761	757	763	765
	MEAN:	784	786	790	793	790	786	786	796	795	803	804	808	805
10	46	922	924	925	915	936	946	915	947	962	969	950	944	953
	47	802	795	801	787	801	805	783	809	812	818	797	813	806
	48	738	739	742	738	743	745	724	756	757	761	745	742	752
	49	1033	1039	1049	1018	1028	1037	995	1033	1045	1042	1024	1027	1029
	50	1114	1121	1094	1111	1118	1085	1007	966	908				
	MEAN:	922	924	922	914	925	924	885	902	897	898	879	882	885
11	51	677	685	686	689	689	690	692	699	707	704	707	706	703
	52	849	848	867	879	869	876	880	898	901	892	906	911	907
	53	998	985	998	1016	1014	1018	1013	1034	1000	956	909	858	810
	54	809	815	818	820	813	817	823	829	827	828	838	842	826
	55	836	828	842	849	848	852	852	866	864	869	868	869	855
	MEAN:	834	832	842	851	847	851	852	865	860	850	846	837	820
12	56	656	653	654	655	651	650	650	652	650	653	658	657	652
	57	928	893	902	910	913	918	919	926	932	943	928	919	908
	58													
	59	844	847	849	850	836	854	866	896	889	899	911	917	916
	60	872	870	876	880	892	889	871	901	901	898	896	890	887
	MEAN:	825	816	820	824	823	828	827	844	843	848	848	846	841
13	61	665	656	664	647	665	658	655	666	653	657	658	661	652
	62	745	745	743	751	763	763	760	787	780	789	792	786	776
	63	1013	1016	1033	1035	1037	999	1047	1057	1061	1072	1073	1065	1044
	64	653	649	651	652	655	661	656	668	660	659	664	662	631
	65	1034	1034	1045	1040	1033	1033	1049	1065	1044	1050	1037	1033	1015
	MEAN:	822	820	827	825	831	823	833	849	840	845	845	841	824
14	66	788	795	803	807	800	803	801	798	809	780	792	784	768
	67	832	826	833	834	841	831	831	825	839	812	831	825	802
	68													
	69	681	681	685	681	699	699	707	714	716	690	717	722	703
	70	745	755	759	769	765	762	777	763	768	755	766	766	745
	MEAN:	762	764	770	773	776	774	779	775	783	759	777	774	755
GROUP SIZE =		59	59	59	59	58	56	56	56	55	54	54	54	54
GROUP MEAN :		847	846	850	852	850	849	847	856	859	858	858	857	849
MEAN CHANGE:			0	3	2	-1	-2	-2	9	3	-1	-1	0	-8

000206

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	♂ RAT NO.	...WEEK... 79	80	81	82	83	84	85	86	87	88	89	90	91
8	36													
	37	875	864	840	782	735	672							
	38	717	708	726	727	736	727	734	732	750	742	748	755	752
	39	789	786	765	800	816	817	819	832	823	835	833	830	827
	40	892	875	899	911	914	911							
	MEAN:	818	808	808	805	800	782	777	782	787	789	791	793	790
9	41	898	902	912	917	919	922	888	889	886	852	858	842	842
	42	705	712	700	684									
	43													
	44	872	875	865	872	862	847	835	853	846	842	854	839	851
	45	765	773	773	779	785	783	785	795	797	789	783	785	790
	MEAN:	810	816	813	813	855	851	836	846	843	828	832	822	828
10	46	955	900	930	936	977	980	974	970	980	965	956	957	925
	47	807	804	809	817	810	819	812	845	815	813	804	811	791
	48	753	730	730	769	773	772	774	783	781	777	773	775	762
	49	1034	1034	1031	1040	1047	1059	1063	1063	1066	1051	1068	1073	1039
	50													
	MEAN:	887	880	875	891	902	908	906	915	911	902	900	904	879
11	51	704	700	706	711	704	708	715	715	700	718	718	731	724
	52	911	912	921	922	928	945	942	955	954	966	959	973	968
	53	764	710	686	633	580								
	54	831	832	834	819	800	810	820	825	830	840	841	837	848
	55	860	852	852	853	860	876	869	875	872	877	867	882	870
	MEAN:	814	805	800	788	774	835	837	843	839	850	846	856	853
12	56	636	641	635	636	629	611	601	612	599	608	590	577	566
	57	896	899	918	928	933	940	915	932	841	886	906	896	876
	58													
	59	897	912	920	926	924	940	924						
	60	669	883	890	890	899	899	903	893	895	895	878	876	874
	MEAN:	825	834	841	845	846	848	836	812	778	796	791	783	772
13	61	654	641	657	669	667	655	665	662	668	678	679	687	688
	62	788	786	793	806	811	799	810	810	793	791	776	770	762
	63	1053	1085	1077	1096	1106	1084	1127	1128	1131	1143	1140	1141	1121
	64	646	653	658	670	669	649	672	666	664	671	659	677	669
	65	1031	1026	1037	1056	1067	1047	1065	1058	1052	1077	1102	1105	1118
	MEAN:	834	838	844	859	864	847	868	865	862	872	871	876	872
14	66	778	782	801	820	826	838	843	845	850	855	859	858	842
	67	810	803	820	821	827	819	823	819	797	786	771	763	729
	68													
	69	716	725	745	759	766	771	775	765	770	757	743	745	715
	70	755	755	768	777	778	785	792	787	788	795	793	794	783
	MEAN:	765	766	784	794	799	803	808	804	801	798	792	790	767
GROUP SIZE =		53	53	53	53	52	51	49	48	48	48	48	48	48
GROUP MEAN :		854	856	858	863	864	868	873	877	876	878	875	875	870
MEAN CHANGE:			2	1	5	1	4	6	3	-1	2	-3	0	-5

000207

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	1♂ RAT NO.	...WEEK... 92	93	94	95	96	97	98	99	100	101	102	103	104
5	36													
	37													
	38	748	752	745	738	717	728	730	730	733	723	720	720	723
	39	820	825	802	824	789	801	794	795	804	792	781	772	743
	40													
	MEAN:	784	799	774	781	753	765	762	763	769	758	751	746	733
9	41	842	811	831	842	833	846	840	836					
	42													
	43													
	44	838	793	804	803	796	799	809	795	761	769	742	745	732
	45	797	777	784	790	785	787	788	799	786	795	790	797	798
	MEAN:	826	794	806	812	805	811	812	807	774	782	766	771	765
10	46	953	957	952	957	938	932	912	888	882				
	47	808	810	805	793	787	783	759	742	740	749	712	689	598
	48	779	785	780	776	774	773	757	745	743	748	745	735	745
	49	1065	1072	1067	1072	1064	1067	1041	1029	1017	1013	967	962	953
	50													
	MEAN:	901	906	901	900	891	889	867	851	846	837	808	795	765
11	51	727	733	731	744	745	748	746	739	731	725	730	706	727
	52	955	965	958	920	904	906	893	890	878	870	844	804	829
	53													
	54	824	844	852	858	862	863	864	857	854	846	849	825	845
	55	864	872	875	877	875	869	871	852	867	862	866	840	861
	MEAN:	843	854	854	850	847	847	844	835	833	826	822	794	816
12	56	555	526	463										
	57	865												
	58													
	59													
	60	870	874	850	851	830	821	793	783	770	783	735	698	687
	MEAN:	763	700	657	851	830	821	793	783	770	783	735	698	687
13	61	683	687	688	695	689	684	688	679	699	690	679	657	648
	62	745	732	722	687	651	618	597	561					
	63	1118	1077	1072	1034	1016	984	972	977	987	978	960	913	945
	64	681	667	664	673	670								
	65	1121	1128	1125	1127	1128	1103	1066						
	MEAN:	870	858	854	843	831	847	831	739	843	834	820	785	797
14	66	828	818											
	67	724	670	680	594	619	612	613	596	560	520	500	452	
	68													
	69	723	710	688	626									
	70	806	805	809	796	803	798	797	787	781	778			
	MEAN:	770	751	726	672	711	705	705	692	671	649	500	452	
GROUP SIZE =		47	46	45	44	42	40	39	38	32	31	30	28	27
GROUP MEAN :		879	873	870	875	868	870	863	851	850	847	832	815	824
MEAN CHANGE:			-6	-3	5	-7	2	-7	-12	-1	-3	-14	-17	9

000208

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	1♂ RAT NO.	...WEEK... 105	106	107	108	109	110
8	36						
	37						
	38	670	674	673	683	667	665
	39	750	753	736	742	730	699
	40						
	MEAN:	710	714	705	713	699	682
9	41						
	42						
	43						
	44	725	718	707	695	653	
	45	799	797	791	789	786	783
	MEAN:	762	758	749	742	720	783
10	46						
	47						
	48	749	751	751	752	770	773
	49	946	936	927	904	898	872
	50						
	MEAN:	848	844	839	828	834	823
11	51	736	737	721	733	737	741
	52	790	806	791	742	707	645
	53						
	54	839	842	825	842	847	841
	55	863	868	858	864	864	862
	MEAN:	807	813	799	795	789	772
12	56						
	57						
	58						
	59						
	60	684	649	568	506		
	MEAN:	684	649	568	506		
13	61	661	673	668	669	670	664
	62						
	63	923	928	910	905	898	878
	64						
	65						
	MEAN:	792	801	789	787	784	771
14	66						
	67						
	68						
	69						
	70						
	MEAN:						
GROUP SIZE =		26	26	24	24	22	20
GROUP MEAN :		825	819	821	812	815	789
MEAN CHANGE:			-6	2	-8	2	-26

000209

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	2 ♂ RAT NO.	...WEEK... -3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
15	71	127	189	234	289	324	358	386	402	431	461	481	494	519	542	559	565	588
	72	133	186	236	289	319	346	366	382	399	421	436	448	464	479	496	511	516
	73	142	177	226	256	282	304	319	346	359	375	400	406	422	434	453	449	462
	74	143	191	244	294	326	361	394	411	439	462	484	481	489	518	526	524	546
	75	155	214	279	339	394	421	464	502	512	542	571	579	591	611	624	622	646
	MEAN:	140	191	244	293	329	358	386	409	428	452	474	482	497	517	532	534	552
16	76	129	179	239	271	304	341	376	386	404	446	462	478	491	512	529	537	546
	77	147	202	252	292	339	374	409	432	443	457	467	460	488	504	529	528	533
	78	124	184	249	309	366	412	446	476	491	526	534	550	561	582	594	600	614
	79	139	194	254	309	354	389	414	446	459	484	494	507	529	546	556	566	581
	80	155	211	269	314	344	372	402	421	432	450	459	468	479	496	511	514	522
	MEAN:	139	194	253	299	341	378	409	432	446	473	483	497	510	528	544	549	559
17	81	142	188	238	284	323	356	379	402	421	439	449	462	479	500	506	514	534
	82	126	180	240	302	361	411	452	486	515	541	564	585	600	629	637	645	646
	83	146	192	251	304	334	371	406	436	454	482	499	509	512	539	552	555	566
	84	165	204	254	309	332	349	371	384	398	416	424	431	441	452	454	462	472
	85	131	190	251	298	322	344	369	389	408	432	454	466	473	491	511	513	524
	MEAN:	142	191	247	299	334	366	395	419	439	462	478	491	501	522	532	538	548
18	86	141	191	263	329	382	429	462	484	509	532	554	563	582	596	609	618	639
	87	120	209	278	328	336	409	436	462	489	516	536	551	563	573	588	593	606
	88	149	198	256	304	339	362	391	411	426	446	466	476	481	494	509	517	524
	89	153	211	278	331	372	419	447	479	511	531	554	564	578	582	600	611	619
	90	129	188	252	314	366	412	446	469	484	529	536	544	553	552	534	526	549
	MEAN:	138	199	265	321	359	406	436	461	484	511	529	540	551	559	568	573	587
19	91	146	192	251	309	356	392	422	430	452	460	494	502	512	534	544	555	564
	92	141	194	252	292	331	362	391	402	414	439	471	486	506	521	538	544	561
	93	134	182	239	284	321	348	376	389	419	421	454	460	464	482	499	510	532
	94	124	181	228	264	284	304	329	339	361	376	391	397	409	419	434	441	454
	95	161	208	262	311	359	402	439	461	491	510	545	566	582	612	634	656	680
	MEAN:	141	191	246	292	330	362	391	404	427	441	471	482	495	514	530	541	558
20	96	125	211	282	346	400	444	486	514	542	576	600	617	634	656	669	688	706
	97	129	182	244	301	336	369	402	422	444	462	482	490	502	519	522	534	561
	98	135	182	237	289	329	362	394	423	449	469	476	488	491	499	516	522	528
	99	147	199	254	304	331	356	379	391	412	434	443	450	462	486	492	499	502
	100	159	210	266	319	356	394	421	442	454	483	498	496	500	516	531	538	552
	MEAN:	139	197	257	312	350	385	416	438	460	485	500	508	518	535	546	556	570
21	101	116	169	227	281	329	376	409	440	462	484	504	530	546	574	587	588	611
	102	134	196	254	311	358	394	429	452	469	482	511	517	522	542	554	544	564
	103	142	196	259	311	359	398	431	459	474	491	502	519	526	548	568	556	576
	104	147	196	264	319	371	404	441	471	489	522	534	552	563	580	586	582	600
	105	154	202	264	316	349	379	409	443	459	492	494	511	511	526	531	517	539
	MEAN:	139	192	254	308	353	390	424	453	471	494	509	526	534	554	565	557	578

000210

APPENDIX 2

(Bodyweights - continued)

GROUP AGE	2σ RAT NO.	14	...WEEK... 15	16	17	18	19	20	21	22	23	24	25	26
15	71	599	591	621	622	634	650	661	672	686	689	708	723	737
	72	529	522	557	559	554	585	590	599	609	612	623	626	638
	73	471	463	485	480	510	520	523	525	528	535	543	548	550
	74	556	540	581	572	587	602	610	623	620	627	635	637	661
	75	651	636	664	671	664	674	688	699	692	705	735	741	746
	MEAN:	561	550	582	581	590	606	614	624	627	634	649	655	666
16	76	556	568	586	552	575	589	603	613	619	634	643	647	652
	77	544	543	561	539	536	556	569	581	586	587	590	587	606
	78	631	642	646	640	644	652	663	671	662	674	678	688	693
	79	594	600	613	610	620	623	629	645	641	655	683	676	681
	80	529	549	536	541	548	562	566	577	569	588	589	599	596
	MEAN:	571	580	588	576	585	596	606	617	615	628	637	639	646
17	81	545	566	569	570	586	599	604	617	619	621	656	647	610
	82	662	672	681	655	685	705	718	724	722	709	742	751	712
	83	571	580	590	568	585	603	615	618	613	602	625	632	608
	84	484	496	489	488	504	516	530	539	541	521	553	555	538
	85	536	546	551	557	587	591	600	616	620	607	632	645	615
	MEAN:	560	572	576	568	589	603	613	623	623	612	642	646	617
18	86	651	660	660	650	655	680	685	660	684	687	700	686	707
	87	609	626	641	634	657	659	669	670	676	694	689	687	709
	88	539	551	557	553	563	576	583	562	582	597	605	606	614
	89	631	649	662	639	655	673	687	659	671	692	700	706	718
	90	584	601	600	616	637	657	666	633	642	660	675	681	693
	MEAN:	603	617	624	618	633	649	658	637	651	666	674	673	688
19	91	582	584	588	584	597	605	616	629	630	646	657	664	674
	92	574	583	596	590	605	602	629	627	635	651	678	662	673
	93	546	556	572	580	594	608	611	623	625	641	655	664	673
	94	466	471	476	465	474	474	482	462	461	489	501	512	520
	95	698	712	729	727	739	752	763	776	786	804	815	826	842
	MEAN:	573	581	592	589	602	608	620	623	627	646	661	666	676
20	96	724	742	754	724	748	760	777	791	776	805	831	835	843
	97	589	594	608	587	620	630	643	645	633	649	669	677	700
	98	544	551	554	538	565	578	584	586	560	581	592	609	592
	99	511	517	531	507	519	535	545	551	534	554	556	558	561
	100	562	556	580	554	574	568	582	591	582	603	612	625	625
	MEAN:	586	592	605	582	605	614	626	633	617	638	652	661	664
21	101	619	623	638	632	649	665	669	680	678	692	706	715	716
	102	584	599	590	583	607	621	624	625	621	641	656	663	663
	103	591	596	603	604	603	615	620	636	639	655	658	660	671
	104	616	637	628	631	637	654	653	654	658	677	682	695	655
	105	556	567	570	573	578	594	603	608	609	614	624	625	628
	MEAN:	593	605	606	605	615	630	634	641	641	656	665	672	667

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	2σ RAT NO.	...WEEK... 27	28	29	30	31	32	33	34	35	36	37	38	39
15	71	748	750	760	766	774	788	785	789	797	812	817	819	825
	72	630	648	650	654	661	669	679	685	698	708	718	717	731
	73	557	559	561	561	566	579	562	574	577	591	603	606	609
	74	630	631	616	629	664	655	642	659	674	690	692	689	693
	75	743	749	755	753	763	757	762	771	777	780	799	800	819
	MEAN:	666	673	668	673	686	692	686	696	705	716	726	726	735
16	76	655	656	657	652	657	664	660	664	684	693	703	696	716
	77	610	624	609	609	619	621	618	627	640	655	670	666	676
	78	717	712	697	704	716	719	720	715	735	737	742	745	713
	79	680	681	691	695	701	711	709	725	723	728	736	742	749
	80	606	605	600	616	625	632	627	629	634	645	640	655	659
	MEAN:	654	656	651	655	664	669	667	672	683	692	698	701	703
17	81	636	642	650	653	666	677	673	689	702	711	715	721	734
	82	751	751	751	753	761	763	751	768	785	794	813	804	829
	83	631	635	642	646	653	665	653	661	671	666	694	680	695
	84	567	572	576	578	586	586	589	595	607	603	614	619	627
	85	640	659	663	670	672	686	675	677	702	709	714	723	733
	MEAN:	645	656	656	660	669	676	668	678	693	697	710	709	724
18	86	707	722	720	728	729	742	735	735	740	752	758	763	764
	87	711	707	706	713	714	726	733	739	743	754	761	765	772
	88	620	632	627	634	645	653	646	652	656	670	686	690	698
	89	714	724	726	726	725	734	731	738	757	767	776	781	788
	90	705	703	693	700	700	717	706	730	708	709	712	720	726
	MEAN:	691	698	694	700	703	715	710	719	721	730	739	744	750
19	91	634	694	705	710	710	713	711	716	737	742	756	773	781
	92	675	687	705	699	702	704	704	709	708	712	714	720	725
	93	682	689	697	703	711	706	721	735	749	753	765	773	779
	94	522	532	514	531	532	534	535	536	545	550	553	548	560
	95	851	866	870	883	893	839	864	877	892	902	927	935	941
	MEAN:	683	694	698	705	710	710	707	715	726	732	743	750	757
20	96	848	872	877	890	899	906	917	927	941	947	985	957	961
	97	701	714	721	728	718	726	721	738	748	756	773	785	776
	98	605	608	608	610	613	618	615	612	617	622	633	635	636
	99	565	570	567	572	578	585	579	585	585	594	607	606	605
	100	638	643	642	650	651	659	655	666	674	680	693	692	691
	MEAN:	671	682	683	690	692	699	697	706	713	720	738	735	734
21	101	727	734	739	737	733	744	738	752	757	767	780	788	802
	102	665	675	660	681	674	719	701	721	733	744	748	738	769
	103	663	666	677	681	633	700	680	689	692	705	716	736	727
	104	659	663	674	685	677	720	688	692	676	709	727	719	746
	105	625	626	635	633	630	637	633	634	646	644	643	654	649
	MEAN:	668	673	681	683	687	704	688	698	705	714	723	727	739

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	2σ RAT NO.	...WEEK... 40	41	42	43	44	45	46	47	48	49	50	51	52
15	71	831	838	851	858	865	861	875	871	879	860	876	879	888
	72	736	747	742	753	754	757	759	771	786	771	776	788	794
	73	616	614	628	626	633	636	649	656	658	655	661	660	679
	74	692	692	698	704	706	704	703	704	702	678	703	714	722
	75	816	813	809	818	832	833	836	840	846	840	861	869	872
	MEAN:	737	741	746	752	753	756	764	768	774	761	775	782	791
16	76	725	727	735	740	743	737	752	758	770	770	777	782	793
	77	665	682	684	697	699	696	702	702	727	719	723	736	737
	78	757	764	776	735	783	738	796	801	806	811	825	816	818
	79	751	750	756	760	758	762	766	764	749	743	722	715	702
	80	657	669	676	683	637	691	691	716	706	708	723	713	720
	MEAN:	715	718	725	733	734	735	741	748	752	750	754	752	754
17	81	739	743	749	759	770	769	778	795	802	815	814	817	830
	82	826	825	832	840	836	795	836	851	856	856	863	878	877
	83	697	701	706	698	706	704	702	715	724	719	712	716	720
	84	629	638	633	641	649	635	652	665	663	668	669	679	687
	85	739	759	749	762	771	768	777	781	785	792	802	800	804
	MEAN:	726	733	734	740	746	734	749	761	766	770	772	778	784
18	86	769	779	778	790	799	798	800	803	812	803	815	818	813
	87	779	785	789	792	805	787	817	820	821	825	816	834	838
	88	703	706	714	723	728	725	731	744	752	751	764	779	789
	89	802	811	815	811	822	819	830	836	840	838	863	821	829
	90	749	745	751	756	757	761	767	763	764	755	765	786	792
	MEAN:	760	765	769	774	780	778	789	793	798	794	805	808	812
19	91	739	784	795	807	818	826	835	845	843	856	859	869	876
	92	726	731	736	739	742	739	747	750	746	749	760	691	703
	93	787	796	805	813	824	834	840	845	853	857	860	872	879
	94	562	561	566	577	571	571	579	587	591	591	626	603	598
	95	953	959	956	966	974	982	993	1000	1004	1009	1025	1024	1040
	MEAN:	763	767	772	780	786	792	799	805	807	812	826	812	819
20	96	967	972	976	979	986	983	989	996	1002	1013	1026	1026	1035
	97	798	804	804	811	818	832	842	853	871	884	903	902	917
	98	632	635	650	652	658	662	671	665	678	674	675	669	676
	99	616	619	625	624	632	627	636	643	652	658	655	659	665
	100	696	693	702	707	709	715	727	719	724	733	735	738	742
	MEAN:	742	745	751	755	761	764	773	775	785	792	799	799	807
21	101	805	811	813	819	822	828	840	843	860	855	858	868	874
	102	775	779	785	799	802	812	818	829	836	845	850	863	883
	103	733	733	746	745	751	747	755	769	773	773	774	781	794
	104	753	755	777	780	788	790	803	810	827	829	832	823	838
	105	669	667	679	679	679	683	688	691	699	702	704	707	707
	MEAN:	749	749	760	764	768	772	781	788	799	801	804	808	819

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	2σ RAT NO.	53	54	55	56	57	58	59	60	61	62	63	64	65
		...WEEK...												
15	71	890	886	856	865	867	850	861	853	856	846	842	840	818
	72	795	799	788	803	801	799	817	821	826	826	831	837	837
	73	687	693	683	704	707	702	724	723	728	724	729	737	735
	74	722	734	720	731	742	724	721	737	738	731	739	740	730
	75	881	888	886	897	911	899	922	927	931	929	933	948	919
	MEAN:	795	800	787	800	806	795	809	812	816	811	815	820	808
16	76	785	775	777	791	791	798	797	805	805	805	817	826	818
	77	751	744	719	728	737	733	754	760	763	761	755	763	765
	78	820	821	834	809	822	826	830	800	831	805	820	825	829
	79	690	693	666	673	653	643	639	636	607	598	578	578	555
	80	722	721	733	738	731	737	738	748	757	755	767	783	783
	MEAN:	754	751	746	748	747	747	752	750	753	745	747	755	750
17	81	844	835	833	853	843	867	867	875	872	871	886	893	908
	82	872	855	889	887	888	895	899	902	909	907	909	910	902
	83	713	713	723	733	736	737	738	737	731	726	731	732	750
	84	692	689	701	698	700	704	703	708	714	709	706	716	717
	85	809	807	793	816	820	822	819	815	825	822	816	827	828
	MEAN:	786	790	788	797	797	805	805	807	810	807	810	816	821
18	86	799	795	787	817	816	826	824	828	825	823	830	829	843
	87	846	851	848	869	874	862	853	863	867	872	885	886	885
	88	786	788	792	808	807	811	816	827	832	842	856	838	860
	89	830	839	879	907	905	909	921	927	935	940	944	953	963
	90	799	799	789	777	784	796	789	800	808	809	814	818	835
	MEAN:	812	814	819	836	837	841	841	849	853	857	866	865	877
19	91	886	883	892	911	903	910	916	899	906	910	918	905	913
	92	709	698	710	733	733	740	750	746	760	756	760	768	765
	93	879	879	882	902	901	909	905	920	922	921	914	915	909
	94	605	590	605	607	607	617	617	618	621	620	623	627	625
	95	1036	990	1006	1025	1022	1046	1038	1029	1025	1017	1020	1041	1046
	MEAN:	823	809	819	836	833	844	845	842	847	845	847	851	852
20	96	1046	1056	1041	1074	1075	1098	1086	1110	1117	1122	1135	1160	1169
	97													
	98	692	692	668	694	701	702	681	687	690	695	707	699	692
	99	671	671	658	678	682	682	671	693	695	700	709	712	714
	100	741	735	727	744	749	749	729	727	735	745	743	758	737
	MEAN:	788	789	774	798	802	808	792	804	809	816	824	832	828
21	101	866	878	870	893	906	904	911	919	925	941	944	959	963
	102	873	883	865	896	905	915	917	920	922	924	938	948	949
	103	782	787	769	805	805	814	813	810	815	826	825	837	843
	104	842	857	840	854	852	856	858	861	858	866	883	889	892
	105	718	710	693	716	716	726	733	737	738	739	741	738	745
	MEAN:	816	823	807	833	837	843	846	849	852	859	866	874	878

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	2σ RAT NO.	66	...WEEK... 67	68	69	70	71	72	73	74	75	76	77	78
15	71	821	810	813	788	787	773	778	764	749	737	723	694	668
	72	846	853	853	843	851								
	73	751	752	760	762	766	765	767	772	786	784	792	798	796
	74	739	753	757	746	746	747	762	767	758	775	772	784	773
	75	931	966	962	952	1017	978	965	978	964	966	975	971	977
	MEAN:	818	827	829	818	833	816	818	820	814	816	816	812	804
16	76	841	828	830	827	834	852	845	842	853	859	865	862	847
	77	767	772	773	780	781	782	791	795	801	813	814	814	805
	78	830	845	851	853	862	862	868	857	861	869	881	872	871
	79	553	559	547	543	546	555	544	552	583	611	622	634	640
	80	804	825	831	846	878	904							
	MEAN:	759	756	766	770	780	791	762	762	775	788	796	796	791
17	81	899	904	916	921	931	929	908	933	943	943	944	946	950
	82	922	919	932	930	934	927	931	947	952	950	941	952	948
	83	751	743	734	745	752	753	728	751	742	752	730	714	726
	84	717	721	723	722	746	729	747	749	751	758	762	765	770
	85	827	828	836	837	847	837	829	845	840	853	857	864	870
	MEAN:	823	823	828	831	842	835	829	845	846	851	847	848	853
18	86	840	826	844	835	832	797	807	774	792	824	834	839	860
	87	893	859	875	880	877	872	866	873	874	872	851	858	847
	88	868	846	869	885	892	886	875	894	896	894	879	885	891
	89	972	947	963	977	1002	979	962	982	987	991	969	988	980
	90	836	813	836	844	847	850	823	843	836	838	827	820	837
	MEAN:	882	858	877	884	890	877	867	873	877	884	872	878	883
19	91	915	909	913	907	915	907	893	903	908	912	905	878	873
	92	765	766	765	769	761	756	741	753	762	769	763	740	743
	93	876	903	844	835	819	778	760	746	739	740	721	722	700
	94	630	636	647	645	659	641	640	657	655	646	648	649	638
	95	1039	1029	1040	1037	1047	1017	1007	999	1011	1022	995	970	944
	MEAN:	845	849	842	839	840	820	808	812	815	818	806	792	780
20	96	1194	1197	1208	1216	1217	1217	1221	1221	1234	1238	1228	1186	1122
	97													
	98	702	712	716	712	721	723	716	718	729	726	733	730	736
	99	718	723	734	727	730	735	741	751	755	747	762	770	774
	100	740	751	743	749	749	758	754	760	773	772	779	772	767
	MEAN:	839	846	850	851	854	858	858	863	873	871	876	865	850
21	101	965	976	983	990	1004	1003	1000	1014	1024	1017	1027	1040	1033
	102	957	973	970	974	981	989	982	989	990	990	999	991	997
	103	846	862	861	869	894	901	888	886	902	887	903	896	872
	104	898	885	887	899	903	895	880	882	891	878	896	897	876
	105	748	758	762	760	766	777	761	779	772	767	776	764	774
	MEAN:	863	891	893	898	910	913	902	910	916	908	920	918	914

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(Bodyweights - continued)

GROUP CAGE	2♂ RAT NO.	79	80	81	82	83	84	85	86	87	88	89	90	91
		...WEEK...												
15	71	622	509											
	72													
	73	792	802	798	803	799	808	811	788	740	721	653		
	74	771	769	761	788	758	778	770	763	768	751	753	728	718
	75	971	983	978	977	988	978	975	976	976	987	984	986	991
	MEAN:	769	766	846	856	848	855	852	842	828	820	797	857	855
16	76	881	890	887	899	907	911	912	902	899	907	904	907	896
	77	806	822	814	820	818	817	822	822	814	823	808	809	793
	78	880	888	884	901	895	902	897	901	889	914	901	902	897
	79	682	703	718	737	762	773	790	800	815	824	837	845	843
	80													
	MEAN:	812	826	826	839	846	851	855	856	854	867	863	866	857
17	81	950	954	950	957	955	954	953	935	943	923	946	947	963
	82	945	950	947	952	963	961	966	954	958	938	951	958	961
	83	737	731	741	737	733	724	722	720	710	689	700	702	703
	84	778	777	776	779	782	782	783	780	766	755	761	768	773
	85	874	869	872	879	885	889	892	878	905	870	854	860	877
	MEAN:	857	856	857	861	864	862	863	853	856	835	842	847	855
18	86	876	847	810										
	87	844	810	807	811	801	796	780	716	712	691	657	600	561
	88	892	883	899	913	921	928	931	931	948	936	945	958	966
	89	983	980	985	998	1007	993	988	961	944	965	970	986	997
	90	844	815	825	832	843	830	835	846	846	852	853	851	854
	MEAN:	888	867	865	889	893	887	884	864	863	861	856	849	845
19	91	864	860	873	859	849	862	835	846	830	816	797	803	775
	92	739	738	754	740	736	752	727	736	723	727	705	712	700
	93	665	658	677	636	622	648	608	605	579	575	555	574	579
	94	632	635	648	631	637	646	631	633	624	633	616	637	632
	95	927	900	919	899	848	865	816	815	786	773	745	766	742
	MEAN:	765	756	774	753	738	755	723	727	708	705	684	698	686
20	96	1056	971											
	97													
	98	739	732	728	732	740	740	741	739	749	749	739	745	754
	99	778	784	785	791	742	782	798	764	778	776	766	773	779
	100	766	774	775	782	796	797	773	752	768	758	740	748	753
	MEAN:	835	815	763	768	759	773	771	752	765	761	748	755	762
21	101	1009	993	963	952	827								
	102	996	999	999	1013	1030	1040	1043	1044	1034	1052	1052	1051	1050
	103	859	853	828	831	836								
	104	900	903	916	914	918	925	926	937	942	956	941	950	917
	105	752	763	772	784	785	786	792	796	797	807	800	802	792
	MEAN:	903	902	896	899	879	917	920	926	924	938	931	934	920

000216

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	2♂ RAT NO.	...WEEK... 92	93	94	95	96	97	98	99	100	101	102	103	104
15	71													
	72													
	73													
	74	713												
	75	977	954	960	928	904	877	860	835	836	755	811	762	
	MEAN:	845	954	960	928	904	877	860	835	836	755	811	762	
16	76	902	917	915	901	896	904	899	906	890	859	852	840	838
	77	786	783	777	758	749	747	736	735	717	672	682	685	675
	78	887	892	890	890	885	893	886	867	861	823	838	850	835
	79	854	864	861	867	872	889	881	891	889	861	889	880	853
	80													
	MEAN:	857	864	861	854	851	858	851	850	839	804	815	814	800
17	81	967	969	966	965	955	961	944	944	924	922	928	923	928
	82	966	952	967	957	950	942	923	903	905	906	889	886	889
	83	687	674	666	650									
	84	783	781	785	786	783	790	786	772	784	781	778	784	789
	85	888	872	824	804									
	MEAN:	858	850	842	832	896	898	884	873	871	870	865	864	869
18	86													
	87	540												
	88	979	990	1000	1010	1040	1073							
	89	988	994	985	982	972	968	948	936					
	90	859	843	864	873	870	875	877	877	874	877	882	882	863
	MEAN:	842	942	950	955	961	972	913	907	874	877	882	882	863
19	91	762												
	92													
	93	544	559	531	514	500	471	430	411					
	94	620	639	643	625	620	629	615	627	641	648	640	645	635
	95	720	723	733	660	640	629	591						
	MEAN:	662	640	636	600	587	576	545	519	641	648	640	645	635
20	96													
	97													
	98	764	777	777	773	771	775	778	780	778	790	783	783	788
	99	778	789	790	784	789	796	797	778	775	770	758	751	744
	100	753	747	739	722	718	707	705	683	675	661	625		
	MEAN:	765	771	769	760	759	759	760	747	743	740	722	767	766
21	101													
	102	1052	1065	1053	1072	1066	1083	1075	1088	1061	1057	1077	1062	1034
	103													
	104	908	911	899	876	819								
	105	795	802	806	812	816	819	815	806	814	816	804	776	802
	MEAN:	918	926	919	920	900	951	945	947	938	937	941	919	918

000217

(Bodyweights - continued)

GROUP CAGE	2♂ RAT NO.	105	...WEEK... 106	107	108	109	110
15	71						
	72						
	73						
	74						
	75						
	MEAN:						
16	76	842	838	829	838	838	819
	77	675	666	662	665	638	626
	78	845	836	826	829	825	791
	79	879					
	80						
	MEAN:	810	780	772	777	767	745
17	81	932	940	913	916		
	82	876	869	854	855	764	745
	83						
	84	776	785				
	85						
	MEAN:	861	865	884	886	764	745
18	86						
	87						
	88						
	89						
	90	860	851	848			
	MEAN:	860	851	848			
19	91						
	92						
	93						
	94	641	657	662	671	667	675
	95						
	MEAN:	641	657	662	671	667	675
20	96						
	97						
	98	796	785	766	766	789	805
	99	730	719	663	593	476	
	100						
	MEAN:	763	752	715	680	633	805
21	101						
	102	1021	1014	999	985		
	103						
	104						
	105	814	799	792	789	783	776
	MEAN:	918	907	896	887	783	776

000218

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	2 ♂ RAT NO.	-3	...WEEK... -2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
22	106	135	186	242	284	312	336	361	384	402	421	430	439	449	466	483	469	491
	107	151	194	254	292	332	359	392	409	419	450	456	470	484	491	509	488	509
	108	122	172	229	271	302	321	344	372	391	409	426	437	444	466	484	484	508
	109	139	192	263	319	371	421	456	476	500	529	544	556	575	586	596	586	614
	110	156	211	272	316	348	382	409	431	442	476	482	500	516	524	546	533	549
	MEAN:	141	191	252	296	333	364	392	414	431	457	468	480	494	507	524	512	534
23	111	138	216	279	339	386	429	466	492	526	562	558	576	594	609	619	620	641
	112	124	186	246	311	361	399	439	466	500	522	561	571	591	612	634	641	656
	113	149	194	252	309	349	389	416	444	471	491	497	522	536	564	576	583	594
	114	154	194	244	291	326	352	384	404	416	449	469	477	492	504	524	527	549
	115	134	202	266	314	349	398	432	464	492	521	542	546	573	611	629	630	646
	MEAN:	140	198	257	313	354	393	427	454	481	509	525	538	557	580	596	600	617
24	116	136	199	261	321	356	421	472	512	549	591	611	639	674	709	741	756	749
	117	119	169	216	259	282	329	362	362	394	411	410	421	439	452	463	468	452
	118	144	192	242	291	312	352	366	391	409	424	442	450	466	482	494	498	474
	119	154	196	254	304	321	369	400	422	432	452	471	477	487	506	514	512	494
	120	131	191	251	304	322	361	396	434	454	476	500	495	524	546	575	579	564
	MEAN:	137	189	245	296	319	366	399	424	448	471	487	496	518	539	557	563	547
25	121	149	211	279	321	369	404	432	434	466	492	506	521	509	532	542	544	554
	122	141	200	266	319	356	402	442	449	494	522	534	551	572	602	624	631	634
	123	134	184	246	300	346	388	432	442	489	521	554	567	579	605	624	620	632
	124	125	184	249	309	360	404	446	446	487	516	526	549	570	595	619	627	639
	125	159	226	306	377	426	479	521	534	589	611	641	665	684	712	736	742	764
	MEAN:	142	201	269	325	371	415	455	461	505	532	552	571	583	609	629	633	645
26	126	125	219	282	324	351	399	439	475	512	544	564	590	592	610	632	634	644
	127	127	182	240	306	356	394	432	441	453	476	471	485	494	509	524	526	544
	128	136	196	256	326	398	439	482	522	552	573	600	620	641	661	686	697	712
	129	144	202	268	324	371	402	424	452	479	504	522	529	534	552	561	559	571
	130	156	203	281	341	394	439	472	494	516	544	558	567	583	596	616	621	626
	MEAN:	138	200	265	324	374	415	450	477	502	528	543	558	569	586	604	607	619
27	131	116	172	226	286	339	372	404	434	464	486	509	523	544	562	583	578	583
	132	129	182	236	286	341	369	394	419	456	493	522	539	542	562	573	583	589
	133	137	189	251	291	331	366	389	410	434	461	474	487	509	524	538	541	549
	134	144	198	260	314	361	399	424	450	466	482	504	521	539	553	562	564	564
	135	158	208	261	300	332	369	396	412	434	449	464	475	491	506	514	524	526
	MEAN:	137	190	247	295	341	375	401	425	451	474	495	509	525	541	554	558	562
28	136	129	186	246	309	359	388	414	442	474	496	519	524	546	572	576	587	592
	137	146	196	262	312	349	381	389	404	431	450	471	483	499	519	536	538	554
	138	116	172	236	289	339	381	412	441	472	484	502	510	524	539	551	556	564
	139	141	190	257	318	374	422	459	492	521	532	564	580	586	616	631	631	646
	140	160	200	271	329	366	392	419	446	476	500	526	533	551	570	583	574	594
	MEAN:	135	189	254	311	357	393	419	445	475	492	516	526	541	563	575	577	590
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		139	194	254	306	346	383	414	437	461	484	502	515	528	547	561	564	576
MEAN CHANGE:			55	60	52	40	37	31	23	24	24	18	12	13	19	14	3	12

000219

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	2σ RAT NO.	14	15	16	17	18	19	20	21	22	23	24	25	26
		...WEEK...												
22	106	499	514	529	526	536	557	573	572	554	579	592	595	598
	107	524	542	551	540	556	564	575	594	573	602	621	620	626
	108	521	529	540	535	517	554	575	591	569	589	599	603	609
	109	623	641	658	630	615	657	681	697	657	697	716	725	725
	110	561	569	582	575	557	595	609	628	603	624	639	637	642
	MEAN:	546	559	572	561	556	585	603	616	591	618	633	636	640
23	111	654	660	660	665	681	697	714	729	728	755	764	774	781
	112	666	687	703	698	702	730	743	756	755	768	787	788	792
	113	602	619	630	603	611	626	636	647	649	668	688	693	691
	114	544	555	565	552	565	580	594	604	610	612	617	632	643
	115	663	678	691	681	711	729	737	752	755	769	783	782	797
	MEAN:	626	640	650	640	654	672	685	698	699	714	728	734	741
24	116	800	814	818	821	830	857	875	885	898	919	935	954	970
	117	464	478	488	489	510	514	526	527	525	528	539	536	531
	118	464	482	501	509	532	541	554	555	551	555	557	565	572
	119	531	543	546	529	548	565	576	582	579	581	594	611	607
	120	602	608	623	614	635	636	645	651	649	661	665	683	695
	MEAN:	572	585	595	592	611	623	635	640	640	649	658	670	675
25	121	554	568	568	564	568	567	550	579	579	588	594	602	608
	122	656	661	676	656	673	682	692	701	695	717	750	740	741
	123	636	638	647	643	666	655	650	676	680	695	699	697	697
	124	656	668	677	667	690	697	684	714	746	745	746	753	762
	125	777	784	790	784	790	813	801	843	845	863	871	889	882
	MEAN:	656	664	672	663	677	683	675	703	709	722	732	736	738
26	126	664	667	683	666	684	694	715	734	735	768	804	823	
	127	554	562	569	565	585	593	590	595	595	612	619	624	624
	128	729	743	756	752	760	759	776	791	788	808	820	826	837
	129	576	590	585	588	599	603	607	605	595	612	614	611	626
	130	639	647	654	641	649	660	674	680	659	688	698	709	716
	MEAN:	632	642	649	642	655	662	672	681	674	698	711	719	701
27	131	616	626	635	650	633	658	667	682	688	694	654	696	708
	132	621	636	636	631	644	659	671	684	693	701	642	696	700
	133	571	581	587	577	589	579	619	623	636	650	604	663	661
	134	584	595	602	593	615	622	654	670	672	682	606	661	660
	135	536	547	555	521	568	575	593	604	602	620	549	595	600
	MEAN:	536	597	603	594	610	619	641	653	658	669	611	662	666
28	136	609	623	637	631	645	634	688	699	693	707	716	733	730
	137	572	585	600	589	605	616	625	638	640	644	648	670	666
	138	586	594	586	591	612	617	631	637	636	648	646	660	659
	139	678	682	689	669	677	692	716	726	730	701	751	762	760
	140	611	626	621	622	647	656	670	673	680	683	696	702	709
	MEAN:	611	622	627	620	637	643	666	675	676	677	691	705	705
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	69
GROUP MEAN :		591	601	610	602	616	628	639	647	646	659	667	677	677
MEAN CHANGE:			9	10	-8	13	12	11	8	-1	13	8	9	1

000220

(Bodyweights - continued)

GROUP CAGE	2σ RAT NO.	...WEEK... 27	28	29	30	31	32	33	34	35	36	37	38	39
22	106	602	603	609	616	615	617	596	620	630	637	643	651	663
	107	624	634	637	635	649	643	643	651	663	675	681	698	707
	108	609	613	622	624	632	653	637	647	654	664	672	672	677
	109	725	726	736	741	745	757	744	761	773	778	789	795	798
	110	654	657	655	651	666	672	658	666	677	688	702	704	711
	MEAN:	643	647	652	653	661	668	656	649	679	688	697	704	711
23	111	786	775	781	799	799	812	793	809	824	823	837	840	852
	112	799	777	807	806	821	836	822	827	847	857	878	878	888
	113	700	702	712	724	720	725	714	729	748	759	776	772	773
	114	646	638	655	655	672	675	662	670	673	690	697	696	712
	115	796	798	814	814	820	833	815	824	838	852	866	857	859
	MEAN:	745	742	754	760	766	776	761	772	786	796	811	809	817
24	116	979	1005	1021	1034	1043	1060	1051	1050	995	990	1003	998	1025
	117	532	532	541	526	526	530	519	527	545	530	531	535	530
	118	578	587	581	587	594	593	600	608	622	632	636	636	641
	119	606	607	605	614	608	617	607	609	616	629	628	637	644
	120	684	699	697	701	711	714	704	716	728	736	744	755	761
	MEAN:	676	686	689	692	696	703	696	702	701	703	708	712	720
25	121	605	612	614	615	627	618	616	622	628	628	633	644	654
	122	744	750	767	765	781	787	777	792	790	808	823	823	837
	123	697	690	687	685	655	667	661	667	673	687	693	698	705
	124	770	778	787	795	806	806	790	793	801	822	838	845	863
	125	892	897	909	918	924	933	930	953	965	985	993	1011	1122
	MEAN:	742	745	753	756	759	762	755	765	771	786	796	804	836
26	126													
	127	629	622	619	625	629	643	632	638	648	645	654	664	667
	128	845	854	864	870	884	882	861	890	919	939	953	968	979
	129	606	622	620	628	628	639	632	638	640	645	652	646	653
	130	718	729	731	731	738	734	731	738	744	759	754	760	770
	MEAN:	700	707	709	714	720	725	714	726	738	747	753	760	767
27	131	720	716	727	734	735	750	737	747	761	772	768	715	762
	132	711	708	714	726	733	751	752	754	764	780	786	738	779
	133	682	677	686	690	702	713	722	729	745	750	770	721	759
	134	675	671	679	679	689	694	666	678	700	711	711	667	707
	135	606	596	607	616	628	638	641	656	657	668	664	625	656
	MEAN:	679	674	683	689	697	709	704	713	725	736	740	693	733
28	136	739	740	754	748	767	778	772	784	789	801	814	821	830
	137	668	662	678	678	679	700	687	695	711	719	724	730	741
	138	666	656	673	676	678	690	671	683	677	691	672	705	714
	139	770	766	777	796	802	817	812	822	828	845	861	860	872
	140	732	724	717	725	733	742	731	743	747	761	760	763	758
	MEAN:	715	710	720	725	732	745	735	745	750	763	766	776	783
GROUP SIZE =		69	69	69	69	69	69	69	69	69	69	69	69	69
GROUP MEAN :		684	688	692	697	703	711	703	712	721	730	739	739	750
MEAN CHANGE:			5	4	5	6	8	-8	9	9	9	9	0	11

000221

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	2σ RAT NO.	...WEEK... 40	41	42	43	44	45	46	47	48	49	50	51	52
22	106	657	652	654	659	667	665	670	668	672	680	684	683	694
	107	712	699	714	715	726	727	736	743	751	748	763	771	779
	108	683	633	678	691	698	690	700	708	709	722	727	732	735
	109	803	803	798	815	815	818	824	836	837	848	861	858	869
	110	712	696	700	715	705	719	730	741	740	751	763	773	776
	MEAN:	713	707	709	719	722	724	732	739	742	750	760	763	771
23	111	865	861	877	888	891	897	912	901	919	927	928	917	929
	112	692	897	912	927	931	942	951	954	964	978	978	981	991
	113	780	787	798	801	810	807	822	823	832	843	846	845	856
	114	719	715	727	738	737	745	749	744	757	764	768	757	768
	115	867	860	876	883	888	889	899	891	902	910	919	913	925
	MEAN:	825	824	838	847	851	856	867	863	875	884	888	883	894
24	116	1005	1004	1040	1078	1102	1132	1150	1174	1197	1212	1211	1206	1199
	117	520	501	483	504	496	511	506	513	523	530	533	530	503
	118	642	647	646	659	660	665	669	671	672	678	680	678	670
	119	647	649	655	662	657	660	659	661	667	668	664	662	653
	120	762	751	722	726	730	751	760	771	786	801	804	804	799
	MEAN:	715	710	709	726	729	744	749	758	769	778	778	776	765
25	121	657	649	662	664	668	670	673	673	682	682	690	695	692
	122	835	829	833	869	872	876	880	885	897	898	903	899	892
	123	710	711	721	727	725	736	752	744	750	746	765	767	756
	124	867	874	884	885	903	910	921	924	932	930	956	950	957
	125	1121	1131	1141	1143	1135	1053	1055	1056	1059	1061	1068	1056	1049
	MEAN:	838	839	848	858	861	849	856	856	864	863	876	873	869
26	126													
	127	670	688	693	697	711	703	710	720	726	732	737	748	748
	128	989	989	996	1004	1003	996	1014	1016	1022	1030	1026	1047	1042
	129	660	660	668	678	678	681	699	690	699	698	699	706	702
	130	775	773	777	789	795	794	806	809	811	812	812	825	820
	MEAN:	774	778	784	792	797	794	807	809	815	818	819	832	828
27	131	792	801	808	811	817	828	839	844	850	856	865	864	876
	132	799	799	812	811	820	831	840	848	863	852	871	882	880
	133	785												
	134	723	733	752	748	777	755	769	769	780	767	780	792	781
	135	672	679	689	693	690	703	713	724	734	752	740	754	756
	MEAN:	754	753	765	766	776	779	790	796	807	807	814	823	823
28	136	835	832	837	843	849	855	866	868	874	869	872	877	876
	137	745	743	749	770	768	764	775	775	782	793	786	796	799
	138	716	707	711	725	730	733	738	746	756	755	752	770	764
	139	681	882	883	897	890	897	897	900	906	901	896	904	897
	140	761	763	769	776	730	731	794	788	790	788	732	809	811
	MEAN:	738	786	790	802	803	806	812	815	822	821	818	831	829
GROUP SIZE =		69	53	68	66	68	63	68	68	68	68	68	68	68
GROUP MEAN :		757	758	764	772	776	777	786	791	798	800	806	808	811
MEAN CHANGE:			1	6	8	5	1	9	5	7	2	6	2	3

000222

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	2♂ RAT NO.	53	...WEEK... 54	55	56	57	58	59	60	61	62	63	64	65
22	106	693	693	682	701	698	704	702	702	704	700	704	698	698
	107	789	789	778	795	789	803	804	788	803	814	823	821	835
	103	738	745	729	750	746	757	757	762	760	762	782	785	776
	109	865	870	858	872	873	888	888	891	882	875	881	881	874
	110	785	785	794	788	787	798	794	813	815	808	821	823	828
	MEAN:	774	776	768	781	779	790	789	791	793	792	802	802	802
23	111	945	931	936	928	932	942	940	945	956	961	955	960	946
	112	1003	975	1002	1007	1015	1032	1037	1046	1053	1064	1062	1073	1068
	113	871	873	872	872	887	888	901	913	923	928	930	946	948
	114	784	784	781	794	794	810	814	818	831	842	857		
	115	930	919	918	915	926	937	934	941	933	938	943	948	949
	MEAN:	907	900	902	903	911	922	925	933	939	947	949	982	978
24	116	1240	1231	1215	1206	1179	1204	1231	1246	1275	1286	1301	1320	1322
	117	524	531	525	533	533	523	540	543	542	541	525	517	526
	118	687	680	666	692	686	699	693	701	709	703	709	720	720
	119	674	674	668	666	660	677	670	679	678	674	679	685	686
	120	811	817	819	820	821	844	837	853	852	850	868	873	871
	MEAN:	787	787	779	783	776	789	794	804	811	811	816	823	825
25	121	696	699	693	722	700								
	122	904	917	908	906	908	903	912	922	918	922	934	934	937
	123	762	768	763	766	778								
	124	946	956	955	959	965	980	977	981	985	975	985	996	995
	125	1057	1059	1057	1062	1072	1085	1100	1112	1115	1109	1096	1121	1131
	MEAN:	873	880	875	883	885	989	996	1005	1006	1002	1005	1017	1021
26	126													
	127	747	752	732	752	762	765	769	772	777	776	770	799	805
	128	1056	1036	1024	1041	1046	1063	1069	1057	1076	1078	1065	1062	1065
	129	708	711	704	720	721	726	733	733	734	731	733	737	740
	130	829	835	837	845	853	850	859	857	860	861	863	871	858
	MEAN:	835	834	824	840	846	851	858	855	862	862	858	867	867
27	131	880	886	892	883	893	907	898	899	899	899	902	896	907
	132	882	886	866	883	889	900	896	900	920	929	946	934	952
	133													
	134	788	793	789	799	799	802	799	805	802	800	805	806	806
	135	754	751	766	762	762	774	790	778	787	792	800	794	802
	MEAN:	826	829	828	832	836	846	846	846	852	855	863	858	867
28	136	876	879	887	891	893	906	900	919	905	908	914	916	909
	137	803	814	830	836	830	836	844	841	850	850	857	862	864
	138	767	772	784	782	785	787	787	792	794	796	802	807	816
	139	897	887	901	909	907	914	912	921	924	926	939	941	948
	140	800	815	811	828	837	841	844	842	840	841	866	867	869
	MEAN:	829	833	843	849	850	857	857	863	863	864	876	879	881
GROUP SIZE =		67	67	67	67	67	65	65	65	65	65	65	64	64
GROUP MEAN :		814	814	811	823	824	833	835	839	843	843	849	854	855
MEAN CHANGE:			0	-3	11	1	9	2	4	4	0	5	5	1

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APPENDIX 2

(Bodyweights - continued)

GROUP	2♂													
CAGE	RAT		...WEEK...											
	NO.	66	67	68	69	70	71	72	73	74	75	76	77	78
22	106	688	693	699	700	709	703	710	715	715	710	702	710	695
	107	839	851	850	841	871	869	873	869	876	874	881	883	880
	108	771	778	782	785	789	793	792	800	807	805	799	805	799
	109	871	878	874	886	873	875	874	871	867	865	858	863	851
	110	828	830	847	853	858	865	860	867	866	867	869	873	850
	MEAN:	799	806	810	813	820	821	822	824	826	824	822	827	815
23	111	953	953	955	952	955	951	942	943	941	911	926	928	933
	112	1067	1076	1083	1093	1089	1105	1071	1106	1114	1082	1100	1101	1092
	113	932	942	956	961	968	954	981	994	994	987	998	1011	1002
	114													
	115	955	953	964	962	974	969	962	967	972	942	958	958	950
	MEAN:	977	982	990	992	997	995	989	1003	1005	981	996	1000	994
24	116	1339	1341	1352	1368	1372	1374	1371	1350	1334	1355	1343	1358	1361
	117	530	526	535	541	539	510	547	550	541	544	544	544	546
	118	719	723	721	719	713	719	719	725	720	727	733	733	733
	119	686	685	681	638									
	120	874	864	882	883	876	877	869	863	866	866	867	860	866
	MEAN:	830	828	834	830	875	870	877	872	865	873	872	874	877
25	121													
	122	943	950	948	951	960	965	957	978	958	976	984	976	977
	123													
	124	1011	995	1015	1014	1029	1022	1012	1025	1012	1034	1043	1033	1033
	125	1146	1165	1163	1170	1181	1156	1156	1167	1158	1175	1174	1160	1159
	MEAN:	1033	1037	1042	1045	1057	1048	1042	1057	1043	1062	1067	1056	1056
26	126													
	127	804	807	818	821	835	786	792	807	809	805	831	843	833
	128	1068	1069	1062	1021	1035	993	1009	1016	1003	982	999	993	993
	129	744	746	745	732	743	710	738	746	744	734	738	752	750
	130	862	864	868	857	867	835	856	870	867	856	854	863	862
	MEAN:	870	872	873	858	870	831	849	860	856	844	856	863	860
27	131	904	906	907	911	908	880	855	896	927	924	936	922	887
	132	953	949	959	974	980	977	999	1006	1017	1017	1029	1022	1007
	133													
	134	804	799	799	803	801	795	793	799	804	804	809	792	786
	135	804	805	817	819	826	825	825	843	847	848	861	861	844
	MEAN:	866	865	871	877	879	869	868	886	899	898	909	899	881
28	136	900	905	916	922	930	934	920	926	932	939	941	937	918
	137	867	855	853	861	862	847	859	863	879	886	887	884	874
	138	821	816	809	823	828	832	824	832	837	846	849	835	830
	139	951	952	939	938	951	940	950	957	950	946	952	938	927
	140	872	885	878	887	898	899	909	906	917	906	915	904	891
	MEAN:	882	883	879	886	894	890	892	897	903	905	909	900	888
GROUP SIZE =		64	64	64	64	63	62	61	61	61	61	61	61	61
GROUP MEAN :		858	860	863	864	875	868	866	873	875	876	878	876	870
MEAN CHANGE:			2	4	1	11	-7	-3	7	3	0	2	-2	-6

000224

(Bodyweights - continued)

GROUP CAGE	2σ RAT NO.	...WEEK... 79	80	81	82	83	84	85	86	87	88	89	90	91
22	106	705	690	702	699	698	691	689	682	678	659	652	635	615
	107	889	885	885	900	904	899	916	918	925	933	926	915	933
	108	802	804	810	806	802	808	820	819	823	837	841	831	834
	109	849	854	850	868	842	839	835	840	822	812	815	802	793
	110	816	813	814	800	796	788	790	772	763				
	MEAN:	812	810	812	815	808	805	810	806	802	810	809	796	794
23	111	930	938	922	942	949								
	112	1089	1084	1038	1031	956	942	890	774					
	113	1003	1021	1007	999	959	948	918	871	786				
	114													
	115	952	953	923	937	915	941	926	905	890	850	865	835	784
	MEAN:	994	999	973	977	945	944	911	850	838	850	865	835	784
24	116	1353	1350	1322	1300	1275	1229	1189	1132	1080	953			
	117	544	544	548	558	554	551	558	556	555	557	560	566	569
	118	740	741	739	746	745	743	756	757	775	770	770	775	773
	119													
	120	856	848	856	865	867	848	865	857	891	876	861	850	845
	MEAN:	873	871	866	867	860	843	842	826	825	789	730	730	729
25	121													
	122	973	975	966	960	913	876	826	758					
	123													
	124	1028	1059	1080	1096	1102	1102	1114	1112	1121	1134	1125	1140	
	125	1157	1175	1175	1182	1192	1191	1199	1182	1174	1159	1166	1178	1177
	MEAN:	1053	1070	1074	1079	1069	1056	1046	1017	1148	1147	1146	1159	1177
26	126													
	127	849	857	866	879	886	899	904	913	936	933	938	957	971
	128	986	983	962	956	940	932	912	903	888	863	837	816	815
	129	750	756	757	785	781	782	791	793	802	812	805	816	790
	130	869	879	875	884	883	888	895	897	903	910	907	924	932
	MEAN:	864	869	865	876	873	875	876	877	882	880	872	878	877
27	131	881	899	900	875	901	912	905	906	907	900	899	906	893
	132	1015	1024	1035	1031	1048	1053	1050	1055	1060	1065	1054	1047	1041
	133													
	134	790	796	800	788	791	797	803	802	798	792	785	782	782
	135	852	850	858	841	848	857	862	876	880	885	884	887	895
	MEAN:	885	892	898	884	897	905	905	910	911	911	906	906	903
28	136	918	916	912	899	881	876	865	840	831	816	793	793	773
	137	878	884	891	893	899	905	912	920	910	927	927	937	933
	138	843	841	833	847	850	855	863	871	865	867	851	875	879
	139	928	923	925	936	921	923	910	896	880	857	858	832	802
	140	903	912	926	929	926	919	930	928	921	916	923	931	948
	MEAN:	894	895	897	901	695	896	896	891	881	877	870	874	867
GROUP SIZE =		61	61	59	58	58	55	55	55	53	51	50	49	48
GROUP MEAN :		868	866	869	872	866	867	862	852	851	848	840	845	834
MEAN CHANGE:			-3	3	3	-6	1	-5	-10	-1	-3	-9	5	-11

000225

(Bodyweights - continued)

GROUP	2♂													
CAGE	RAT		...WEEK...											
	NO.	92	93	94	95	96	97	98	99	100	101	102	103	104
22	106	598	559	514	467									
	107	937	937	941	926	903	927	917	902	906	905	902	894	894
	108	840	835	846	860	831	858	843	820	804	815	822	816	815
	109	794	786	785	775	725	755	747	741	747	723	721	709	701
	110													
	MEAN:	792	779	772	757	820	847	836	821	819	814	815	806	803
23	111													
	112													
	113													
	114													
	115	773	740											
	MEAN:	773	740											
24	116													
	117	557	563	568	567	572	571	563	567	554	447			
	118	782	788	787	793	783	782	786	792	774	782	806	810	820
	119													
	120	836	836	836	831	819	809	796	789	760	773	783	781	780
	MEAN:	725	729	730	730	725	721	715	716	696	667	795	796	800
25	121													
	122													
	123													
	124													
	125	1138	1126	1095	1082	1049	1040	1012	983	961				
	MEAN:	1138	1126	1095	1082	1049	1040	1012	983	961				
26	126													
	127	977	997	1002	1016	1019	1027	1028	1025	1024	1038	1040	995	1027
	128	753	715	700	662	588	489							
	129	821	821	819	821	816	826	821	823	819	811	744	709	
	130	932	905	892	878	867	877	857	832					
	MEAN:	871	860	853	844	823	805	902	893	922	925	892	852	1027
27	131	871	887	890	893	897	897	885	878	852	824	834	805	808
	132	1019	984	980	974	945	954	951	932	924	911	896	857	846
	133													
	134	773	759	754	744	735	740	722	710	713	707	697	686	703
	135	893	903	907	915	909	918	922	913	908	890	899	885	898
	MEAN:	889	883	883	882	872	877	870	858	849	833	832	808	814
28	136	770	727	700	620									
	137	945	952	946	926	919	889	883	864	844	811	736	657	
	138	876	888	891	889	839	773							
	139	777	746	739	708	657	606	567						
	140	926	936	938	949	949	918	930	934	927	927	903	867	873
	MEAN:	859	850	843	818	841	797	793	899	886	869	820	762	873
GROUP SIZE :		47	44	43	43	39	38	35	33	30	29	28	27	24
GROUP MEAN :		831	838	836	826	832	829	822	829	831	812	822	814	827
MEAN CHANGE:			7	-2	-11	6	-3	-6	6	3	-19	10	-8	13

(Bodyweights - continued)

GROUP CAGE	2♂ RAT NO.	...WEEK... 105	106	107	108	109	110
22	106						
	107	899	907	912	919	922	916
	108	828	833	825	813	814	824
	109	695	685	690	674	678	672
	110						
	MEAN:	807	808	809	802	805	804
23	111						
	112						
	113						
	114						
	115						
	MEAN:						
24	116						
	117						
	118	796	806	815	829	828	796
	119						
	120	771	768	761	765	754	732
	MEAN:	784	787	788	797	791	764
25	121						
	122						
	123						
	124						
	125						
	MEAN:						
26	126						
	127	1024	1017	1016	1028	1033	
	128						
	129						
	130						
	MEAN:	1024	1017	1016	1028	1033	
27	131	789	790	799	830	815	830
	132	850	839	824	794	731	
	133						
	134	706	724	709	691	700	700
	135	903	900	898	914	915	927
	MEAN:	812	813	808	807	790	819
28	136						
	137						
	138						
	139						
	140	847	864	859			
	MEAN:	847	864	859			
GROUP SIZE =		24	23	22	20	18	15
GROUP MEAN :		825	821	815	808	776	776
MEAN CHANGE:			-3	-7	-6	-32	-1

000227

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	3♂ RAT NO.	-3	...WEEK... -2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
29	141	142	176	248	288	311	350	376	390	412	421	436	451	461	483	491	490	508
	142	122	191	246	301	362	410	444	481	514	526	556	569	582	606	618	629	639
	143	145	200	262	331	384	439	471	502	536	549	571	590	609	627	645	652	667
	144	154	216	271	329	379	421	459	495	528	534	561	574	581	596	603	612	627
	145	131	188	254	319	350	409	449	478	507	519	552	566	578	600	620	631	640
	MEAN:	139	198	256	314	357	406	440	469	499	510	535	550	562	582	595	603	616
30	146	149	197	260	294	309	326	321	350	377	400	406	416	421	437	446	459	467
	147	138	202	260	315	362	404	403	452	483	509	531	546	550	564	579	574	589
	148	127	188	272	334	389	427	429	490	521	564	574	582	593	622	629	632	645
	149	126	132	257	321	373	400	404	439	476	496	516	532	541	565	578	582	586
	150	161	217	285	341	386	432	452	494	527	539	562	574	582	600	600	588	605
	MEAN:	140	197	267	321	364	398	402	445	477	502	518	530	537	558	566	567	578
31	151	147	209	265	334	376	424	459	483	511	544	571	572	603	643	634	674	697
	152	143	209	265	331	384	432	469	493	529	546	563	572	591	619	620	646	662
	153	127	184	242	296	340	380	429	440	471	494	517	514	532	558	552	581	602
	154	122	178	230	281	311	351	382	399	422	449	471	473	502	519	508	536	536
	155	155	184	247	304	359	400	433	444	468	489	503	504	523	547	539	563	573
	MEAN:	139	193	250	309	354	397	434	452	480	504	525	527	550	577	571	600	614
32	156	122	175	230	291	333	372	409	422	433	469	493	500	516	538	539	554	573
	157	134	200	251	306	344	400	429	458	474	476	499	514	542	561	589	594	611
	158	139	192	241	291	329	365	400	411	440	456	473	486	509	527	554	539	550
	159	144	192	242	300	336	377	411	447	462	486	526	526	541	583	602	595	619
	160	154	202	256	299	336	364	391	390	407	427	443	444	453	473	485	484	494
	MEAN:	139	192	244	297	336	376	408	426	443	463	487	494	512	536	554	553	569
33	161	115	161	215	254	294	324	352	370	381	396	424	432	450	473	480	483	493
	162	132	188	253	311	356	392	421	452	472	504	521	504	517	541	563	575	586
	163	136	195	260	322	381	412	453	470	488	519	536	542	563	592	610	616	632
	164	143	186	254	309	349	381	409	420	441	442	506	506	527	547	564	564	578
	165	160	216	275	321	376	407	442	446	465	482	498	500	514	533	548	542	550
	MEAN:	137	189	251	303	351	383	415	432	449	469	497	497	514	537	551	556	568
34	166	133	176	253	319	364	400	429	431	450	496	511	534	538	563	580	589	603
	167	150	210	268	322	372	416	453	450	460	511	537	557	566	599	618	619	603
	168	124	178	243	309	372	421	454	449	466	527	546	549	567	581	600	604	608
	169	136	180	250	309	352	386	412	416	419	432	486	496	517	533	548	556	564
	170	154	217	277	329	359	388	410	402	399	456	481	476	497	517	529	532	537
	MEAN:	139	196	258	318	364	402	432	430	439	484	512	522	537	559	575	580	583
35	171	136	190	249	311	354	394	432	456	483	502	516	519	532	553	554	563	572
	172	116	172	230	282	332	371	410	432	453	469	484	489	499	507	520	522	530
	173	151	206	269	326	371	414	453	475	491	519	532	554	567	576	598	602	619
	174	162	216	278	336	379	414	444	470	490	516	543	556	579	600	619	636	633
	175	132	192	249	311	362	400	429	452	472	499	527	534	541	563	580	586	602
	MEAN:	139	195	255	313	360	399	434	457	478	501	520	530	544	560	574	582	591

000228

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	3σ RAT NO.	...WEEK... 14	15	16	17	18	19	20	21	22	23	24	25	26
29	141	515	517	523	516	527	537	549	548	553	560	566	568	576
	142	654	668	680	667	687	704	727	729	730	743	761	773	785
	143	660	695	695	641	715	732	743	754	762	776	784	791	803
	144	639	654	644	640	648	660	664	679	675	687	693	710	712
	145	658	673	692	674	687	710	719	735	742	763	768	784	780
	MEAN:	629	641	647	628	653	669	680	689	692	706	714	725	731
30	146	476	485	489	480	496	510	518	520	533	538	552	548	558
	147	600	605	615	614	628	637	644	648	656	667	668	679	694
	148	658	671	680	671	689	698	719	726	730	760	764	773	783
	149	606	617	627	627	644	653	650	638	671	690	702	716	728
	150	610	621	627	646	666	680	690	685	687	701	718	717	729
	MEAN:	590	600	608	608	625	636	644	643	655	671	681	687	698
31	151	722	723	735	735	734	753	768	773	773	781	810	813	819
	152	676	688	703	662	661	704	710	732	743	737	757	764	778
	153	609	607	615	607	616	625	631	635	650	673	675	678	683
	154	546	557	565	554	575	583	589	598	595	611	616	613	627
	155	578	582	604	596	600	614	625	637	633	649	657	661	670
	MEAN:	626	631	644	631	637	656	665	675	679	690	703	706	715
32	156	588	600	602	599	618	640	636	648	652	665	673	689	695
	157	630	640	651	642	654	670	650	669	669	676	679	715	720
	158	566	572	566	584	598	614	602	623	618	639	652	669	672
	159	639	644	670	678	676	699	687	701	727	737	743	755	770
	160	506	517	523	523	527	538	533	547	552	559	572	574	586
	MEAN:	586	595	602	605	615	632	622	638	644	655	664	680	689
33	161	501	509	510	488	503	507	528	527	528	532	543	542	535
	162	592	594	590	594	630	637	654	675	671	685	696	701	705
	163	641	657	662	644	668	669	695	688	691	703	705	710	719
	164	600	614	622	608	625	630	663	671	670	683	688	692	696
	165	562	571	567	571	584	593	617	625	620	647	638	665	640
	MEAN:	579	589	590	581	602	607	631	637	636	650	654	658	659
34	166	609	625	629	628	650	669	672	683	685	710	719	729	730
	167	610	611	602	614	636	646	650	647	646	658	657	654	647
	168	611	615	630	629	645	658	661	672	670	678	686	689	680
	169	567	570	582	584	574	594	601	618	624	629	637	644	634
	170	541	543	556	558	587	581	580	589	584	600	604	606	595
	MEAN:	588	593	600	603	618	630	633	642	642	655	661	664	657
35	171	582	591	597	594	598	610	619	628	633	647	660	669	664
	172	537	538	550	539	554	568	573	573	586	599	603	604	612
	173	635	645	644	623	654	679	672	687	698	707	713	720	717
	174	654	662	675	675	689	707	710	716	728	745	747	764	768
	175	619	635	649	641	653	659	688	667	681	699	716	723	731
	MEAN:	605	614	623	614	630	645	652	654	665	679	688	696	698

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	♂ RAT NO.	27	28	29	30	31	32	33	34	35	36	37	38	39
		...WEEK...												
29	141	575	587	588	589	596	593	589	599	600	612	611	615	621
	142	784	795	792	801	813	826	803	814	816	834	839	851	840
	143	810	813	809	821	823	827	821	838	840	853	863	871	872
	144	714	722	720	727	740	746	731	748	761	769	776	788	788
	145	737	796	793	810	820	802	803	823	824	850	850	866	871
	MEAN:	734	743	740	750	758	759	749	764	768	784	788	798	798
30	146	567	569	572	576	585	592	588	583	598	609	623	625	635
	147	689	692	695	686	698	710	701	702	716	723	728	735	740
	148	785	792	798	807	821	818	794	809	827	840	849	847	864
	149	739	730	735	737	750	751	733	751	771	787	793	806	808
	150	738	740	760	740	757	767	757	767	783	796	806	810	818
	MEAN:	704	705	712	710	722	728	715	722	739	751	760	765	773
31	151	834	841	836	845	836	345	834	844	839	841	853	852	868
	152	794	799	807	801	818	828	830	835	843	854	875	870	871
	153	703	707	711	714	720	738	722	731	746	750	754	766	774
	154	631	631	633	644	641	655	648	660	660	662	669	669	693
	155	672	643	647	651	645	659	627	650	672	676	692	691	676
	MEAN:	728	724	727	731	732	743	732	744	752	757	769	770	776
32	156	706	717	714	722	729	737	730	721	759	768	772	772	783
	157	739	734	739	749	756	770	763	772	778	791	808	813	816
	158	678	683	687	695	708	712	709	721	729	737	757	761	765
	159	736	602	803	812	816	827	810	817	825	826	844	831	835
	160	591	592	591	593	599	602	601	606	617	628	634	633	639
	MEAN:	700	706	707	714	722	730	723	727	742	750	763	762	768
33	161	541	549	543	551	547	552	554	571	572	583	592	584	590
	162	706	707	697	697	707	708	676	692	709	711	721	732	743
	163	726	730	727	736	738	742	730	746	753	763	777	767	769
	164	697	691	706	711	713	728	722	733	735	748	755	752	763
	165	637	638	634	635	638	651	648	662	662	670	679	686	691
	MEAN:	661	663	661	666	669	676	666	681	686	695	705	704	711
34	166	749	761	754	767	765	776	762	773	785	795	801	813	811
	167	657	667	656	654	648	654	643	644	647	647	659	662	665
	168	638	700	715	696	698	703	692	699	709	712	717	716	703
	169	647	659	659	676	677	691	689	703	712	720	733	737	743
	170	607	613	612	620	618	626	617	626	632	639	644	646	653
	MEAN:	670	680	679	683	681	690	681	689	697	703	711	715	715
35	171	677	682	679	681	691	696	685	697	708	711	729	717	730
	172	617	619	616	619	618	629	616	624	628	630	636	638	637
	173	725	723	729	727	726	729	715	738	743	756	775	762	769
	174	776	782	786	784	791	799	792	805	804	805	805	800	811
	175	744	753	768	759	771	781	778	788	791	801	803	818	823
	MEAN:	708	712	716	714	719	727	717	730	735	741	750	747	754

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	3σ RAT NO.	40	41	42	43	44	45	46	47	48	49	50	51	52
		...WEEK...												
29	141	620	622	632	637	639	641	652	651	654	656	651	660	663
	142	842	854	864	858	857	862	904	908	915	914	922	924	907
	143	879	839	902	916	924	937	947	945	944	961	971	976	984
	144	796	809	816	823	828	832	847	844	855	863	869	886	891
	145	885	895	907	914	918	913	931	945	952	949	955	956	957
	MEAN:	804	814	824	830	833	837	856	859	864	869	874	880	881
30	146	637	639	650	657	653	662	673	672	666	686	686	697	702
	147	745	759	766	779	763	755	739	747	750	768	767	777	780
	148	870	870	883	898	838	906	915	922	914	932	947	952	963
	149	817	822	841	849	852	862	864	875	875	891	905	915	920
	150	826	825	835	830	832	837	853	856	852	860	869	884	883
	MEAN:	779	783	795	803	798	804	809	814	811	827	835	845	850
31	151	864	869	869	879	878	869	883	872	885	883	882	879	872
	152	863	894	907	912	919	918	937	943	949	946	961	965	975
	153	777	798	800	793	809	813	819	813	820	839	838	848	843
	154	689	687	695	696	700	698	710	714	710	725	724	724	730
	155	703	719	717	715	723	718	709	714	709	718	724	727	732
	MEAN:	783	791	798	799	806	803	812	811	815	822	826	829	830
32	156	783	799	796	797	808	809	829	839	845	861	864	871	876
	157	831	842	851	855	861	869	871	875	890	890	895	908	917
	158	768	779	783	783	787	789	797	806	812	813	821	819	805
	159	843	853	869	875	877	867	890	888	891	882	882	878	900
	160	641	646	650	658	661	652	663	668	673	674	678	682	700
	MEAN:	773	784	790	794	799	797	810	815	822	824	828	832	840
33	161	592	607	594	588	593	600	605	593	600	594	601	608	612
	162	739	749	760	765	765	769	776	772	776	779	789	784	791
	163	783	780	782	784	788	792	801	796	806	810	811	817	833
	164	766	766	772	773	783	783	799	801	820	827	826	824	814
	165	692	693	691	693	695	698	697	694	692	697	695	695	680
	MEAN:	714	719	720	721	725	728	736	731	739	741	744	746	746
34	166	811	811	810	807	807	808	803	804	813	813	801	800	787
	167	671	661	669	692	681	681	671	668	682	690	688	692	685
	168	724	727	732	738	747	742	720	746	750	751	755	765	765
	169	752	750	761	762	763	785							
	170	662	664	668	677	662	680	689	691	703	709	713	722	723
	MEAN:	724	723	726	735	732	739	721	727	737	741	739	745	740
35	171	734	741	749	752	759	763	776	782	791	800	803	804	808
	172	647	659	652	656	655	656	650	646	652	655	659	667	666
	173	771	787	789	781	787	804	797	795	794	799	810	808	790
	174	815	819	830	843	846	849	850	854	864	869	882	882	882
	175	830	822	837	843	850	846	863	867	873	879	883	882	892
	MEAN:	759	766	771	775	779	784	787	789	795	800	807	809	808

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	♂ RAT NO.	...WEEK... 53	54	55	56	57	58	59	60	61	62	63	64	65
29	141	669	674	665	676	695	685	662	684	693	696	695	700	695
	142	900	908	902	930	937	954	930	960	977	989	987	1009	1010
	143	984	989	992	984	982	989	966	980	980	979	985	988	987
	144	899	898	905	903	899	920	894	919	922	933	929	948	953
	145	968	979	956	980	980	993	959	993	987	985	1000	1012	1017
	MEAN:	884	890	884	895	899	908	882	907	912	916	919	931	932
30	146	698	700	686	709	710	719	729	721	720	733	739	740	741
	147	784	782	778	804	802	812	805	816	807	811	819	821	840
	148	962	959	947	976	976	972	945	909	939	964	934	955	971
	149	927	879	835	858	876	897	895	906	917	932	929	927	914
	150	893	892	899	898	902	907	914	912	929	933	928	932	936
	MEAN:	853	842	829	849	853	861	858	853	862	875	870	875	880
31	151	846	756	682										
	152	979	982	969	987	1000	1007	1008	1010	1018	1020	1019	1028	1032
	153	837	847	846	852	855	853	858	874	877	871	874	884	890
	154	731	729	733	734	746	742	740	735	737	755	783	764	770
	155	732	730	711	739	742	747	745	737	738	744	749	757	761
	MEAN:	825	809	788	828	836	837	838	839	843	848	856	858	863
32	156	884	887	881	887	894	902	895	895	900	903	919	924	925
	157	926	927	923	908	911	921	922	931	929	923	941	950	949
	158	811	811	812	806	824	833	829	839	834	840	840	858	853
	159	892	883	868	858	872	885	888	898	882	912	913	904	916
	160	699	701	709	708	711	725	714	724	713	718	723	718	715
	MEAN:	842	842	839	833	842	853	850	857	852	859	867	871	872
33	161	621	622	600	612	631	623	627	622	628	607	617	629	638
	162	796	791	789	808	808	813	813	815	821	802	786	804	812
	163	837	831	829	846	846	861	858	858	849	855	861	879	888
	164	820	819	801	837	836	836	834	826	834	816	807	803	757
	165	677	654	664	669	677	695	678	676	676	676	673	686	676
	MEAN:	750	743	737	754	760	766	762	759	762	751	749	760	754
34	166	789	786	763	781	772	766	757	719	698				
	167	668	693	670	682	678	690	690	668	681	682	681	658	672
	168	771	753	742	744	765	754	763	766	764	766	775	776	770
	169													
	170	729	736	732	740	752	751	750	750	751	754	759	758	758
	MEAN:	744	742	727	737	742	740	740	726	724	734	738	731	733
35	171	812	822	816	821	831	835	834	825	847	850	857	860	864
	172	675	678	678	691	691	706	701	711	712	715	719	726	728
	173	784	793	790	795	793	783	781	783	769	778	780	752	782
	174	869	876	874	882	894	900	888	894	891	878	879	884	886
	175	891	902	907	900	924	932	928	936	934	950	952	954	966
	MEAN:	806	814	813	818	827	831	826	830	831	834	837	835	845

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	3d RAT NO.	66	67	68	69	70	71	72	73	74	75	76	77	78
			...WEEK...											
29	141	694	704	696	717	709	715	683	725	738	715	740	757	757
	142	995	1005	991	984	950	902	846	819					
	143	982	988	984	998	1000	1005	976	1005	992	1014	1021	1025	1037
	144	946	955	961	974	978	990	958	995	772	1009	1011		
	145	1015	1017	1023	1023	1022	1035	978	1031	965	1013	986	968	968
	MEAN:	926	934	931	939	932	929	888	915	909	938	940	917	921
30	146	751	746	748	752	748	747	742	758	766	755	750	749	746
	147	846	847	852	855	861	854	865	877	887	864	862	865	853
	148	976	973	965	957	944	936	955	943	954	934	940	949	922
	149	926	951	946	942	947	927	929	944	954	930	922	936	913
	150	948	947	941	946	952	945	956	943	975	953	940	934	921
	MEAN:	849	893	890	890	890	882	889	893	907	887	883	887	871
31	151													
	152	1016	1036	1046	1053	1042	1047	1052	1061	1076	1079	1073	1057	1051
	153	896	899	912	922	941	937	944	945	968	971	972	961	953
	154	770	779	780	774	779	770	773	784	790	791	786	787	761
	155	769	763	762	784	785	781	781	777	784	790	794	799	779
	MEAN:	863	871	875	883	887	884	888	892	905	908	906	901	886
32	156	934	936	947	948	954	955	946	974	980	977	989	991	993
	157	961	966	974	982	983	985	973	997	990	1003	1011	1001	1012
	158	862	873	872	872	878	877	860	884	883	896	897	898	892
	159	926	920	930	944	933	931	935	962	957	969	968	964	971
	160	730	734	731	730	747	750	727	734	727	734	744	753	755
	MEAN:	883	886	891	895	899	900	888	910	907	916	922	921	925
33	161	643	627	646	644	650	637	634	641	647	640	645	637	646
	162	822	817	817	816	810	804	793	789	772	781	798	800	807
	163	893	880	899	899	912	922	923	925	931	920	885	809	762
	164	737	695											
	165													
	MEAN:	774	755	787	786	791	788	783	785	783	780	776	749	738
34	166													
	167	688	646	646	655	658	652	606	608	613	626	650	663	653
	168	782	765	754	779	793	797	795	805	811				
	169													
	170	773	747	767	749	744	759	761	770	769	778	780	778	779
	MEAN:	748	719	722	728	732	736	721	728	731	702	715	721	716
35	171	870	880	885	892	893	890	882	890	898	902	904	904	911
	172	738	739	745	746	748	752	753	764	770	769	773	778	786
	173	778	770	740	740									
	174	899	911	908	896	898	893	882	883	883	882	880	864	856
	175	981	998	999	1001	1015	1018	1005	1018	1030	1014	1031	1030	1022
	MEAN:	853	860	855	855	889	888	881	889	895	892	897	894	894

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	3σ RAT NO.	...WEEK... 79	80	81	82	83	84	85	86	87	88	89	90	91
29	141	757	755	753	754	738	745	726	728	715	709	698	691	694
	142													
	143	1045	1051	1031	1054	1064	1076	1046	1072	1105	1106	1112	1106	1093
	144													
	145	949	933	921	882	861	849	799	771	717	671	632	600	
	MEAN:	917	913	902	897	888	890	857	857	846	829	814	799	894
30	146	749	746	750	766	764	762	757	759	763	770	766	776	769
	147	860	874	867	884	892	892	884	889	891	901	898	903	880
	148	915	953	952	967	972	968	959	951	963	980	974	980	961
	149	926	923	923	956	944	944	925	911	953	922	907	907	909
	150	939	935	940	942	945	925	908	915	924	945	949	962	940
	MEAN:	878	886	886	903	903	898	887	885	899	904	899	906	892
31	151													
	152	1069	1077	1073	1079	1055	1075	1056	1043	1070	1082	1082	1098	1089
	153	970	987	967	921	910	907	907	925	953	972	975	997	976
	154	778	786	784	798	773	789	789	791	787	800	796	797	781
	155	790	796	789	793	779	794	811	794	797	796	800	810	792
	MEAN:	902	912	903	898	879	891	891	888	902	913	913	926	910
32	156	993	1003	1023	1007	1004	1003	995	986	974	970	959	961	952
	157	1005	1030	1032	1035	1025	1032	1015	1023	1025	1021	1032	1018	1009
	158	899	902	913	920	922	923	914	905	910	923	923	941	922
	159	962	991	984	993	984	980	978	974	977	988	987	974	952
	160	758	758	766	775	772	776	779	786	784	787	786	766	772
	MEAN:	923	937	944	946	941	943	936	935	934	938	937	932	921
33	161	642	649	654	651	639	643	633	623	613	617	611	624	620
	162	819	803	805	805	810	806	801	803	803	810	811	809	809
	163	720	676	629										
	164													
	165													
	MEAN:	727	709	696	728	725	725	717	713	708	714	711	717	715
34	166													
	167	659	675	675	670	670	686	686	694	691	689	691		
	168													
	169													
	170	791	800	824	842	861								
	MEAN:	725	738	750	756	766	686	686	694	691	689	691		
35	171	908	908	916	925	927	927	908	923	923	920	870	913	879
	172	785	785	786	798	798	803	799	806	799	822	819	828	825
	173													
	174	840	846	862	832	811	792	766	731	726	647	648	511	
	175	1032	1043	1036	1044	1056	1059	1055	1069	1083	1101	1107	1092	1097
	MEAN:	891	896	900	900	898	895	882	882	883	873	861	836	934

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(Bodyweights - continued)

GROUP CAGE	3σ RAT NO.	...WEEK... 92	93	94	95	96	97	98	99	100	101	102	103	104
29	141	632	664	639	600	577	530	488						
	142													
	143	1089	1063	1012	991	994	967	779						
	144													
	145													
	MEAN:	836	864	826	796	736	749	634						
30	146													
	147	871	861	912	875	865	805	712						
	148	960	746	870										
	149	877	857	815	767	794	794	781	709	722	697	683	651	613
	150	928	923	967	941	970	978	969	952	961	960	959	961	951
	MEAN:	909	897	891	861	876	859	821	831	842	829	821	806	782
31	151													
	152	1101	1105	1122	1115	1108	1140	1137	1093	1089	1089	1079	1078	1075
	153	1000	1015	1025	1031	1031	1046	1043	1050	1044	1036	1040	1042	1033
	154	768	751	755	771	776	780	778	784	779	777	757	775	777
	155	810	810	820	818	818	822	828	814	814	807	807	810	793
	MEAN:	920	920	931	934	933	947	947	935	932	927	921	926	920
32	156	933	947	953	952	952	949	963	966	958	957	950	960	968
	157	1024	1042	1052	1049	1065	1061	1060	1061	1054	1055	1054	1053	1059
	158	901	900	907	915	921	934	934	925	916	917	930	916	925
	159	958	951	933	953	955	937	963	894	865	847	845	837	830
	160	786	788	787	789	776	784	778	773	760	747	742	731	729
	MEAN:	920	926	926	932	934	933	940	924	911	905	904	899	902
33	161	621	625	627	628	627	632	635	633	635	626	618	622	634
	162	817	830	821	798	819	819	824	795	805	803	795	783	802
	163													
	164													
	165													
	MEAN:	719	728	724	713	723	726	730	714	720	715	707	703	718
34	166													
	167													
	168													
	169													
	170													
	MEAN:													
35	171	862	852	844	800	795	800	794	786	765	759	740	720	694
	172	828	832	840	828	818	827	835	846	839	839	843	857	861
	173													
	174													
	175	1106	1108	1118	1100	1072	1050	1051	978	836				
	MEAN:	932	931	934	909	895	892	893	870	813	799	792	789	778

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	3♂ RAT NO.	...WEEK... 105	106	107	108	109	110
29	141						
	142						
	143						
	144						
	145						
	MEAN:						
30	146						
	147						
	148						
	149	547					
	150	949	953	951	945	935	923
	MEAN:	748	953	951	945	935	923
31	151						
	152	1071	1082	1082	1081	1058	1047
	153	1009	1055	1045	1042	1034	1018
	154	773	775	779	772	775	761
	155	772	774	781	790	789	783
	MEAN:	936	922	922	921	914	902
32	156	959					
	157	1059	1048	1061	1075	1086	1042
	158	899	904	917	927	938	919
	159	799	791	810	812	761	772
	160	699	704	704	698	698	684
	MEAN:	883	862	873	878	871	854
33	161	636	635	645	649	652	660
	162	803	807	816	810	790	796
	163						
	164						
	165						
	MEAN:	720	721	731	730	721	728
34	166						
	167						
	168						
	169						
	170						
	MEAN:						
35	171	676	616				
	172	866	878	890	892	872	886
	173						
	174						
	175						
	MEAN:	771	747	890	892	872	886

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	3 ♂ RAT NO.	...WEEK... -3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
36	176	136	205	276	351	422	486	536	573	621	641	676	699	739	759	774	786	811
	177	124	182	255	311	369	421	461	491	512	536	562	576	590	609	628	626	647
	178	148	207	259	302	332	370	400	428	452	444	463	476	504	532	549	557	568
	179	152	192	248	291	332	372	392	411	431	456	481	493	510	533	550	557	567
	180				284	321	355	381	395	413	432	436	442	451	466	471	471	476
	MEAN:	140	197	260	308	355	401	434	460	486	502	524	537	559	580	594	599	614
37	181	147	194	251	304	332	371	393	415	439	461	482	492	523	547	556	557	563
	182	136	180	225	259	284	310	332	356	358	372	391	402	412	422	430	430	430
	183	135	202	265	321	356	388	421	444	472	482	511	511	537	549	561	574	592
	184	124	183	240	292	339	366	384	396	414	429	443	446	459	474	483	486	492
	185	154	215	282	339	371	409	436	452	470	494	526	532	546	563	574	576	590
	MEAN:	139	195	253	303	336	369	393	413	431	448	471	477	495	511	521	525	533
38	186	118	157	211	249	282	310	351	381	412	422	446	446	453	466	480	480	490
	187	129	182	256	326	382	410	449	460	513	552	592	598	614	635	645	652	665
	188	141	204	262	314	362	404	432	460	491	492	534	544	559	581	600	611	625
	189	149	199	261	314	349	382	402	426	449	449	505	511	534	552	571	577	588
	190	159	197	261	339	381	437	481	473	494	526	563	572	587	611	624	634	651
	MEAN:	139	188	250	308	351	389	423	440	472	488	528	534	549	569	584	591	604
39	191	116	202	249	302	345	380	405	417	442	461	475	482	497	516	529	534	538
	192	129	168	222	271	322	364	406	433	464	491	520	536	557	573	601	602	617
	193	141	198	275	326	381	423	450	480	506	526	549	564	576	596	608	608	630
	194	143	194	252	302	342	362	389	398	428	449	472	474	493	514	524	526	538
	195	155	216	278	331	356	405	432	450	473	492	522	534	551	568	585	591	603
	MEAN:	137	194	255	306	349	387	416	436	463	484	508	518	535	553	569	572	585
40	196	127	173	238	289	349	366	386	418	440	466	476	479	497	518	533	529	538
	197	144	193	241	279	322	332	380	408	429	452	465	482	487	519	520	542	538
	198	126	173	270	334	382	405	440	412	466	482	482	573	639	672	695	709	715
	199	139	202	265	316	355	371	404	432	450	481	496	500	519	537	549	554	570
	200	160	220	287	339	410	382	384	365	412	416	442	466	507	524	533	536	546
	MEAN:	139	192	260	311	364	371	399	407	439	459	472	500	530	554	566	574	581
41	201	136	189	257	312	349	392	430	448	474	489	491	502	507	522	530	534	541
	202	126	193	256	319	359	392	432	453	483	512	521	531	559	583	597	600	611
	203	148	203	256	294	311	349	376	392	416	431	436	446	456	471	482	484	491
	204	162	222	285	344	374	421	460	490	522	542	552	573	607	621	643	658	672
	205	131	188	246	291	347	370	404	422	445	462	421	436	409	475	489	504	511
	MEAN:	141	199	260	312	348	385	420	441	468	487	484	498	508	534	548	556	565
42	206	145	216	287	352	383	459	512	550	582	610	642	663	691	692	712	740	760
	207	142	198	251	294	324	350	382	404	417	449	464	474	487	483	510	521	530
	208	126	181	233	281	329	352	370	398	408	446	472	482	494	500	527	531	543
	209	123	208	271	311	342	382	404	426	447	459	482	491	500	500	511	520	527
	210	153	206	266	321	358	402	436	460	480	496	521	531	541	544	569	572	584
	MEAN:	138	202	262	312	347	389	421	448	467	492	516	528	543	544	566	577	589
GROUP SIZE =		69	69	69	70	70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		139	195	256	310	353	389	419	440	464	485	507	517	534	554	567	574	585
MEAN CHANGE:			56	61	54	43	37	30	20	24	22	22	10	17	20	13	7	11

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	3♂ RAT NO.	...WEEK... 14	15	16	17	18	19	20	21	22	23	24	25	26
36	176	824	832	866	833	853	874	894	897	905	911	860	885	906
	177	660	668	675	668	677	687	690	704	709	720	700	728	745
	178	571	571	598	590	602	597	603	620	614	623	594	624	613
	179	588	608	618	607	621	633	637	645	636	651	626	644	649
	180	492	499	510	498	507	515	521	532	532	540	517	557	559
	MEAN:	627	636	653	639	652	661	669	680	679	689	659	688	694
37	181	581	591	593	592	608	630	633	643	642	661	676	689	695
	182	438	427	446	442	442	444	453	456	451	453	459	461	458
	183	606	617	626	621	655	672	681	685	691	705	712	722	718
	184	503	518	529	526	539	565	570	575	577	589	601	614	619
	185	601	595	612	605	614	625	639	639	642	646	650	666	667
	MEAN:	547	550	561	557	572	587	595	600	601	611	620	630	631
38	186	507	523	526	508	523	540	557	562	561	572	584	586	593
	187	686	692	699	689	707	721	745	753	764	786	787	801	812
	188	644	648	663	663	681	699	711	706	710	725	737	751	754
	189	594	613	622	597	613	633	648	638	645	656	670	672	670
	190	660	678	686	675	691	704	714	724	724	727	731	744	749
	MEAN:	618	631	639	626	643	659	675	677	681	693	702	711	716
39	191	545	559	566	553	575	591	609	619	621	638	639	656	660
	192	615	632	651	648	655	692	703	716	726	751	767	780	778
	193	646	651	661	651	665	674	685	690	698	709	726	736	731
	194	548	557	582	582	600	608	626	634	640	653	666	677	680
	195	627	632	653	654	648	691	716	735	744	759	780	795	804
	MEAN:	596	606	623	618	629	651	668	679	686	702	716	729	731
40	196	542	537	538	551	564	583	588	578	587	572	592	617	615
	197	543	549	558	564	585	598	595	583	593	559	567	581	585
	198	729	745	761	772	790	804	827	837	839	833	852	892	896
	199	573	589	598	604	624	631	643	642	648	638	652	676	676
	200	552	562	573	576	588	596	620	611	610	616	605	628	634
	MEAN:	588	596	606	613	630	642	655	650	655	644	654	679	681
41	201	552	563	576	571	582	592	606	609	615	633	624	635	631
	202	626	629	647	629	646	667	675	687	669	688	688	695	696
	203	504	512	520	506	529	538	542	545	543	553	555	565	565
	204	700	709	732	703	724	740	773	794	801	829	827	845	847
	205	522	536	543	539	544	549	566	569	567	582	575	592	591
	MEAN:	581	590	604	590	605	617	632	641	639	657	654	666	666
42	206	780	773	818	774	761	776	779	796	825	861	841	846	862
	207	550	543	554	552	565	567	577	613	586	598	599	607	605
	208	556	550	565	572	579	588	594	599	606	606	616	624	631
	209	545	530	543	545	555	566	577	589	600	610	607	620	619
	210	600	599	593	604	613	625	647	654	656	662	664	675	672
	MEAN:	606	603	615	609	615	624	635	650	655	667	665	674	678
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		598	605	615	609	623	637	647	654	658	669	674	685	689
MEAN CHANGE:			8	10	-7	14	14	10	7	4	12	5	11	4

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	3♂ RAT NO.	...WEEK... 27	28	29	30	31	32	33	34	35	36	37	38	39
36	176	915	920	928	931	936	951	946	953	941	950	978	984	974
	177	749	762	767	768	788	799	782	797	810	818	834	846	846
	178	636	644	649	653	655	667	656	663	676	682	700	696	700
	179	649	659	663	668	672	677	664	679	683	689	705	712	724
	180	562	564	557	568	570	577	560	567	575	573	587	584	570
	MEAN:	702	710	713	718	724	734	722	732	737	742	761	764	763
37	181	693	708	709	696	707	715	706	721	748	737	753	748	762
	182	463	469	462	465	466	467	462	456	467	455	467	463	479
	183	720	713	709	714	723	731	691	715	736	727	749	750	760
	184	632	637	641	639	643	648	642	656	669	667	680	684	697
	185	674	680	682	676	686	694	679	681	701	693	713	718	729
	MEAN:	636	642	641	638	645	651	636	646	664	656	672	673	685
38	186	600	600	601	600	600	600	593	603	610	617	623	629	612
	187	815	820	831	843	856	862	858	872	882	897	906	914	898
	188	770	779	782	793	809	819	812	822	838	842	861	860	843
	189	681	686	695	697	693	694	688	696	701	709	712	703	703
	190	753	753	763	770	777	779	785	792	793	803	812	810	789
	MEAN:	724	729	734	741	747	751	747	757	765	774	783	783	769
39	191	664	671	677	673	678	702	690	707	714	728	730	730	747
	192	792	801	809	824	828	826	848	861	871	884	893	894	910
	193	735	740	750	754	753	771	770	760	774	788	799	796	820
	194	693	700	699	704	702	711	715	720	734	745	747	749	762
	195	814	826	842	842	851	863	864	870	897	898	921	932	954
	MEAN:	740	748	755	759	762	775	777	784	798	809	818	820	839
40	196	604	617	615	611	613	617	602	624	628	630	633	639	642
	197	586	581	566	576	587	611	597	612	624	630	638	643	666
	198	893	922	918	921	927	937	893	924	942	969	982	987	1003
	199	693	696	699	707	714	725	699	730	742	755	762	774	780
	200	630	648	650	653	663	668	643	664	673	683	690	695	703
	MEAN:	681	693	690	694	701	712	687	711	722	733	741	748	759
41	201	631	630	636	641	656	657	651	658	666	673	678	685	692
	202	698	693	709	716	719	726	726	739	750	758	773	784	802
	203	579	574	582	590	591	601	579	593	598	612	612	615	612
	204	876	865	874	890	910	914	914	928	937	956	966	982	986
	205	608	596	598	601	600	605	605	616	623	625	635	636	637
	MEAN:	678	672	680	688	695	701	695	707	715	725	733	740	746
42	206	875	871	883	901	907	931	930	947	964	978	995	1009	1008
	207	611	603	612	613	624	633	624	639	645	655	660	664	679
	208	634	628	636	632	636	639	641	641	650	669	690	664	672
	209	624	632	654	641	652	662	651	662	675	686	666	692	698
	210	684	678	689	695	692	700	686	699	707	720	724	734	738
	MEAN:	686	683	695	696	702	713	706	718	728	742	747	753	759
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		697	701	704	707	713	721	711	722	732	740	750	753	758
MEAN CHANGE:			4	3	4	6	8	-10	11	10	8	10	3	5

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(Bodyweights - continued)

GROUP CAGE	5♂ RAT NO.	...WEEK... 40	41	42	43	44	45	46	47	48	49	50	51	52
36	176	992	977	991	994	1002	1005	1002	999	1014	1019	1009	1016	1016
	177	856	852	871	882	891	892	900	901	910	920	924	935	938
	178	701	703	713	711	724	722	734	735	745	753	763	769	767
	179	735	728	748	749	756	755	760	769	785	787	787	799	803
	180	594	595	599	607	605	606	609	611	619	627	632	633	635
	MEAN:	776	771	784	789	796	796	801	803	815	821	823	830	832
37	181	766	776	777	769	785	793	801	813	815	816	818	809	829
	182	471	473	481	474	477	479	483	485	490	490	490	489	489
	183	770	779	776	777	791	790	788	807	810	811	811	805	811
	184	704	716	712	710	726	723	741	758	766	768	778	779	765
	185	735	737	732	722	746	741	742	754	753	767	760	752	768
	MEAN:	683	677	696	690	705	705	711	723	727	730	731	727	732
38	186	631	640	637	637	637	640	646	635	660	670	665	672	664
	187	927	946	957	971	972	981	987	1007	1020	1032	1042	1054	1039
	188	875	886	892	906	915	917	929	930	935	950	953	946	955
	189	689	722	726	729	743	739	753	749	756	763	762	768	754
	190	817	829	833	835	836	842	849	852	856	857	859	864	853
	MEAN:	788	805	809	816	821	824	833	835	845	854	856	861	853
39	191	742	739	763	774	779	788	786	801	810	811	811	831	823
	192	915	918	944	956	956	974	972	981	994	990	970	1013	1010
	193	820	811	841	857	853	856	850	870	886	893	871	897	898
	194	783	771	785	786	785	797	793	816	820	816	816	826	830
	195	952	945	979	990	998	1001	1004	1029	1042	1039	1035	1068	1069
	MEAN:	842	837	862	873	874	883	881	899	910	910	901	927	926
40	196	646	636	650	650	658	654	660	669	664	673	677	676	677
	197	682	639	670	682	678	680	673	695	686	699	713	725	717
	198	1011	1015	1040	1047	1058	1055	1080	1090	1074	1110	1126	1134	1132
	199	738	776	804	810	810	814	825	832	833	854	858	850	826
	200	713	700	725	724	734	729	739	738	734	748	756	766	753
	MEAN:	764	753	778	783	788	786	795	805	798	817	826	830	821
41	201	695	699	707	706	706	713	719	729	726	712	727	729	726
	202	803	815	821	827	832	834	856	869	880	885	894	905	911
	203	625	629	632	636	627	634	640	640	645	644	657	653	662
	204	993	1016	1030	1041	1048	1058	1080	1081	1093	1095	1108	1125	1127
	205	644	650	648	652	647	644	660	665	662	663	666	667	675
	MEAN:	752	762	768	772	772	777	791	797	801	800	810	816	820
42	206	1025	1035	1054	1065	1077	1074	1074	1090	1101	1094	1101	1092	1044
	207	680	692	698	690	698	697	713	726	724	727	730	736	748
	208	674	684	680	679	681	677	678	695	690	684	686	686	692
	209	703	711	721	726	729	729	739	751	756	746	756	760	768
	210	745	751	750	757	763	765	771	777	779	776	777	767	792
	MEAN:	765	775	781	783	790	788	795	808	810	805	810	808	809
GROUP SIZE =		70	70	70	70	70	70	69	69	69	69	69	69	69
GROUP MEAN :		765	770	779	783	787	790	797	802	807	813	816	821	822
MEAN CHANGE:			5	9	4	4	3	7	6	5	5	4	5	0

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	3♂ RAT NO.	53	54	55	56	57	58	59	60	61	62	63	64	65
		...WEEK...												
36	176	1023	1017	1009	1013	1005	1032	1031	1020	1017	1021	1002	993	958
	177	956	959	972	966	956	989	985	999	1006	1006	1016	1028	1038
	178	763	774	763	769	774	778	759	762	769	768	785	776	775
	179	820	801	788	801	800	807	817	823	824	825	845	846	851
	180	639	642	640	646	645	644	653	659	663	662	662	671	673
	MEAN:	840	839	834	839	836	850	849	853	856	856	862	863	859
37	181	828	810	803	832	841	841	825	851	840	845	845	858	862
	182	492	485	477	494	492	500	504	510	504	510	510	507	515
	183	815	811	820	826	809	830	829	816	815	834	839	830	826
	184	790	770	794	805	800	810	817	833	817	827	834	839	851
	185	776	755	752	746	745								
	MEAN:	740	726	729	741	737	745	744	753	744	754	757	759	764
38	186	677	672	660	685	687	682	683	692	693	695	692	692	700
	187	1062	1076	1067	1091	1092	1108	1103	1110	1126	1119	1142	1144	1157
	188	978	983	964	986	990	992	1002	1006	1008	1016	1006	1014	1031
	189	748	756	755	748	745	705	594						
	190	861	849	845	851	853	858	852	858	855	834	862	849	862
	MEAN:	865	867	858	872	873	869	847	917	921	916	926	925	938
39	191	827	838	838	849	854	861	867	859	869	881	884	889	885
	192	1016	1029	1020	1034	1019	1046	1051	1022	1036	1048	1045	1039	1042
	193	896	898	899	899	912	915	912	907	917	931	923	951	945
	194	835	840	833	827	862	869	881	854	878	873	889	898	887
	195	1073	1085	1093	1094	1097	1107	1111	1086	1093	1104	1117	1133	1123
	MEAN:	929	938	937	941	949	960	964	946	959	967	972	982	976
40	196	678	681	680	679	673	673	661	667	667	667	677	676	672
	197	728	729	726	737	744	745	756	755	758	755	764	754	772
	198	1144	1140	1129	1150	1150	1163	1163	1173	1181	1185	1167	1198	1202
	199	833	836	846	857	866	885	888	888	893	905	914	903	924
	200	761	762	773	773	782	783	792	803	808	802	813	810	813
	MEAN:	829	330	831	839	843	850	852	857	861	863	867	868	877
41	201	728	724	730	733	739	747	742	743	746	748	749	756	764
	202	917	924	934	938	944	937	963	962	958	971	983	986	985
	203	657	659	651	663	664	672	665	669	674	671	655	675	691
	204	1139	1148	1143	1160	1168	1182	1180	1189	1194	1207	1125		
	205	679	683	674	683	688	685	686	687	689	695	698	704	707
	MEAN:	824	828	826	835	841	845	847	850	852	858	842	780	787
42	206	1129	1138	1114	1131	1150	1156	1164	1169	1159	1152	1161	1155	1155
	207	752	757	758	756	761	764	768	757	773	773	773	776	778
	208	699	703	702	706	713	722	718	708	711	711	711	701	718
	209	775	772	780	782	787	787	786	778	776	778	764	769	789
	210	784	806	800	808	814	820	827	826	834	830	835	844	844
	MEAN:	828	835	831	837	845	850	853	848	851	849	849	849	857
GROUP SIZE =		69	69	69	68	68	67	67	66	66	65	65	64	64
GROUP MEAN :		827	826	820	831	336	843	839	844	847	853	854	854	857
MEAN CHANGE:			-1	-6	11	5	8	-4	5	3	6	2	-1	3

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	3♂ RAT NO.	66	...WEEK... 67	68	69	70	71	72	73	74	75	76	77	78
36	176	872	816											
	177	1047	1044	1050	1057	1063	1060	1036	1042	1065	1069	1060	1059	1062
	178	775	785	791	802	803	808	790	816	800	834	838	844	852
	179	856	859	863	856	853	857	841	867	867	867	863		
	180	675	692	682	683	690	689	677	697	701	699	692	691	692
	MEAN:	845	837	847	850	852	854	836	856	858	867	863	865	869
37	181	855	859	856	857	864	863	861	861	873	870	861	866	876
	182	500	519	516	516	524	524	519	522	523	521	517	516	527
	183	839	832	813	808	813	809	810	819	822	809	812	821	834
	184	858	859	861	857	858	871	880	889	899	391	893	891	905
	185													
	MEAN:	763	767	762	760	765	767	768	773	779	773	771	774	786
38	186	703	701	697	697	691	676	653	600					
	187	1178	1179	1184	1184	1194	1179	1189	1214	1216	1230	1220	1234	1228
	188	1008	1018	1037	1026	1019	1019	1000	1015	995	987	973		
	189													
	190	874	867	867	869	863	864	862	870	869	877	878	874	872
	MEAN:	941	941	946	944	942	935	926	925	1027	1031	1024	1054	1050
39	191	890	909	919	927	921	932	936	946	943	965	960	958	951
	192	1051	1046	1056	1058	1058	1058	1051	1068	1045	1037	1004	978	942
	193	967	975	982	989	993	1001	997	999	1012	1023	1026	1029	1018
	194	910	909	911	933	931	936	933	938	938	950	949	946	942
	195	1145	1156	1183	1194	1196	1186	1183	1193	1189	1213	1212	1186	1189
	MEAN:	993	999	1010	1020	1020	1023	1020	1029	1025	1038	1030	1019	1008
40	196	679	682	691	686	690	695	702	706	707	710	710	704	703
	197	777	772	780	784	782	777	781	773	758	754	747	732	744
	198	1208	1208	1222	1213	1221	1230	1223	1229	1240	1248	1248	1272	1251
	199	936	935	944	948	968	967	972	978	987	991	995	991	996
	200	795	817	823	824	828	834	833	838	846	847	851	852	854
	MEAN:	879	883	892	891	898	901	902	905	908	910	910	910	910
41	201	764	768	771	772	779	779	752	782	793	798	794	791	778
	202	990	988	1051										
	203	695	697	686	700	702	710	705	705	710	714	699	709	685
	204													
	205	691	708	710	712	712	712	711	706	724	713	719	715	708
	MEAN:	785	790	805	728	731	734	723	731	742	742	737	738	724
42	206	1143	1145	1151	1132	1123	1109	1086	1082	1057	893	793		
	207	776	793	799	810	820	812	818	826	833	830	837	831	813
	208	712	723	723	719	708	728	734	733	741	735	739	740	726
	209	801	818	826	848	838	835	836	842	857	862	883	879	855
	210	848	846	830	868	876	879	869	867	879	884	888	886	872
	MEAN:	856	865	866	875	873	873	869	870	873	841	828	834	817
GROUP SIZE =		63	63	61	60	59	59	59	59	57	56	56	52	52
GROUP MEAN :		863	864	871	872	876	875	867	876	883	884	682	878	873
MEAN CHANGE:			1	7	1	4	-1	-8	9	7	1	-2	-4	-5

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	♂ RAT NO.	...WEEK... 79	80	81	82	83	84	85	86	87	88	89	90	91
36	176													
	177	1073	1051	1069	1043	1051	1055	1036	1056	1058	1056	1054	1035	1036
	178	850	850	861	848	860	793							
	179													
	180	694	698	693	686	689	696	695	694	691	693	690	692	696
	MEAN:	872	866	874	859	867	847	866	875	875	875	872	864	866
37	181	862	864	875	880	874	866	871	874	865	872	873		
	182	520	532	533	538	532	530	531	538	538	540	540	541	542
	183	825	835	840	831	825	816	821	820	806	811	805	807	770
	184	897	911	893	881	863	856	827	823	799	784	763	690	658
	185													
	MEAN:	776	787	785	783	774	767	763	764	752	752	745	679	657
38	186													
	187	1229	1219	1242	1240	1248	1251	1234	1222	1221	1208	1192	1179	1173
	188													
	189													
	190	860	878	881	883	879	883	867	880	879	886	866	851	871
	MEAN:	1045	1049	1062	1062	1064	1067	1051	1051	1050	1047	1029	1015	1022
39	191	933	953	946	935	978	983	976	978	982	989	993	1000	999
	192	892	883	871	848	812	792	772	759	749				
	193	1003	1015	1027	1031	1032	1041	1045	1046	1052	1055	1052	1059	1052
	194	930	940	951	956	955	969	971	984	982	982	970	971	972
	195	1167	1180	1190	1187	1194	1198	1214	1227	1232	1246	1236	1241	1238
	MEAN:	985	994	997	991	994	997	996	999	999	1068	1063	1068	1065
40	196	706	699	700	715	711	712	715	720	711	720	712	721	709
	197	755	746	748	755	752	747	748	744	737	704	682	665	607
	198	1274	1283	1285	1289	1276	1274	1286	1294	1280	1243			
	199	1007	1012	1018	1028	1031	1029	1041	1046	1049	1054	1047	1071	1064
	200	858	864	866	876	873	886	886	896	903	915	900	893	870
	MEAN:	920	921	923	933	929	930	935	940	936	927	835	838	813
41	201	791	795	799	804	807	807	814	832	826	839	835	830	836
	202													
	203	691	710	721	730	723	729	731	732	730	735	733	743	742
	204													
	205	700	678	677	684	683	691	695	697	701	705	704	711	716
	MEAN:	727	728	732	739	738	742	747	754	752	760	757	761	765
42	206													
	207	812	825	825	843	836	847	837	839	836	832	820	803	806
	208	734	738	744	760	758	770	762	764	771	770	768	763	764
	209	836	848	854	862	857	830	855	858	853	852	840	826	804
	210	867	876	900	888	895	895	897	895	907	922	909	912	913
	MEAN:	812	822	831	838	837	836	838	839	842	844	834	826	822
GROUP SIZE =		52	52	52	51	51	50	49	49	49	48	47	45	43
GROUP MEAN :		872	876	878	885	882	882	878	879	880	883	868	868	873
MEAN CHANGE:			5	2	6	-3	0	-4	1	0	3	-14	0	5

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(Bodyweights - continued)

GROUP CAGE	3♂ RAT NO.	...WEEK... 92	93	94	95	96	97	98	99	100	101	102	103	104
36	176													
	177	998	988	1011	1010	1013	1006	993	977					
	178													
	179													
	180	693	689	683	684	684	683	673						
	MEAN:	846	839	847	847	849	845	833	977					
37	181													
	182	551	556	553	561	552	553	549	539	538	532	533	535	534
	183	783	303											
	184	616	573											
	185													
	MEAN:	650	644	553	561	552	553	549	539	538	532	533	535	534
38	186													
	187	1165	1157	1126	1109	1086	1063	1025						
	188													
	189													
	190	864	866	848	844	840	830	836	831	817	783	752	732	721
	MEAN:	1015	1012	987	977	963	947	931	831	817	783	752	732	721
39	191	989												
	192													
	193	1030	1020	1015	1019	1012	1014	1008	1003	996	980	983		
	194	976	962	957	969	971	979	972	971	964	946	940	906	940
	195													
	MEAN:	998	991	986	994	992	997	990	987	980	963	962	906	940
40	196	699	725	732	742	743	751	754	760	771	765	773	755	732
	197	588	520	483										
	198													
	199	1046	1055	1081	1076	1074	1072	1064	1051	1041	1028	1019	999	1028
	200	814	768											
	MEAN:	787	767	765	909	909	912	909	906	906	897	896	877	880
41	201	825	827	833	837	832	843	840	841	833	830	831	805	826
	202													
	203	741	740	733	748	750	756	749	754	746	742	743	716	735
	204													
	205	706	708	720	722	743	732	727	729	726	722	713	695	715
	MEAN:	757	758	762	769	775	777	772	775	768	765	762	739	759
42	206													
	207	782	767	733	700	661	628							
	208	769	775	790	790	784	782	778	778	767	772	763	731	737
	209	786	756	727	706	666	633	608	588	579				
	210	917	923	936	933	934	943	944	950	955	960	946	925	949
	MEAN:	814	805	797	782	761	747	777	772	767	866	855	828	843
GROUP SIZE =		41	40	37	35	35	35	34	29	28	26	26	25	25
GROUP MEAN :		860	851	859	862	859	855	849	856	842	845	840	824	826
MEAN CHANGE:			-9	8	3	-3	-4	-6	7	-14	3	-5	-16	3

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	3♂ RAT NO.	...WEEK... 105	106	107	108	109	110
36	176						
	177						
	178						
	179						
	180						
	MEAN:						
37	181						
	182	537	532	533	538	529	530
	183						
	184						
	185						
	MEAN:	537	532	533	538	529	530
38	186						
	187						
	188						
	189						
	190	703	689	691	672	650	657
	MEAN:	703	689	691	672	650	657
39	191						
	192						
	193						
	194	927	915	899	904	878	865
	195						
	MEAN:	927	915	899	904	879	865
40	196	720					
	197						
	198						
	199	1048	1022	1042	1021	997	961
	200						
	MEAN:	884	1022	1042	1021	997	961
41	201	830	823	812	821	827	822
	202						
	203	746	745	736	737	747	735
	204						
	205	722	729	721	723	707	691
	MEAN:	766	766	756	760	760	749
42	206						
	207						
	208	751	732	742	746	748	747
	209						
	210	937	937	910	943	929	941
	MEAN:	844	835	826	845	839	844
GROUP SIZE =		25	22	21	21	21	21
GROUP MEAN :		818	825	837	838	829	821
MEAN CHANGE:			7	12	1	-9	-8

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	4♂ RAT NO.	-3	...WEEK... -2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
43	211	149	216	277	351	410	471	519	540	548	576	600	616	647	672	653	674	700
	212	138	192	249	304	352	384	420	437	462	482	499	512	531	549	546	586	579
	213	134	180	243	297	336	375	376	443	437	452	472	476	490	514	502	516	537
	214	116	172	228	286	339	362	390	410	432	456	472	476	487	509	509	510	527
	215	156	177	228	271	304	332	356	370	383	402	426	429	436	449	427	419	437
	MEAN:	139	187	245	302	348	385	412	440	452	474	494	502	518	539	527	541	556
44	216	126	182	244	304	351	395	439	472	494	524	556	569	597	583	628	644	657
	217	131	165	216	253	284	321	343	357	354	374	396	411	427	419	446	454	467
	218	142	191	251	287	311	350	376	390	411	438	442	456	471	463	500	502	511
	219	151	209	259	308	324	386	411	440	467	484	511	516	523	505	532	507	
	220	154	209	259	296	323	364	376	392	411	428	446	452	464	444	481	478	491
	MEAN:	141	191	246	290	319	363	389	410	427	450	470	481	496	483	517	517	532
45	221	122	196	253	295	331	364	386	410	421	444	462	472	487	491	502	504	530
	222	132	177	240	296	342	382	416	442	476	494	516	529	534	554	574	579	577
	223	137	182	237	281	322	360	391	411	448	464	482	491	500	519	525	522	526
	224	156	209	270	326	376	412	446	467	492	509	526	532	557	572	586	591	590
	225	143	193	250	310	354	394	422	452	469	502	531	546	563	593	600	608	619
	MEAN:	138	191	250	302	345	382	412	436	461	483	503	514	528	546	557	561	568
46	226	126	170	229	267	311	272	339	360	382	405	421	429	447	464	475	474	490
	227	147	201	280	335	400	340	436	466	537	569	600	621	640	664	684	699	723
	228	121	173	243	285	348	300	390	431	463	486	511	522	536	556	560	567	583
	229	138	178	233	271	311	266	310	328	356	376	392	399	407	424	433	442	462
	230	160	208	268	306	354	321	391	417	438	456	476	476	498	511	511	526	541
	MEAN:	138	186	251	293	345	300	373	400	435	458	480	489	506	524	533	542	560
47	231	140	195	263	322	381	420	451	475	504	506	521	564	587	596	599	611	598
	232	121	170	222	277	322	370	404	429	452	476	500	511	521	543	564	567	570
	233	149	196	255	299	344	364	392	401	433	449	466	471	486	494	511	519	509
	234	156	217	285	340	392	422	446	460	487	524	551	524	536	547	562	566	563
	235	128	198	248	304	346	371	411	424	459	490	496	504	527	537	550	554	548
	MEAN:	139	195	255	308	357	389	421	438	467	489	507	515	531	543	557	563	558
48	236	138	191	253	302	342	382	416	433	441	466	499	512	533	553	554	579	592
	237	121	180	240	296	346	392	420	450	452	492	524	544	559	583	588	600	614
	238	146	205	267	315	343	371	392	410	399	446	471	474	481	500	505	524	535
	239	154	195	255	293	300	324	346	360	354	399	421	434	434	471	476	486	493
	240	131	185	238	295	331	364	384	404	399	439	462	471	483	494	509	514	523
	MEAN:	138	191	251	300	332	367	392	411	409	448	475	487	498	520	526	541	551
49	241	146	196	257	311	349	374	400	420	438	451	471	466	481	496	512	512	519
	242	140	182	235	295	332	372	401	424	430	462	483	502	519	533	552	569	561
	243	130	193	280	322	360	404	449	452	492	523	536	549	559	576	587	594	604
	244	118	206	275	340	382	431	471	490	518	542	561	581	600	623	628	648	664
	245	162	217	240	282	272	310	332	349	367	391	402	416	432	440	449	456	450
	MEAN:	139	199	257	310	339	378	411	427	449	474	491	503	518	534	546	556	560

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	4♂ RAT NO.	14	15	16	17	18	19	20	21	22	23	24	25	26
		...WEEK...												
43	211	710	725	713	717	748	721	761	778	799	814	818	838	848
	212	592	605	615	613	622	605	616	616	623	634	657	669	679
	213	539	549	549	554	563	541	569	588	587	593	599	616	616
	214	537	547	560	562	575	559							
	215	455	470	469	485	494	482	499	528	535	540	545	558	554
	MEAN:	567	579	581	586	600	582	611	628	636	645	655	670	674
44	216	676	686	700	688	701	708	728	726	740	741	754	767	776
	217	473	480	496	477	495	504	511	509	513	523	527	527	537
	218	529	535	539	532	543	555	565	569	581	611	604	615	625
	219													
	220	503	508	524	506	512	520	528	559	535	534	542	550	560
	MEAN:	545	552	565	551	563	572	583	591	592	602	607	615	625
45	221	518	511	525	518	526	532	540	541	547	550	552	566	572
	222	592	601	616	613	635	654	665	677	675	682	694	711	716
	223	547	556	561	564	569	584	594	604	606	614	613	632	630
	224	612	613	631	626	635	641	651	657	662	670	674	681	692
	225	641	642	656	654	664	680	698	704	729	735	752	765	781
	MEAN:	582	585	598	595	606	618	630	637	644	650	657	671	678
46	226	502	509	525	502	531	549	563	567	571	578	588	594	607
	227	740	760	783	763	786	815	825	830	838	859	875	884	907
	228	602	618	629	596	623	654	667	668	672	699	689	694	709
	229	472	482	494	480	495	500	510	514	518	522	534	546	553
	230	553	566	576	548	574	597	603	609	618	633	627	641	658
	MEAN:	574	587	601	578	602	623	634	638	643	658	663	672	687
47	231	627	629	646	648	655	672	682	682	686	693	698	701	705
	232	583	596	610	602	606	620	659	630	628	637	648	660	667
	233	525	534	540	541	534	549	554	566	570	589	588	582	583
	234	583	593	611	606	625	639	651	660	658	673	680	683	693
	235	562	574	582	596	597	615	630	624	631	639	654	653	657
	MEAN:	576	585	598	599	603	619	635	632	635	646	654	656	661
48	236	582	564	593	573	609	615	631	647	636	651	644	653	668
	237	623	632	644	630	659	659	684	680	680	698	702	709	728
	238	540	549	560	548	563	564	571	580	574	596	596	603	606
	239	495	511	524	523	546	532	537	552	555	580	577	582	590
	240	534	547	554	552	573	578	595	597	597	612	620	631	637
	MEAN:	555	561	575	565	590	590	604	611	608	627	628	636	646
49	241	524	539	545	547	568	571	584	583	592	602	613	622	634
	242	572	584	589	569	598	615	630	633	646	652	665	670	682
	243	611	620	634	609	648	658	666	663	668	683	692	698	702
	244	673	683	693	686	707	708	733	737	739	757	770	786	788
	245	470	479	491	479	499	509	519	518	528	536	539	545	554
	MEAN:	570	581	590	578	604	612	626	627	635	646	656	664	672

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	♂ RAT NO.	27	28	29	30	31	32	33	34	35	36	37	38	39
		...WEEK...												
43	211	854	873	869	875	888	896	892	894	904	909	903	922	914
	212	687	698	706	715	722	735	721	740	751	765	782	792	800
	213	614	614	612	614	630	640	624	641	653	663	661	659	665
	214													
	215	568	567	571	578	573	591	580	590	597	612	612	616	617
	MEAN:	681	688	690	696	705	716	704	716	726	737	740	747	749
44	216	780	779	807	808	819	823	809	831	846	841	846	857	866
	217	535	542	541	545	542	549	549	555	561	574	570	571	575
	218	627	636	642	647	657	662	663	673	688	701	704	718	723
	219													
	220	559	568	566	573	575	583	583	579	594	595	597	606	615
	MEAN:	625	636	639	643	648	654	651	660	672	678	679	688	695
45	221	582	575	578	582	582	589	577	587	593	595	605	607	599
	222	709	724	719	723	726	737	733	748	751	761	782	765	761
	223	645	639	643	653	668	675	663	678	686	685	694	701	696
	224	691	697	695	697	701	697	682	691	707	716	729	731	733
	225	787	793	803	809	822	833	832	850	869	870	896	899	893
	MEAN:	685	686	688	693	700	706	697	711	721	725	741	741	736
46	226	606	609	591	594	613	626	607	619	625	632	635	642	649
	227	924	918	910	912	890	893	876	894	909	927	937	937	947
	228	712	718	706	716	726	739	739	749	761	783	795	791	804
	229	549	551	536	555	559	561	556	571	579	583	593	593	595
	230	661	664	635	661	674	684	670	683	687	706	713	723	723
	MEAN:	690	692	676	688	692	701	690	703	712	726	735	737	744
47	231	708	707	708	716	714	714	697	704	711	715	706	712	704
	232	663	669	665	675	678	673	683	681	691	700	701	710	709
	233	584	594	600	612	618	627	604	617	636	649	659	654	649
	234	691	706	704	710	715	720	713	728	734	741	749	753	746
	235	659	664	662	667	672	672	655	671	680	676	696	705	705
	MEAN:	661	669	668	676	679	681	670	680	690	696	702	707	703
48	236	671	682	699	699	696	693	697	698	694	697	724	722	733
	237	731	736	739	730	724	725	720	714	715	723	709	716	736
	238	608	623	631	623	622	623	608	616	621	623	649	648	655
	239	589	603	621	628	616	604	608	600	602	591	609	598	600
	240	638	646	650	653	653	651	657	660	661	673	697	700	709
	MEAN:	647	658	668	667	662	659	658	658	659	661	678	677	687
49	241	633	647	625	647	657	670	657	664	671	684	687	686	702
	242	683	705	691	706	709	714	715	714	705	714	717	722	726
	243	707	714	715	727	727	746	717	740	748	762	772	783	787
	244	804	307	806	813	825	831	818	829	840	845	855	861	861
	245	556	571	557	570	569	580	575	579	586	595	607	606	616
	MEAN:	678	689	679	693	697	708	696	705	710	720	728	732	738

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	60 RAT NO.	40	41	42	43	44	45	46	47	48	49	50	51	52
		...WEEK...												
43	211	904	901	912	917	915	908	920	918	911	899	902	906	907
	212	806	815	832	829	828	839	855	872	869	880	885	895	907
	213	675	678	691	685	694	698	708	712	717	723	725	738	734
	214													
	215	619	623	627	626	636	637	651	649	652	661	666	669	665
	MEAN:	751	754	766	764	768	771	784	788	787	791	795	802	803
44	216	867	877	890	884	893	883	921	935	910	940	943	953	940
	217	586	590	585	587	585	588	590	599	600	604	614	622	612
	218	736	742	742	750	753	754	771	774	782	794	798	796	785
	219													
	220	606	615	625	623	624	630	639	649	636	653	655	658	651
	MEAN:	699	706	711	711	714	714	730	739	732	748	753	757	747
45	221	606	616	613	612	618	618	607	621	631	625	641	645	645
	222	773	789	799	800	805	808	786	818	822	841	836	841	840
	223	694	712	726	726	735	740	720	745	749	757	771	768	747
	224	728	731	762	761	764	759	746	775	773	773	789	795	803
	225	898	913	924	932	930	938	915	950	962	968	976	976	974
	MEAN:	740	756	765	766	770	773	755	782	787	793	803	805	802
46	226	656	660	666	670	670	676	681	690	692	696	704	703	708
	227	952	959	962	946	948	944	898	938	947	950	965	959	984
	228	815	813	837	841	845	856	860	881	881	889	892	904	911
	229	604	612	617	621	619	624	626	643	638	643	647	652	652
	230	744	754	765	748	739	736	737	758	762	770	781	788	798
	MEAN:	754	760	769	765	764	767	760	782	784	790	798	801	811
47	231	699	697	678	682									
	232	714	720	718	726	732	735	744	737	756	754	758	757	765
	233	655	660	659	672	668	666	663	667	678	680	680	687	687
	234	763	771	763	774	786	784	798	805	808	812	818	832	836
	235	707	713	695	708	699	711	715	725	727	741	729	738	746
	MEAN:	709	712	703	712	721	724	730	734	742	747	746	754	759
48	236	732	736	751	748	740	737	744	748	749	756	759	764	772
	237	741	761	765	773	771	763	780	794	799	803	806	804	803
	238	651	659	665	666	659	654	657	668	679	693	690	689	696
	239	606	620	632	631	629	621	633	642	648	660	654	661	666
	240	717	727	742	742	747	746	753	767	774	777	768	775	781
	MEAN:	689	701	711	712	709	704	713	724	730	738	735	739	744
49	241	709	720	729	725	731	736	737	745	756	769	769	779	787
	242	729	740	738	741	748	744	760	761	759	765	764	773	787
	243	790	805	813	818	817	822	831	847	851	860	842	866	873
	244	866	882	894	888	890	894	906	911	911	909	901	914	922
	245	602	627	628	639	641	646	677	661	672	668	677	678	686
	MEAN:	739	755	760	762	765	768	782	785	790	794	791	802	811

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	4σ RAT NO.	53	...WEEK... 54	55	56	57	58	59	60	61	62	63	64	65
43	211	908	903	897	892	883	871	846	826	792	744	734	695	659
	212	899	888	891	912	907	934	946	954	969	963	982	987	994
	213	750	754	743	757	762	762	762	766	774	776	788	788	792
	214													
	215	664	663	662	669	665	668	663	662	670	658	669	685	680
	MEAN:	805	802	798	808	804	809	804	802	801	785	793	789	781
44	216	959	964	954	966	968	968	983	972	981	974	975	962	926
	217	608	622	622	627	623	634	638	635	641	623	646	632	653
	218	779	798	799	797	800	803	821	811	802	817	820	836	836
	219													
	220	652	671	669	670	672	679	685	680	684	686	692	694	700
	MEAN:	745	764	761	765	766	771	782	775	777	775	783	781	779
45	221	593	644	639	649	651	655	652	654	654	655	649	658	659
	222	842	843	847	854	866	880	873	867	861	877	862	880	879
	223	777	782	783	789	798	805	806	812	807	820	812	847	845
	224	800	809	803	811	815	812	817	824	792	824	819	833	828
	225	983	983	980	998	1004	1003	1003	1006	988	985	980	999	991
	MEAN:	800	812	810	820	827	831	830	833	820	832	824	843	840
46	226	713	716	713	726	707	728	733	735	742	743	744	745	746
	227	997	995	994	1013	1022	1033	1027	1043	1053	1069	1071	1094	1090
	228	921	712	914	932	931	945	937	955	956	959	968	962	963
	229	657	653	656	658	662	654	666	672	675	680	685	684	687
	230	812	805	811	812	811	816	815	813	831	844	843	833	836
	MEAN:	820	816	818	828	827	835	836	844	851	859	862	864	868
47	231													
	232	760	766	753	763	763	770	772	719	769	746	763	780	777
	233	698	696	696	707	699	714	714	719	720	720	722	711	726
	234	842	843	836	844	846	855	869	861	875	876	886	883	886
	235	749	743	736	748	748	753	749	759	760	772	771	775	769
	MEAN:	762	762	755	766	764	773	776	765	781	779	786	787	790
48	236	775	784	765	794	789	791	815	795	796	806	814	799	826
	237	807	803	794	802	797	817	802	810	815	810	825	821	821
	238	704	704	685	709	707	718	722	712	715	725	734	721	742
	239	680	672	656	669	662	688	691	679	685	695	699	681	702
	240	795	800	774	811	790	801	799	794	786	774	780	641	
	MEAN:	752	753	735	757	749	763	766	758	759	762	770	733	773
49	241	791	788	787	791	783	783	791	802	804	809	812	820	819
	242	786	774	759	786	786	793	791	797	802	809	815	805	831
	243	882	878	869	893	863	900	889	900	906	905	900	921	916
	244	928	923	916	916	912	923	928	941	930	925	927	900	900
	245	687	695	684	696	689	695	688	713	708	701	712	718	713
	MEAN:	815	812	803	816	807	819	817	831	830	830	833	833	836

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	♂ RAT NO.	...WEEK... 66	67	68	69	70	71	72	73	74	75	76	77	78
43	211													
	212	999	1006	1017	1018	1027	1034	1024	1033	1050	1041	1035	1014	1049
	213	811	790	805	812	811	816	814	799	827	817	823	821	818
	214													
	215	687	692	686	686	688	685	682	665	690	690	683	679	669
	MEAN:	832	829	836	839	842	845	840	832	856	849	847	838	845
44	216	906	871	833										
	217	656	659	663	666	660	668	659	666	665	658	666	644	658
	218	847	828	867	909	871	872	860	874	867	857	880	873	881
	219													
	220	709	708	698	708	728	726	727	729	737	719	727	727	733
	MEAN:	780	767	765	761	753	755	749	756	756	745	758	748	757
45	221	658	658	663	674	666	669	672	685	675	671	669	660	667
	222	891	890	895	907	908	924	921	930	932	945	949	943	943
	223	854	853	871	864	852	855	849	830					
	224	846	845	848	852	848	850	863	865	867	864	868	869	867
	225	1007	1006	1024	1038	1026	1028	1027	1040	1052	1050	1040	1034	1030
	MEAN:	852	850	860	867	860	865	866	870	882	883	882	877	877
46	226	752	743	750	729	728	726	722	734	729	730	733	735	738
	227	1063	1017	1013	990	1028	1023	1024	1043	1068	1083	1092	1102	1109
	228	951	958	967	949	946	941	941	953	960	973	976	965	976
	229	689	673	680	659	670	658	649	657	657	652	656	633	660
	230	865	859	871	831	842	826	836	842	874	883	899	899	907
	MEAN:	864	850	856	832	843	835	834	846	858	864	871	867	878
47	231													
	232	784	788	793	791	798	793	794	801	808	814	813	811	808
	233	735	734	742	739	739	741	745	750	733	753	757	752	746
	234	888	904	910	908	914	922	921	934	926	940	935	932	930
	235	772	773	776	775	780	775	776	782	793	793	799	790	798
	MEAN:	795	800	805	803	808	808	809	817	815	825	826	821	821
48	236	818	809	821	830	830	840	824	859	864	853	858	858	854
	237	827	823	834	837	818	819	824	832	827	829	819	837	834
	238	736	740	739	751	738	735	722	749	743	741	749	738	743
	239	694	676	680	693	688	685	685	714	711	703	703	705	686
	240													
	MEAN:	769	762	769	778	769	770	764	789	786	782	782	785	779
49	241	821	828	834	838	843	843	834	842	855	813	820	837	837
	242	831	807	806	813	815	806	798	821	825	792	808	811	796
	243	917	912	924	931	941	934	928	908	908	875	887	896	899
	244	913	925	936	948	964	963	967	992	1009	976	996	993	1000
	245	727	728	729	732	739	740	727	730	744	732	736	733	730
	MEAN:	842	840	846	852	860	857	851	859	868	838	849	854	852

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	♂ RAT NO.	79	...WEEK... 80	81	82	83	84	85	86	87	88	89	90	91
43	211													
	212	1050	1052	1042	1043	1060	1010	979	977	1002	996	954	990	979
	213	823	930	824	831	826	835	839	838	834	843	848	853	849
	214													
	215	668	663	657	654	657	660	637	630	563	582	548	513	
	MEAN:	847	849	841	843	848	835	818	815	800	807	783	785	914
44	216													
	217	660	656	659	667	675	679	673	682	688	690	694	691	694
	218	877	882	884	891	907	915	908	903	910	914	914	911	
	219													
	220	741	741	742	752	760	765	768	782	776	787	792	792	803
	MEAN:	759	760	762	770	781	786	783	789	791	797	800	798	749
45	221	672	675	678	685	682	681	682	690	687	689	686	689	694
	222	946	961	963	973	971	955	970	969	975	974	970	972	962
	223													
	224	855	870	860	872	874	879	875	877	875	883			
	225	1031	1041	1025	1043	1035	1035	1018	1032	1058	1067	1055	1069	1000
	MEAN:	876	887	882	893	891	888	886	892	899	903	904	910	885
46	226	735	730	725	725	719	721	723	726	719	720	719	719	722
	227	1119	1107	1104	1120	1110	1130	1145	1160	1169	1188	1176	1182	1191
	228	975	971	968	962	957	972	975	975	982	981	976	976	976
	229	664	660	664	663	659	660	666	669	668	679	669	683	684
	230	908	899	895	900	878	887	880	865	856	841	821	811	802
	MEAN:	880	873	871	874	865	874	878	879	879	882	872	874	875
47	231													
	232	807	793	808	797	813	823	816	820	816	816	815	828	812
	233	751	758	761	755	752	765	766	767	762	758	760	770	762
	234	935	923	930	932	924	926	932	932	927	937	936	943	946
	235	785	785	785	785	791	776	766	761	763	748	740	751	749
	MEAN:	820	815	821	817	820	823	820	820	817	815	813	823	817
48	236	869	842	843	849	855	863	860	838	828	828	825	838	833
	237	843	820	828	829	823	837	821	835	827	831	815	828	816
	238	745	731	734	748	753	758	760	766	753	759	752	744	765
	239	716	685	704	719	702	722	712	726	723	716	707	706	710
	240													
	MEAN:	793	770	777	786	783	795	788	791	783	784	775	779	781
49	241	855	838	844	863	848	864	867	878	874	865	867	880	883
	242	798	800	793	785	773	769	754	746	732	697	686	613	536
	243	900	907	899	895	899	912	905	895	892	893	879	882	868
	244	1031	1032	1031	1057	1063	1079	1083						
	245	723	733	727	738	735	732	728	733	731	733	732	721	704
	MEAN:	861	862	859	868	864	871	867	813	807	797	791	774	748

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	♂ RAT NO.	...WEEK... 92	93	94	95	96	97	98	99	100	101	102	103	104
43	211													
	212	995	1005	1007	1010	1005	1010	1006	1007	994	1010	1000	986	985
	213	856	862	861	862	869	869	870	871	862	867	874	880	866
	214													
	215													
	MEAN:	925	934	934	936	937	940	938	939	928	939	937	933	926
44	216													
	217	697	703	704	691	699	702	697	698	692	696	688	685	672
	218													
	219													
	220	808	815	820	821	821	825	822	823	823	830	827	834	837
	MEAN:	753	759	762	756	760	764	760	761	758	763	758	760	755
45	221	693	695	692	692	688	691	685	683	680	680	681	677	670
	222	949	950	954	956	944	935	920	897	887	873	849	841	823
	223													
	224													
	225	983	959	887	820	753	694							
	MEAN:	875	868	844	823	795	773	803	790	784	777	765	759	747
46	226	720	710	709	710	694	705	697	694	696	689	684	677	675
	227	1202	1210	1214	1224	1220	1244	1231	1234	1230	1244	1247	1235	1215
	228	966	953	945	932	925	917	917	874	861	850	827	805	792
	229	684	683	682	681	685	690	697	694	690	689	693	699	704
	230	789	770	759	738	711	691	692	637	604				
	MEAN:	872	865	862	857	847	849	847	827	816	868	863	854	847
47	231													
	232	808	806	807	802	789	790	769	771	770	760	774	755	755
	233	768	766	765	761	719	715	725	740	754	765	780	770	769
	234	946	955	950	951	946	956	946	929	928	923	896	860	844
	235	742	732	733	725	718	694	687	677	681	675	670	668	664
	MEAN:	816	815	814	810	793	789	782	779	783	781	780	763	758
48	236	843	880	877	878	873	900	897	903	915	904	925	906	906
	237	835	830	820	814	776	770	740	672	632				
	238	763	766	765	768	747	765	761	766	757	751	774	737	735
	239	717	720	723	727	701	729	730	723	722	722	712	702	691
	240													
	MEAN:	790	799	796	797	774	791	782	766	757	792	804	782	777
49	241	871	802											
	242													
	243	848	875	868	874	855	866	859	856	858	835	837	850	841
	244													
	245	667	697	706	701	694	690	675	670	658	651	632	629	609
	MEAN:	802	791	787	788	775	778	767	763	758	743	735	740	725

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	6♂ RAT NO.	...WEEK... 105	106	107	108	109	110
43	211						
	212	984	938	950	946	939	940
	213	872	869	865	865		
	214						
	215						
	MEAN:	928	904	908	906	939	940
44	216						
	217	681	681	679	682	675	673
	218						
	219						
	220	846	828	838	837	838	842
	MEAN:	764	755	759	760	757	758
45	221	672	668	663	626	629	630
	222	799	664				
	223						
	224						
	225						
	MEAN:	736	666	663	626	629	630
46	226	683	676	668	675	660	660
	227	1192	1115	1099	1086	1004	999
	228	780	767	739	740	706	
	229						
	230						
	MEAN:	885	853	835	834	790	830
47	231						
	232	743	725				
	233	797	781	778	759	778	785
	234	841	818	804	763	765	777
	235	656	660	643	611	636	644
	MEAN:	757	746	742	711	726	735
48	236	927	927	929	922	935	928
	237						
	238	741	736	735	732	732	733
	239	684	661	657	665	669	652
	240						
	MEAN:	784	775	774	773	779	771
49	241						
	242						
	243	834	730				
	244						
	245	605	598	591	573	560	542
	MEAN:	720	664	591	573	560	542

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	4 ♂ RAT NO.	-3	...WEEK... -2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
50	246	119	178	233	287	341	371	403	431	453	464	481	489	472	506	523	524	535
	247	133	175	231	271	292	332	346	362	382	404	421	429	419	439	442	442	450
	248	137	177	199	243	275	300	321	349	364	384	401	409	403	437	442	453	457
	249	146	184	249	305	352	398	429	470	495	511	542	552	553	600	628	632	656
	250	154	212	277	343	400	452	491	526	543	569	596	602	597	633	657	671	679
	MEAN:	138	185	238	290	332	371	398	428	447	466	488	496	489	523	538	544	555
51	251	115	171	220	253	294	310	332	349	362	373	382	391	400	414	410	419	426
	252	129	183	250	296	342	380	411	452	473	496	511	524	536	554	550	572	572
	253	139	203	262	315	364	400	441	459	483	502	522	549	557	576	576	596	598
	254	146	204	258	297	339	364	396	411	429	434	451	462	463	473	479	489	500
	255	162	215	276	323	365	404	423	451	469	492	511	526	543	554	553	564	578
	MEAN:	138	195	253	297	341	372	401	424	443	459	475	490	500	514	514	528	535
52	256	128	184	260	315	359	392	431	452	475	490	503	509	512	527	537	523	542
	257	150	177	237	282	319	350	382	403	418	436	452	452	459	473	486	472	488
	258	124	182	243	301	344	388	416	450	473	508	536	549	532	553	583	574	603
	259	142	199	251	291	320	350	380	402	419	431	449	459	461	479	485	474	481
	260	154	204	260	303	343	372	399	414	425	439	462	461	459	476	482	474	484
	MEAN:	140	189	250	298	337	370	402	424	442	461	480	486	485	502	515	503	520
53	261	138	200	262	316	362	389	416	438	460	482	500	506	532	536	551	554	556
	262	118	162	210	270	314	360	386	424	449	476	493	491	504	528	546	544	548
	263	151	178	239	292	332	382	406	428	458	466	491	500	509	523	511	509	511
	264	165	202	265	322	341	365	386	405	432	454	476	489	500	511	535	542	552
	265	131	188	246	283	314	340	361	380	398	421	434	444	462	477	500	499	505
	MEAN:	141	186	244	297	333	367	391	415	439	460	479	486	501	515	529	530	534
54	266	142	221	291	372	451	509	556	630	658	714	750	796	826	855	891	908	930
	267	119	181	230	284	319	342	362	410	437	459	482	496	512	521	543	552	565
	268	146	230	294	388	456	510	561	630	673	712	754	792	826	854	894	909	942
	269	164	219	270	311	339	360	371	408	429	439	462	472	482	493	510	500	515
	270	126	216	261	330	379	410	442	490	504	527	561	566	591	609	633	644	660
	MEAN:	139	213	269	337	389	426	458	514	540	570	602	624	647	666	694	703	722
55	271	151	198	247	306	352	382	409	438	450	452	482	492	512	521	538	542	554
	272	140	195	256	310	349	392	416	441	457	469	496	509	524	543	554	566	573
	273	131	195	247	303	350	380	416	431	449	468	486	499	519	537	550	558	575
	274	124	185	247	302	341	375	402	424	458	484	511	511	529	551	562	577	590
	275	156	202	261	298	322	350	381	402	422	441	462	471	482	499	514	526	532
	MEAN:	140	195	252	304	343	376	405	427	447	463	487	496	513	530	544	554	565
56	276	122	192	247	311	373	411	439	468	484	476	522	534	547	563	580	591	611
	277	134	191	260	316	371	412	459	487	510	509	561	571	576	600	610	616	632
	278	141	195	260	317	376	430	462	486	521	519	576	592	609	633	654	664	684
	279	146	203	258	308	341	365	399	420	447	436	491	502	509	539	552	552	570
	280	154	220	291	338	392	430	464	491	516	504	559	577	587	599	611	622	638
	MEAN:	139	200	263	318	371	410	445	470	496	489	542	555	566	587	601	609	627
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	69
GROUP MEAN :		139	193	252	303	345	375	408	433	454	475	498	509	521	538	550	557	568
MEAN CHANGE:			54	58	52	42	30	32	26	21	21	24	11	12	16	12	7	11

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	4♂ RAT NO.	14	...WEEK... 15	16	17	18	19	20	21	22	23	24	25	26
50	246	543	552	564	553	570	588	629	637	601	604	613	626	622
	247	463	467	473	481	484	487	499	500	504	509	510	520	526
	248	465	473	484	482	491	500	511	514	520	533	532	543	548
	249	665	671	692	677	689	702	705	704	705	718	727	741	739
	250	697	705	711	689	706	722	732	733	710	757	769	790	797
	MEAN:	567	574	585	576	588	600	615	618	608	624	630	644	646
51	251	431	437	440	437	452	463	473	470	464	476	483	489	488
	252	600	612	627	622	644	654	655	660	669	680	686	702	718
	253	619	624	622	631	639	659	674	679	684	695	708	718	720
	254	500	503	500	511	518	525	536	544	537	540	535	536	538
	255	586	588	595	598	613	626	631	637	637	639	638	645	636
	MEAN:	547	553	557	560	573	585	594	598	598	606	610	618	620
52	256	547	551	560	553	565	575	594	602	596	607	609	627	629
	257	505	501	523	505	529	539	553	560	559	570	576	588	594
	258	596	598	637	643	662	685	707	707	704	713	725	730	741
	259	488	482	498	508	510	519	535	531	528	533	538	543	554
	260	506	500	508	500	512	513	523	529	497	508	516	525	530
	MEAN:	528	526	545	542	556	566	582	586	577	586	593	603	610
53	261	570	585	597	584	589	597	617	607	625	626	644	666	667
	262	560	573	575	563	578	595	609	572	583	584	615	632	660
	263	535	549	557	536	559	575	580	599	619	570	595	610	599
	264	572	576	592	586	604	608	618	584	577	583	643	661	659
	265	522	535	551	543	558	566	574	573	585	579	605	623	637
	MEAN:	552	564	574	562	578	588	600	587	598	588	620	638	644
54	266	950	961	977	976	1000	1024	1042	1056	1072	1091	1109	1121	1129
	267	536	587	601	585	595	607	624	629	630	641	648	664	665
	268	967	991	1004	976	1000	1036	1016	1043	1035	1075	1079	1087	1094
	269	535	541	550	551	546	561	568	541	576	589	602	601	602
	270	671	684	691	681	695	704	719	724	697	698	695	700	697
	MEAN:	742	753	765	754	767	786	794	799	802	819	827	835	837
55	271	562	565	569	567	576	586	597	601	602	614	611	623	622
	272	588	591	586	594	612	625	640	643	650	659	657	671	668
	273	583	595	609	600	616	632	654	663	666	684	684	704	697
	274	602	613	620	621	629	638	648	661	660	670	678	706	685
	275	542	554	559	558	567	584	592	596	599	615	616	625	616
	MEAN:	575	584	589	588	600	613	626	633	635	648	649	666	658
56	276	616	620	638	635	645	647	660	653	672	674	668	670	658
	277	646	651	644	645	644	653	669	675	684	698	698	729	720
	278	699	707	732	716	728	733	751	759	775	787	781	804	780
	279	571	584	586	592	601	604	614	612	625	634	638	648	628
	280	644	649	669	657	668	682	692	697	708	720	709	728	708
	MEAN:	635	642	654	649	657	664	677	679	693	703	699	716	699
GROUP SIZE =		69	69	69	69	69	69	68	68	68	68	68	68	68
GROUP MEAN :		580	588	599	592	607	616	630	634	637	647	654	665	669
MEAN CHANGE:			8	11	-7	15	9	14	3	3	10	7	11	4

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	♂ RAT NO.	...WEEK... 27	28	29	30	31	32	33	34	35	36	37	38	39
50	246	622	632	636	639	646	654	650	651	662	676	681	682	682
	247	531	539	547	563	554	562	555	562	568	573	575	585	592
	248	557	568	574	586	583	589	582	596	603	611	613	617	625
	249	749	758	764	764	771	791	777	786	796	809	826	828	827
	250	805	817	816	820	830	834	824	829	846	858	871	872	878
	MEAN:	653	663	667	674	677	684	678	685	695	705	713	717	721
51	251	491	495	501	500	503	507	493	502	512	518	523	532	538
	252	726	722	724	727	732	731	729	738	748	765	769	775	799
	253	731	730	729	730	739	749	755	762	765	781	782	798	796
	254	538	540	559	551	554	563	571	578	576	586	590	586	591
	255	645	645	654	657	652	670	659	665	672	678	682	689	690
	MEAN:	626	626	633	633	636	644	641	649	655	666	669	676	683
52	256	629	539	632	635	642	655	645	643	653	655	646	664	673
	257	600	605	599	601	601	613	610	609	621	620	615	629	627
	258	748	764	769	774	780	795	783	796	813	822	830	844	844
	259	551	552	546	551	551	559	552	558	559	567	565	569	573
	260	534	547	548	552	559	565	554	563	573	579	569	590	589
	MEAN:	612	621	619	623	627	637	629	634	644	649	645	659	661
53	261	674	689	683	686	696	700	694	704	715	717	734	734	746
	262	630	666	664	671	677	688	683	692	689	718	730	734	747
	263	605	615	597	602	608	615	601	613	611	615	609	610	613
	264	672	669	691	703	714	731	732	738	746	761	778	777	786
	265	637	633	645	654	655	658	647	660	663	675	675	685	684
	MEAN:	648	658	656	663	670	678	671	681	685	697	705	708	715
54	266	1140	1159	1162	1198	1151	1175	1133	1157	1144	1172	1182	1203	1210
	267	675	681	689	690	690	701	705	705	713	718	735	739	744
	268	1109	1122	1128	1151	1099	1119	1092	1098	1058	1075	1111	1134	1140
	269	606	611	613	596	612	620	613	616	626	628	641	648	647
	270	693	690	692	696	689	706	692	700	702	717	724	731	742
	MEAN:	845	853	857	866	848	364	847	855	849	862	879	891	897
55	271	633	629	634	645	612	642	629	650	662	672	667	679	676
	272	676	674	682	686	662	694	665	680	699	731	745	751	754
	273	716	726	747	746	726	757	746	765	772	781	786	793	799
	274	695	704	713	728	700	743	736	758	771	774	795	795	794
	275	625	633	640	646	626	658	654	674	677	692	701	700	706
	MEAN:	669	673	683	690	665	699	686	705	716	730	739	744	746
56	276	667	669	671	679	689	699	677	689	705	708	739	731	740
	277	737	740	744	752	759	773	763	769	778	795	805	823	828
	278	814	811	820	823	839	362	848	849	868	883	892	906	904
	279	649	645	649	661	670	676	674	679	707	705	703	714	723
	280	748	736	741	751	753	768	761	770	776	782	795	806	808
	MEAN:	723	720	725	733	742	756	745	751	767	775	787	796	801
GROUP SIZE =		68	68	68	68	68	68	68	68	68	68	68	68	68
GROUP MEAN :		675	681	682	689	690	700	691	700	707	717	725	730	734
MEAN CHANGE:			7	1	6	1	10	-9	9	8	9	8	6	4

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	4♂ RAT NO.	...WEEK... 40	41	42	43	44	45	46	47	48	49	50	51	52
50	246	690	698	703	711	712	713	724	728	730	739	745	753	758
	247	593	594	596	598	605	600	599	612	615	627	633	635	630
	248	633	634	643	645	661	559	659	671	671	678	680	685	684
	249	839	843	853	854	868	865	873	881	874	882	888	892	890
	250	891	911	914	917	920	921	925	938	949	950	957	972	967
	MEAN:	729	735	742	745	753	752	756	766	768	775	781	787	786
51	251	536	551	550	554	540	553	548	567	562	569	569	569	555
	252	785	804	814	808	800	828	837	837	836	859	872	883	864
	253	784	807	819	821	819	825	840	848	842	853	850	856	835
	254	593	589	593	593	599	603	595	609	610	608	615	615	607
	255	690	695	694	694	680	697	705	703	707	701	702	700	684
	MEAN:	678	689	694	694	688	701	705	713	711	718	722	725	709
52	256	677	681	668	681	692	695	690	696	687	687	682	691	688
	257	638	642	647	639	658	659	653	670	674	679	686	688	691
	258	847	858	870	867	877	877	879	888	891	899	905	909	911
	259	577	575	577	585	580	582	584	587	597	600	606	597	608
	260	593	608	606	605	599	595	602	616	623	631	631	639	642
	MEAN:	667	673	678	675	681	681	683	691	694	699	702	705	708
53	261	749	760	755	758	768	763	786	780	784	799	803	799	806
	262	759	763	766	771	782	785	799	798	814	829	837	827	833
	263	615	615	620	618	617	618	619	610	612	627	618	599	608
	264	802	810	825	828	841	841	860	854	855	866	882	884	889
	265	694	697	712	715	724	728	740	744	756	763	775	774	764
	MEAN:	724	729	736	738	746	747	761	757	764	777	783	777	780
54	266	1212	1237	1258	1253	1263	1278	1294	1267	1300	1300	1306	1296	1285
	267	755	769	777	784	789	787	802	799	804	812	816	823	819
	268	1148	1169	1191	1194	1200	1214	1211	1189	1217	1239	1255	1252	1254
	269	650	657	666	665	665	672	676	672	692	692	695	698	698
	270	732	743	742	748	749	753	766	755	773	779	785	782	785
	MEAN:	899	915	927	929	933	941	950	936	957	964	971	970	968
55	271	679	691	667	689	692	700	698	702	700	698	707	713	726
	272	771	782	794	794	797	800	803	818	822	827	824	832	826
	273	800	802	811	818	817	816	794	833	831	835	872	887	855
	274	803	813	823	827	833	831	831	852	861	864	839	852	881
	275	715	717	722	723	725	723	733	748	752	753	763	765	761
	MEAN:	754	761	767	770	773	774	772	791	793	795	801	810	810
56	276	744	751	754	753	754	769	777	777	776	739	775	779	778
	277	839	840	856	860	866	869	872	874	876	837	880	895	905
	278	909	913	903	911	918	906	927	923	932	886	924	927	929
	279	725	735	740	747	746	752	762	765	771	739	779	787	797
	280	816	831	830	833	840	839	852	857	877	826	870	872	871
	MEAN:	807	814	817	821	825	827	838	839	846	805	846	852	856
GROUP SIZE =		68	68	68	68	67	67	67	67	67	67	67	67	67
GROUP MEAN :		739	748	754	755	759	761	766	774	779	782	789	793	793
MEAN CHANGE:			9	6	2	4	2	5	8	4	3	7	4	1

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	4σ RAT NO.	...WEEK... 53	54	55	56	57	58	59	60	61	62	63	64	65
50	246	760	768	770	764	771	773	779	778	787	779	785	790	798
	247	643	649	631	645	651	650	655	659	658	659	663	669	670
	248	680	689	694	703	702	700	715	716	722	729	729	746	745
	249	900	905	901	908	909	911	908	913	917	906	915	928	939
	250	974	933	971	991	1005	1006	979	1026	1033	1037	1042	1046	1056
	MEAN:	791	799	793	802	808	809	807	818	823	822	827	836	842
51	251	576	576	582	585	582	587	587	587	534	581	597	585	589
	252	891	908	888	896	908	914	900	902	912	909	916	895	904
	253	864	869	864	859	859	864	869	856	845	836	851	861	868
	254	606	634	630	645	641	649	694	659	667	671	660	676	681
	255	706	705	700	700	699	699	658	700	699	705	716	715	720
	MEAN:	729	738	733	737	738	743	742	741	741	740	746	746	752
52	256	697	676	651	661	667	685	623	664	679	693	692	680	700
	257	684	689	647	665	673	683	628	673	683	681	685	690	700
	258	911	911	874	888	898	919	863	892	909	917	920	916	915
	259	597	598	594	598	615	600	590	596	606	609	606	616	614
	260	638	619	585	610	620	630	580	623	635	640	643	649	661
	MEAN:	705	699	670	684	695	703	657	690	702	708	709	711	718
53	261	812	803	793	808	814	819	828	824	823	834	835	839	840
	262	832	843	838	853	864	869	861	867	874	885	887	895	903
	263	605	593	525										
	264	895	898	891	890	902	910	915	924	930	934	936	937	944
	265	778	787	761	790	797	796	804	808	804	806	815	832	838
	MEAN:	784	785	762	835	844	849	852	856	858	865	868	876	881
54	266	1292	1313	1294	1316	1312	1297	1301	1300	1317	1316	1331	1331	1351
	267	827	836	838	839	844	850	860	859	866	872	876	881	883
	268	1274	1267	1285	1306	1295	1278	1294	1293					
	269	704	704	698	709	703	696	701	702	702	700	710	709	710
	270	785	780	782	787	758	783	788	790	789	804	808	814	810
	MEAN:	976	980	979	991	982	981	989	989	919	923	931	934	939
55	271	726	729	727	739	740	737	746	746	755				
	272	833	841	843	852	848	847	862	868	873	880	893	903	885
	273	865	867	849	872	872	876	883	885	887	887	900	903	895
	274	904	909	911	916	935	948	951	959	957	954	979	982	974
	275	778	781	779	791	801	802	810	823	828	828	836	846	842
	MEAN:	821	825	822	834	839	842	850	856	860	887	902	909	899
56	276	790	790	786	778	807	807	809	820	818	815	819	825	815
	277	911	927	913	904	925	933	946	949	965	967	966	975	979
	278	926	924	909	886	925	932	925	926	926	892	888	906	899
	279	791	813	791	790	811	828	845	836	837	846	851	858	858
	280	896	909	901	890	912	922	918	925	929	918	923	925	908
	MEAN:	863	873	860	850	876	884	889	891	895	888	889	898	892
GROUP SIZE =		67	67	67	66	66	66	66	66	65	64	64	64	63
GROUP MEAN :		799	803	794	808	810	816	815	819	815	817	821	822	827
MEAN CHANGE:			4	-9	14	2	6	-1	4	-4	2	5	1	5

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	4σ RAT NO.	66	67	68	69	70	71	72	73	74	75	76	77	78
			...WEEK...											
S0	246	800	805	793	808	795	813	816	815	823	837	838	845	840
	247	668	637	667	669	654	649	649	650	647	653	659	662	664
	248	739	746	745	734	748	764	757	759	761	770	751	740	748
	249	943	951	952	969	958	955	951	957	963	967	971	976	972
	250	1063	1076	1067	1087	1083	1079	1081	1079	1085	1089	1097	1105	1100
	MEAN:	843	843	845	853	848	852	851	852	856	863	863	866	865
S1	251	592	591	576	576	594	598	597	607	606	608	609	610	609
	252	908	912	890	895	879	889	897	899	900	916	918	923	923
	253	884	890	868	908	904	904	871	910	887	873	855	870	877
	254	688	690	683	694	707	708	703	707	708	712	718	717	717
	255	727	740	722	739	743	742	744	748	745	752	759	752	754
	MEAN:	760	765	748	762	765	766	762	774	769	772	772	774	776
S2	256	707	616	660	671	679	692	692	704	707	721	720	732	727
	257	704	710	712	715	712	717	711	717	722	725	728	727	730
	258	930	934	935	941	924	947	937	938	940	942	943	942	937
	259	627	626	624	619	623	624	628	629	629	633	638	640	630
	260	663	657	663	656	659	667	666	671	682	685	696	692	687
	MEAN:	726	709	719	720	719	729	727	732	736	741	745	747	742
S3	261	851	861	863	871	875	881	880	896	879	886	880	885	877
	262	911	917	927	929	934	938	923	883	820	749			
	263													
	264	957	958	960	973	972	990	983	999	1001	1014	1016	1017	1013
	265	862	831	887	906	922								
	MEAN:	895	904	909	920	926	936	929	926	900	883	948	951	945
S4	266	1366	1368	1365	1359	1324	1295	1303	1338	1329	1346	1341	1338	1315
	267	899	896	907	907	923	904	911	923	927	930	939	928	920
	268													
	269	705	706	693	682	690	675	676	686	693	693	682	687	673
	270	823	826	820	811	824	814	807	821	816	824	810	816	814
	MEAN:	948	949	946	940	940	922	924	942	941	948	943	942	931
S5	271													
	272	890	891	887	878	878	872	884	879	901	899	910	904	907
	273	895	914	918	916	919	910	910	920	921	927	933	930	906
	274	978	987	996	995	999	988	983	982	969	948	917	859	779
	275	854	855	866	878	886	885	895	913	925	928	937	932	913
	MEAN:	904	912	917	917	921	914	918	924	929	926	924	906	876
S6	276	818	796	814	817	814	798	822	821	818	823	823	818	805
	277	997	985	1007	1015	1007	994	1017	1024	1031	1036	1045	1036	1025
	278	878	846	874	864	835	793	753	735	679				
	279	872	838	864	857	840	802	835	845	844	846	841	806	792
	280	919	907	932	929	927	923	944	955	965	982	993	984	971
	MEAN:	897	874	898	896	885	862	874	876	867	922	926	911	898
GROUP SIZE =		62	62	62	61	61	60	60	60	59	58	57	57	57
GROUP MEAN :		835	831	836	838	838	835	834	841	843	844	848	845	842
MEAN CHANGE:			-4	5	3	0	-3	-1	7	2	1	4	-3	-3

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	6♂ RAT NO.	79	...WEEK... 80	81	82	83	84	85	86	87	88	89	90	91
50	246	845	853	852	856	864	863	863	868	883	866	864	868	870
	247	668	673	668	676	677	677	682	684	682	688	684	687	687
	248	768	777	770	772	773	777	775	778	763	775	768	763	761
	249	962	987	977	993	991	997	1001	1010	1013				
	250	1106	1121	1114	1129	1133	1104	1150	1146	1148	1160	1162	1176	1163
	MEAN:	874	882	876	885	888	884	894	897	898	872	870	874	870
51	251	607	606	597	587	615	618	615						
	252	929	937	931	941	950	942	931	940	943	946	942	944	938
	253	862	879	867	891	897	897	900	899	901	892	873	865	856
	254	724	720	730	735	744	750	748	752	749	764	762	777	785
	255	757	757	750	768	762	768	763	758	760	761	759	763	767
	MEAN:	780	780	775	784	794	795	791	837	838	841	834	837	837
52	256	735	741	736	738	741	739	736	726	718	703	675	667	644
	257	733	741	756	743	745	750	750	752	758	767	777	774	774
	258	934	942	939	897	898	907	906	920	923	923	927	928	941
	259	635	640	632	635	634	635	626	631	627	632	631	632	634
	260	679	680	691	700	712	723	730	737	728	682	664	663	675
	MEAN:	743	749	751	743	746	751	750	753	751	741	735	733	734
53	261	881	874	862	882	856	851	857	870	868	878	879	888	893
	262													
	263													
	264	1013	1011	1001	1013	998	971	996	1005	1020	1019	1029	1030	1040
	265													
	MEAN:	947	943	932	948	927	911	927	938	944	949	954	959	967
54	266	1300	1305	1296	1276	1271	1259	1228	1190	1158	1143	1077		
	267	911	906	903	873	856	833	804	793	787	778	690		
	268													
	269	670	675	673	663	659	640	611	606	599	578	560	447	
	270	810	810	804	816	824	818	817	822	813	820	817	817	795
	MEAN:	923	924	919	907	903	888	865	853	839	830	786	632	795
55	271													
	272	899	911											
	273	924	930	935	938	940	924	937	945	939	934	929	914	926
	274	706												
	275	927	937	935	941	953	953	938	935	927	903	897	882	888
	MEAN:	864	926	935	940	947	939	938	940	933	919	913	898	907
56	276	801	805	796	810	812	802	797	785	779	762	742	699	673
	277	1016	1018	1011	1020	1016	1024	1034	1038	1048	1040	1055	1066	1083
	278													
	279	772	754	706										
	280	979	992	971	1025	1040	1057	1052	1117	1136	1132	1157	1209	1239
	MEAN:	892	892	871	952	956	961	961	980	988	978	985	991	998
GROUP SIZE =		57	56	55	54	54	54	54	52	52	51	50	48	45
GROUP MEAN :		843	846	841	849	849	850	847	850	847	842	833	829	839
MEAN CHANGE:			2	-4	8	0	1	-2	2	-2	-5	-9	-4	10

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(Bodyweights - continued)

GROUP CAGE	4d RAT NO.	92	...WEEK... 93	94	95	96	97	98	99	100	101	102	103	104
50	246	852	853	887	887	888	888	889	885	888	890	894	888	897
	247	677	678	707	704	709	691	687	704	690	690	692	690	690
	248	748	754	722	715	702	700	696	693	701	704	710	710	714
	249													
	250	1153	1182	1193	1169	1177	1145	1146	1130	1096	1052	1021	963	904
	MEAN:	853	867	877	869	869	856	855	853	844	834	829	813	801
51	251													
	252	928	935	937	920	918	921	899	843	830	836	805	808	778
	253	799	724	683	652	548								
	254	783	788	793	793	797	806	803	798	783	790	788	793	798
	255	777	744	780	775	750	767	778	774	758	761	712		
	MEAN:	822	808	798	785	753	831	827	805	790	796	768	801	738
52	256	624												
	257	774	767	778	785	781	794	780	782	778	772	771	767	767
	258	940	908	912	890	848	831	778	711					
	259	629	637	630	623	628	638	630	618	614	608	603	605	606
	260													
	MEAN:	742	771	773	766	752	754	729	704	696	690	687	686	687
53	261	899	889	893	897	901	901	893	896	883	883	885	845	866
	262													
	263													
	264	1039	1036	1048	1052	1038	1042	1030	1027	1014	1014	983	943	955
	265													
	MEAN:	969	963	971	975	970	972	962	962	949	949	934	894	911
54	266													
	267													
	268													
	269													
	270	801	806	792	798	775	767	689						
	MEAN:	801	806	792	798	775	767	689						
55	271													
	272													
	273	933	935	935	935	915	921	919	921	915	913	915	885	902
	274													
	275	897	894	893	889	849	839	842	835	840	823	753	702	718
	MEAN:	915	915	914	912	882	880	881	878	878	868	834	794	810
56	276	621	580											
	277	1082	1088	1089	1073	1037	1047	1027	989	981	983	965	903	936
	278													
	279													
	280	1294	1334	1359	1352	1357	1345	1357	1340	1345	1336	1340	1315	1341
	MEAN:	999	1001	1224	1213	1197	1196	1192	1165	1163	1160	1153	1109	1139
GROUP SIZE =		43	42	40	40	40	39	38	37	36	34	34	33	33
GROUP MEAN :		847	850	857	851	836	843	839	831	828	837	830	819	816
MEAN CHANGE:			3	7	-6	-15	7	-5	-7	-3	9	-8	-11	-3

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	♂ RAT NO.	...WEEK... 105	106	107	108	109	110
50	246	899	907	913	918	925	923
	247	695	700	693	699	700	696
	248	719	729	729	733	728	713
	249						
	250	817					
	MEAN:	783	779	778	783	784	777
51	251						
	252	769	650	699	709	731	691
	253						
	254	802	911	819	828	844	800
	255						
	MEAN:	786	731	759	769	773	746
52	256						
	257	767	762	756	755	756	754
	258						
	259	611	604	588	586	563	525
	260						
	MEAN:	669	683	672	671	660	640
53	261	854	838	840	824	782	775
	262						
	263						
	264	902	916	888	866	876	872
	265						
	MEAN:	878	877	864	845	829	824
54	266						
	267						
	268						
	269						
	270						
	MEAN:						
55	271						
	272						
	273	920	927	912	921	912	899
	274						
	275	739					
	MEAN:	830	927	912	921	912	899
56	276						
	277	960	949	938	933	923	827
	278						
	279						
	280	1358	1368	1344	1335	1315	1282
	MEAN:	1159	1159	1141	1134	1119	1055
GROUP SIZE =		32	30	27	27	26	25
GROUP MEAN :		817	800	806	800	790	782
MEAN CHANGE:			-17	6	-6	-9	-8

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	1♀ RAT NO.	...WEEK... -3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
57	281	121	142	174	202	219	232	241	251	254	262	262	272	271	279	284	292	292
	282	93	126	159	192	216	234	254	271	279	291	302	310	319	319	332	339	342
	283	136	151	176	192	209	226	236	236	259	292	272	279	276	281	292	289	290
	284	144	166	200	219	222	254	258	264	263	296	276	283	284	289	296	303	302
	285	119	166	216	241	259	272	289	302	298	300	314	323	329	331	344	344	343
	MEAN:	123	150	185	209	225	244	256	265	271	288	285	293	296	300	310	313	314
58	286	133	172	202	231	249	263	299	295	302	304	319	318	324	326	334	341	336
	287	124	158	186	216	231	244	259	276	284	284	292	287	302	302	310	314	314
	288	109	158	181	203	226	243	259	266	276	281	291	292	299	309	314	313	321
	289	102	132	159	180	202	216	232	246	252	256	268	266	269	284	284	288	289
	290	139	161	196	222	241	262	272	288	294	296	304	303	309	311	322	324	326
	MEAN:	121	156	185	210	230	246	264	274	282	284	295	293	301	306	313	316	317
59	291	102	121	139	150	159	171	182	192	206	216	209	209	219	222	229	224	229
	292	111	151	176	190	229	239	252	264	279	291	292	297	306	314	324	340	342
	293	124	156	192	211	234	256	271	289	298	304	309	313	323	331	339	342	349
	294	133	172	202	220	259	284	298	302	319	332	336	340	354	369	382	377	386
	295	141	164	202	218	219	249	274	281	292	296	312	311	309	319	334	333	334
	MEAN:	122	153	182	198	220	240	255	266	279	288	292	294	302	311	322	323	328
60	296	107	146	169	185	209	222	236	226	262	256	259	265	276	284	290	290	294
	297	113	137	169	190	209	229	266	236	248	276	297	284	289	299	311	310	309
	298	121	154	189	213	229	234	259	252	279	284	294	302	301	304	324	332	334
	299	132	172	194	215	222	246	257	249	274	291	290	293	302	314	320	324	319
	300	146	159	192	216	232	242	246	256	278	282	294	295	303	309	319	318	322
	MEAN:	124	154	183	204	220	235	253	244	268	278	287	288	294	302	313	315	316
61	301	120	142	176	197	212	226	246	257	266	276	282	286	294	302	310	302	303
	302	133	164	202	233	259	276	298	312	314	316	331	343	348	359	361	365	369
	303	103	149	179	196	211	221	242	249	254	262	274	280	274	289	296	294	302
	304	124	148	181	206	232	261	272	287	292	300	306	312	309	329	339	330	336
	305	149	182	211	239	269	292	311	326	338	344	352	359	371	381	391	388	391
	MEAN:	126	157	190	214	237	255	274	286	293	300	309	316	319	332	339	336	340
62	306	128	161	186	211	222	236	252	256	262	276	280	280	276	282	286	294	292
	307	112	156	186	212	234	259	271	292	288	300	334	324	334	336	344	348	334
	308	131	172	210	238	271	290	302	302	319	334	344	345	361	374	381	388	391
	309	146	182	216	242	269	284	306	306	342	352	349	340	354	364	361	362	359
	310	111	142	172	200	214	234	241	249	249	276	281	277	282	289	296	300	294
	MEAN:	126	163	194	221	242	261	274	279	292	308	318	313	321	329	334	338	334
63	311	132	162	196	213	226	241	254	274	279	282	291	297	294	300	310	312	319
	312	125	152	182	206	219	236	252	266	271	272	282	287	290	291	302	307	311
	313	120	146	166	194	214	226	234	244	261	267	266	274	291	285	294	299	311
	314	109	152	182	206	232	249	262	277	289	300	292	300	309	321	331	330	339
	315	128	169	204	238	262	283	304	319	329	340	344	355	366	369	374	376	388
	MEAN:	123	156	186	211	231	247	261	276	286	292	295	303	310	313	322	325	334

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APPENDIX 2

(Bodyweights - continued)

GROUP 1 ♀ CAGE	RAT NO.	14	15	16	17	18	19	20	21	22	23	24	25	26
			...WEEK...											
57	281	286	285	293	294	289	297	299	299	304	308	316	320	318
	282	336	344	341	336	333	348	350	352	356	360	354	361	370
	283	291	291	297	294	292	307	300	309	315	314	309	318	324
	284	302	290	306	290	300	306	309	313	309	311	310	316	314
	285	339	349	355	346	342	354	354	354	363	368	369	372	371
	MEAN:	311	312	318	312	311	322	322	325	329	332	332	337	339
58	286	339	340	349	340	351	380	361	368	376	367	369	374	369
	287	319	319	318	319	318	322	327	333	336	340	334	339	337
	288	319	328	325	320	321	334	344	348	351	355	364	374	378
	289	291	295	294	290	290	298	290	310	305	303	307	318	315
	290	331	325	329	325	324	332	345	351	355	348	356	377	378
	MEAN:	320	321	323	319	321	333	333	342	345	343	346	356	355
59	291	232	231	231	231	231	234	238	242	244	244	229	247	248
	292	339	346	357	358	354	365	381	396	413	429	429	439	446
	293	346	346	354	355	358	361	373	370	362	373	369	381	381
	294	391	395	406	399	390	397	396	405	405	416	428	459	469
	295	339	338	344	337	339	347	352	354	357	364	367	370	368
	MEAN:	329	331	338	336	334	341	348	353	356	365	364	379	382
60	296	298	298	309	303	301	311	313	322	314	313	314	325	321
	297	319	311	309	314	312	319	323	331	331	332	350	352	354
	298	329	341	349	343	338	361	353	370	378	369	366	375	377
	299	323	324	324	320	324	329	328	334	331	344	338	347	350
	300	322	324	318	324	330	323	335	343	343	336	336	344	350
	MEAN:	318	320	322	321	321	329	330	340	339	339	341	349	350
61	301	309	313	308	321	326	328	325	330	335	340	339	351	334
	302	374	379	365	369	365	369	376	390	397	402	411	418	414
	303	296	305	294	299	303	310	314	312	316	315	321	318	326
	304	341	344	327	338	339	348	348	357	351	350	351	366	360
	305	399	405	387	387	397	403	404	416	416	427	429	435	436
	MEAN:	344	349	336	343	346	352	353	361	363	368	370	378	374
62	306	291	287	285	294	290	295	295	301	299	310	314	304	313
	307	344	341	368	367	349	357	356	362	358	365	364	392	407
	308	402	400	409	403	403	410	414	428	441	447	446	462	477
	309	369	371	383	384	399	392	395	401	428	418	419	447	442
	310	294	303	289	298	295	295	299	299	297	298	302	310	311
	MEAN:	340	340	347	349	347	350	352	358	365	368	369	383	390
63	311	311	312	311	303	311	309	313	320	316	320	319	329	330
	312	311	310	322	317	318	331	333	336	333	338	336	340	345
	313	311	316	318	307	343	353	366	362	381	395	400	385	386
	314	364	346	344	352	352	353	351	362	367	360	360	374	378
	315	386	392	398	389	390	376	404	415	426	450	437	430	440
	MEAN:	333	335	339	334	343	349	353	359	365	373	370	372	376

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(Bodyweights - continued)

GROUP	19													
CAGE	RAT		...WEEK...											
	NO.	27	28	29	30	31	32	33	34	35	36	37	38	39
57	231	326	320	323	324	328	332	337	346	344	348	349	355	358
	232	372	387	414	409	424	437	438	438	431	433	455	476	490
	233	325	322	325	327	334	330	331	329	333	333	338	336	344
	234	313	316	314	320	324	330	328	326	331	337	342	347	353
	235	374	383	395	378	381	393	388	392	394	394	398	398	399
	MEAN:	342	346	354	352	358	364	364	366	367	369	376	382	389
58	286	370	388	398	390	332	385	381	384	386	388	425	427	434
	287	344	346	332	341	342	349	351	351	358	357	363	374	387
	288	381	393	365	388	401	406	409	405	415	419	437	428	432
	289	327	329	316	321	325	328	333	332	338	342	340	343	346
	290	386	383	383	387	396	401	407	416	427	424	435	439	446
	MEAN:	362	370	363	365	369	374	376	378	385	386	400	402	409
59	291	234	247	246	245	247	251	247	247	249	250	250	254	252
	292	434	436	442	432	446	395							
	293	374	333	382	385	392	396	395	403	405	405	424	422	430
	294	481	493	499	506	522	544	542	530	534	533	537	549	552
	295	364	376	379	378	381	395	384	386	392	399	393	397	404
	MEAN:	377	387	390	389	398	396	392	392	395	397	401	406	410
60	296	325	335	331	330	330	339	342	340	346	350	347	355	356
	297	351	350	355	352	355	354	360	367	390	394	394	389	382
	298	378	391	408	408	417	413	430	438	438	443	449	461	463
	299	349	356	353	351	357	355	352	356	365	366	369	371	375
	300	349	356	359	359	365	367	365	367	377	373	387	387	383
	MEAN:	350	358	361	360	365	366	370	374	383	385	389	393	392
61	301	340	347	354	364	367	374	383	382	388	398	405	415	415
	302	431	426	438	430	443	449	453	457	465	474	483	485	501
	303	341	333	333	331	329	340	342	342	346	346	352	344	345
	304	379	365	366	361	375	375	372	373	381	379	383	385	395
	305	437	437	445	444	440	446	451	447	455	466	474	487	487
	MEAN:	386	382	387	386	391	397	400	400	407	413	419	423	429
62	306	307	310	306	311	314	316	314	323	330	329	326	327	326
	307	427	421	437	433	431	437	455	465	478	464	467	461	455
	308	474	491	485	482	497	490	489	490	501	515	526	537	545
	309	439	454	445	432	414	444	438	451	466	463	491	480	474
	310	308	311	304	314	308	316	315	318	323	330	330	336	336
	MEAN:	391	397	395	394	393	401	402	409	420	420	428	428	427
63	311	326	332	335	331	333	345	341	337	344	346	354	350	343
	312	349	356	356	360	364	364	361	366	368	369	378	370	371
	313	366	374	389	381	378	388	396	392	396	390	418	428	428
	314	380	380	386	388	383	391	391	390	391	399	399	402	400
	315	451	446	441	445	455	463	455	459	466	474	494	490	492
	MEAN:	374	378	381	381	333	390	389	389	393	396	409	408	407

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	19 RAT NO.	40	...WEEK... 41	42	43	44	45	46	47	48	49	50	51	52
57	281	367	366	364	372	373	373	386	389	391	399	399	406	409
	282	500	514	507	518	525	531	548	552	564	565	563	588	577
	283	346	351	352	353	358	358	361	361	367	362	358	370	368
	284	352	352	352	356	366	368	373	371	365	379	371	390	396
	285	411	412	440	452	444	459	472	477	482	489	485	491	498
	MEAN:	395	399	403	410	413	416	428	430	434	439	435	449	450
58	286	431	443	456	449	457	460	453	456	459	467	476	483	487
	287	402	396	401	400	406	409	407	396	411	417	428	441	436
	288	448	453	467	465	471	480	475	450	480	471	489	498	502
	289	347	348	352	355	362	363	362	344	360	367	367	372	373
	290	451	444	444	457	467	453	453	441	460	467	461	476	467
	MEAN:	420	418	424	425	433	434	430	417	434	438	444	454	453
59	291	252	257	259	264	261	266	268	272	277	277	281	285	283
	292													
	293	439	447	449	445	448	443	447	452	442	453	462	453	464
	294	563	563	566	571	581	589	612	629	632	644	673	682	678
	295	414	420	430	441	448	436	439	439	441	455	463	469	472
	MEAN:	417	422	426	430	435	434	442	448	448	457	470	472	474
60	296	360	362	375	370	362	379	376	382	390	391	392	392	400
	297	388	388	388	392	401	402	400	406	410	418	425	423	423
	298	472	473	478	491	489	498	487	501	510	517	523	536	536
	299	384	386	384	387	368	393	380	398	400	408	409	408	404
	300	394	393	402	406	418	404	400	408	411	418	420	424	428
	MEAN:	400	400	405	409	412	415	409	419	424	430	434	437	438
61	301	423	428	437	443	443	448	449	456	470	460	473	478	483
	302	505	503	517	527	535	526	528	540	547	533	554	552	557
	303	350	353	348	361	358	355	355	363	362	357	365	363	364
	304	399	403	407	418	418	415	415	422	423	424	429	429	428
	305	492	493	501	510	513	515	516	529	534	535	552	554	576
	MEAN:	434	436	442	452	453	452	453	462	467	462	475	475	482
62	306	324	329	334	333	335	337	346	351	360	359	363	371	366
	307	470	489	469	499	518	510	524	540	540	555	550	561	561
	308	554	566	577	592	602	612	619	626	626	632	626	639	634
	309	493	501	468	501	519	513	529	532	534	547	550	552	566
	310	346	349	348	356	360	362	369	364	372	377	377	375	375
	MEAN:	437	447	447	456	467	467	477	483	486	494	493	500	500
63	311	359	361	366	380	374	380	370	380	382	380	396	386	388
	312	384	387	393	394	398	399	404	408	414	415	415	426	428
	313	441	451	457	478	472	482	483	502	500	504	500	519	518
	314	402	401	397	395	424	418	425	428	432	430	439	437	447
	315	500	506	507	526	530	548	538	544	557	561	578	588	580
	MEAN:	417	421	424	435	440	445	444	452	457	458	466	471	472

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	19 RAT NO.	53	54	55	56	57	58	59	60	61	62	63	64	65
		...WEEK...												
57	281	412	418	411	430	430	432							
	282	588	576	584	581	591	610	602	607	601	620	629	631	639
	283	373	370	361	383	382	382	382	377	384	394	387	392	400
	284	392	397	390	393	398	409	410	419	427	428	445	429	438
	285	503	503	507	506	510	512	519	522	521	520	536	534	544
	MEAN:	454	453	451	459	462	469	478	481	483	491	499	497	505
58	286	480	491	475	477	492	501	493	477	469	482	499	494	499
	287	429	418	430	421	432	446	442	450	445	453	457	459	465
	288	510	513	511	528	532	535	537	541	537	549	561	563	549
	289	371	373	365	380	381	396	417	435	425	417	410	406	404
	290	473	494	476	499	497	500	509	501	509	517	518	521	527
	MEAN:	453	458	451	461	467	476	480	481	477	484	489	489	489
59	291	284	287	270	287	289	297	297	299	302	305	310	311	314
	292													
	293	468	466	456	489	491	498	489	470	473	470	480	488	485
	294	686	700	686	705	714	735	733	736	748	756	758	770	772
	295	464	468	454	471	470	467	473	474	481	489	500	494	498
	MEAN:	476	480	467	488	491	499	498	495	501	505	512	516	517
60	296	407	405	395	424	405	409	419	412	409	422	422	422	435
	297	431	430	427	444	438	445	459	460	465	456	455	458	461
	298	546	533	531	551	549	546	562	535	536	549	544	561	570
	299	422	421	419	440	422	429	436	436	441	442	448	455	460
	300	435	435	431	443	437	441	444	442	442	446	455	459	449
	MEAN:	448	445	441	460	450	454	464	457	459	463	465	471	475
61	301	475	487	478	480	499	485	486	489	504	507	515	523	526
	302	567	563	559	580	583	595	586	573	562	570	568	571	564
	303	368	370	357	378	372	387	378	374	384	390	389	392	393
	304	431	439	436	444	450	454	451	453	460	468	479	475	476
	305	576	572	542	551	551	561	564	569	580	581	588	593	609
	MEAN:	483	486	474	487	491	496	493	492	498	503	508	511	514
62	306	370	374	375	393	389	384	383	376	386	391	395	399	394
	307	573	571	569	581	597	597	599	589	606	591	619	630	624
	308	639	647	654	655	660	663	655	654	668	659	662	673	669
	309	572	560	578	591	597	590	597	606	605	600	619	608	616
	310	368	379	372	388	392	410	398	402	401	395	408	406	410
	MEAN:	504	510	510	522	527	529	526	525	533	527	541	543	543
63	311	384	393	393	389	397	391	401	398	400	406	404	413	399
	312	424	437	427	435	443	457	468	467	471	476	472	469	382
	313	523	526	520	530	532	555	545	560	555	555	566	576	577
	314	450	456	461	484	491	485	489	490	507	515	507	529	520
	315	598	605	602	612	614	626	632	637	647	649	655	660	673
	MEAN:	476	483	481	490	495	503	507	510	516	520	521	529	510

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	1♀ RAT NO.	...WEEK... 66	67	68	69	70	71	72	73	74	75	76	77	78
57	281													
	282	631	642	638	652	645	650	647	640	621	627	648	632	630
	283	403	408	403	421	407	393	408	412	411	414	432	423	430
	284	442	446	454	464									
	285	554	546	554	557	563	574	560	559	554	556	557	556	559
	MEAN:	508	511	512	524	538	539	538	537	529	532	546	537	540
58	286	515	518	530	525	529	520	525	530	532	539	533	542	545
	287	457	468	479	478	482	477	488	486	491	501	479	493	504
	288	566	571	578	591	584	570	590	590	597	585	587	585	573
	289	401	402	414	410	417	418	421	438	450	449	461	463	452
	290	531	536	540	554	558	538	543	553	565	576	579	585	584
	MEAN:	494	499	508	512	514	505	513	519	527	530	528	534	532
59	291	316	322	328	332	324	325	326	333	337	339	340	344	346
	292													
	293	487	487	491	503	491	502	507	512	506	512	520	522	523
	294	774	775	793	809	787	791	810	806	826	772	797	808	810
	295	509	511	517	525	503	508	511	510	516	525	523	521	522
	MEAN:	522	524	532	542	526	532	539	540	546	537	545	549	550
60	296	436	435	443	445	448	453	456	465	457	452	472	450	463
	297	456	458	465	471	481	486	490	505	477	484	472	485	486
	298	571	564	604	604	623	619	636	633	645	642	646	638	633
	299	459	466	468	480	480	486	480	508	490	498	497	500	491
	300	469	473	475	474	489	480	486	485	499	501	495	502	494
	MEAN:	478	479	491	495	504	505	510	519	514	515	516	515	513
61	301	535	535	531	536	547	548	544	556	545	579	554	544	553
	302	569	572	564	554	566	535	460						
	303	396	399	401	419	408	418	405	404	403	402	410	410	407
	304	477	484	482	488	489	490	488	489	484	486	492	484	483
	305	604	604	608	619	630	640	628	635	626	630	621	607	595
	MEAN:	516	519	517	523	528	526	505	521	515	524	519	511	510
62	306	399	403	403	425	413	428	425	427	442	421	437	442	444
	307	629	638	645	638	632	630	612	594	561	537	507	455	
	308	690	680	696	698	715	702	710	708	729	729	733	746	733
	309	629	640	638	646	663	655	654	669	677	682	695	708	729
	310	425	422	430	444	464	457	457	455	464	469	464	472	477
	MEAN:	554	557	562	570	577	574	572	571	575	568	567	565	596
63	311	417	409	411	401	413	416	409	420	420	415	416	419	410
	312													
	313	589	587	598	593	618	592	575	585	600	574	556	549	540
	314	539	535	534	534	547	531	540	552	545	555	557	553	561
	315	681	677	678	674	678	672	681	686	701	699	709	700	709
	MEAN:	557	552	555	551	564	553	551	561	567	561	560	555	555

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	19 RAT NO.	79	...WEEK... 80	81	82	83	84	85	86	87	88	89	90	91
57	281													
	282	626	631	631	636	644	629	630	623	624	630	596	596	587
	283	434	435	451	458	463	461	463	470	465	465	461	460	473
	284													
	285	556	539	563	563	565	571	571	574	577	563	571	581	584
	MEAN:	539	535	548	552	557	554	555	556	555	553	543	546	543
58	286	551	555	561	560	567	573	573	566	525				
	287	494	500	506	500	511	511	510	521	522	523	520	532	537
	288	596	594	583	589	598	604	600	596	577	590	588	587	580
	289	447	445	435	430	437	441	445	453	452	457	453	461	468
	290	597	591	588	596	597	592	598	604	582	575	547	538	505
	MEAN:	537	537	535	535	542	544	545	548	532	536	527	530	523
59	291	346	352	345	352	350	351	350	353	364	355	365	360	373
	292													
	293	529	524	533	539	537	526	534	542	547	550	549	561	563
	294													
	295	529	528	531	537	541	540	551	561	574	557	511	450	426
	MEAN:	468	468	470	476	476	472	478	485	495	487	475	457	454
60	296	465	464	467	462	464	459	464	465	461	452	466	474	478
	297	500	492	505	493	489	491	499	516	520	516	521	526	536
	298	653	683	668	681	683	688	699	695	697	694	697	697	677
	299	502	513	505	517	530	524	528	526	535	552	531	545	559
	300	499	499	498	516	503	513	508	508	521	510	512	515	520
	MEAN:	524	530	529	534	534	535	540	542	547	545	545	551	554
61	301	558	557	573	566	584	568	588	588	593	602	605	594	612
	302													
	303	416	436	422	426	447	443	428	458	446	458	463	456	464
	304	482	491	493	498	499	501	513	507	516	514	515	517	516
	305	585	554	499	494	469	468	456	461	457	438	425	393	387
	MEAN:	510	510	497	496	500	495	496	504	503	503	502	490	495
62	306	459	453	456	457	452	455	462	465	472	466	453	427	391
	307													
	308	742	753	751	770	767	775	798	803	793	794	796	810	
	309	727	749	730										
	310	472	478	479	478	483	488	488	496	505	510	509	513	521
	MEAN:	595	608	604	568	567	573	583	588	590	590	586	583	456
63	311	411	408	408	407	413	404	394	383	367	335			
	312													
	313	552	579	595	604	605	613	613	601	605	607	598	591	596
	314	565	566	584	596	600	608	601	603	610	611	607	611	614
	315	699	697	711	705	716	702	712	695	693	693	653	653	661
	MEAN:	557	563	575	578	584	582	580	571	569	562	619	618	624

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	19 RAT NO.	...WEEK... 92	93	94	95	96	97	98	99	100	101	102	103	104
57	281													
	282	593	574	579	567	557	582	540	432					
	283	479	481	476	471	422	474	471	486	444	443	446	418	
	284													
	285	575	595	602	599	571	601	607	570	591	592	599	591	584
	MEAN:	549	550	552	546	523	552	539	496	518	518	523	505	584
58	286													
	287	543	545	537	541	538	542	544	543	515	518	541	550	551
	288	582	581	574	567	550	568	550	518	468	461	486	485	486
	289	470	465	473	472	468	481	471	470	430	441	458	451	479
	290													
	MEAN:	532	530	528	527	519	530	522	510	471	473	495	495	505
59	291	370	363	378	362	364	364	364	361	364	370	363	375	362
	292													
	293	567	566	558	576	580	577	580	584	584	586	589	586	585
	294													
	295	394												
	MEAN:	444	465	468	469	472	471	472	475	474	478	476	481	474
60	296	470	472	472	469	472	471	463	467	476	463	469	477	476
	297	542	533	543	545	549	543	546	544	539	533	531	516	
	298	649	610	581										
	299	563	571	585										
	300	521	512	520	505	496	491	475	460	458	441	432	420	410
	MEAN:	549	540	540	506	506	502	495	490	491	479	477	471	443
61	301	614	612	619	616	622	615	607	587	571	566	504		
	302													
	303	482	472	469	462	470	462	449	442	410	418			
	304	523	519	529	535	528	524							
	305													
	MEAN:	540	534	539	538	540	534	528	515	491	492	504		
62	306	375	351	330	318	293								
	307													
	308													
	309													
	310	525	527	524	530	532	526	516	508	500	492	481	475	467
	MEAN:	450	439	427	424	413	526	516	508	500	492	481	475	467
63	311													
	312													
	313	602	609	604	605	615	632	630	627	614	622	613	612	627
	314	620	622	621	611	601	610	594	579	579	580	560	550	540
	315	669	663	655	668	646	661	637	635	632	570			
	MEAN:	630	631	627	628	621	634	620	614	608	591	587	581	584

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(Bodyweights - continued)

GROUP CAGE	19 RAT NO.	...WEEK... 105	106	107	108	109	110
57	281						
	282						
	283						
	284						
	285	562	539				
	MEAN:	562	539				
58	286						
	287	561	556				
	288	469	461				
	289	475	468				
	290						
	MEAN:	502	495				
59	291	374	363				
	292						
	293	585	575				
	294						
	295						
	MEAN:	480	469				
60	296	460	481				
	297						
	298						
	299						
	300	404	393				
	MEAN:	442	437				
61	301						
	302						
	303						
	304						
	305						
	MEAN:						
62	306						
	307						
	308						
	309						
	310	460	456				
	MEAN:	460	456				
63	311						
	312						
	313	611	606				
	314	527	512				
	315						
	MEAN:	569	559				

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	19 RAT NO.	-3	...WEEK... -2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
64	316	137	152	189	210	229	239	259	279	281	286	299	301	304	309	319	324	329
	317	129	153	187	204	216	224	249	264	287	294	293	300	309	322	326	339	349
	318	112	166	206	236	262	289	312	321	334	372	382	382	393	402	400	408	414
	319	90	131	154	181	199	226	242	252	262	271	279	290	292	302	319	311	314
	320	151	184	206	224	241	249	271	284	284	296	309	301	311	321	324	320	331
	MEAN:	124	157	188	211	229	245	267	280	290	304	312	315	322	331	338	340	347
65	321	95	139	154	180	186	209	219	229	241	233	251	253	252	261	271	267	266
	322	116	140	166	186	202	211	228	236	242	250	262	255	271	282	282	286	288
	323	124	157	192	211	229	249	268	281	296	304	319	321	334	341	354	349	352
	324	130	162	185	205	224	236	249	252	266	272	276	280	291	294	299	298	304
	325	139	171	202	224	241	262	287	309	304	310	319	319	321	324	339	336	343
	MEAN:	121	154	180	201	216	233	250	261	270	274	285	286	294	300	309	307	311
66	326	103	129	152	170	182	192	198	211	211	211	226	227	236	232	234	244	244
	327	119	154	186	215	236	258	276	315	321	324	326	332	341	341	341	354	359
	328	126	157	184	219	242	254	269	289	294	304	311	328	334	345	350	360	372
	329	137	172	196	211	224	234	269	282	282	294	306	305	311	319	329	336	334
	330	140	172	201	221	236	254	267	277	282	292	300	296	302	312	314	315	319
	MEAN:	125	157	184	207	224	238	256	275	278	285	294	298	305	310	314	322	326
67	331	109	152	189	217	236	249	266	282	292	300	309	316	323	331	334	337	341
	332	134	159	186	214	222	236	258	271	272	282	292	294	296	302	314	314	312
	333	108	159	186	220	246	272	282	287	302	316	321	315	329	341	344	340	352
	334	127	149	176	200	210	219	239	249	259	276	271	276	279	281	286	290	281
	335	156	194	231	268	289	309	329	341	352	364	364	378	382	386	394	398	392
	MEAN:	127	163	194	224	241	257	275	286	295	308	311	316	322	328	334	336	336
68	336	124	162	192	216	241	256	272	279	287	300	309	310	319	321	336	330	331
	337	101	136	162	186	209	222	234	242	254	264	262	266	270	286	286	287	294
	338	136	171	196	228	244	266	278	276	286	300	312	312	321	333	332	338	349
	339	146	172	200	214	234	249	261	269	276	294	290	293	304	321	321	323	329
	340	111	140	169	192	211	229	239	257	271	282	282	291	300	302	309	314	324
	MEAN:	124	156	184	207	228	244	257	265	275	288	291	294	303	313	317	318	325
69	341	122	168	199	222	232	254	271	281	291	299	302	310	311	322	339	337	339
	342	102	156	172	197	219	236	242	254	269	276	279	281	282	304	329	313	312
	343	138	169	192	223	238	254	262	280	287	292	306	304	304	314	320	322	321
	344	146	186	222	248	282	300	311	324	334	342	358	355	369	376	382	384	388
	345	117	159	186	219	239	266	280	291	302	309	315	327	336	339	349	357	358
	MEAN:	125	168	194	222	242	262	273	286	297	304	312	315	320	331	344	343	344
70	346	136	169	199	217	242	262	282	291	314	321	336	331	359	356	369	378	391
	347	124	152	187	214	239	261	272	276	291	302	306	311	321	329	334	335	341
	348	116	146	176	203	221	241	259	282	291	296	304	313	324	339	344	354	361
	349	103	132	161	183	200	212	232	244	252	254	264	271	276	280	284	292	291
	350	143	168	192	214	232	249	266	281	282	282	296	299	296	312	316	314	312
	MEAN:	124	153	183	206	227	245	262	275	286	291	301	305	315	323	329	335	339
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		124	157	187	210	229	247	263	273	283	292	299	302	309	316	324	326	329
MEAN CHANGE:			33	30	24	19	17	16	10	10	9	7	3	7	8	8	2	3

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	1♀ RAT NO.	...WEEK... 14	15	16	17	18	19	20	21	22	23	24	25	26
64	316	332	331	333	331	344	348	343	345	342	352	362	374	384
	317	349	336	349	348	349	365	374	386	389	390	402	408	408
	318	422	424	424	431	440	455	478	475	484	494	494	481	495
	319	321	316	327	328	335	342	359	373	373	383	388	407	409
	320	341	360	333	335	332	345	338	345	345	360	362	363	366
	MEAN:	353	353	353	355	360	371	378	385	387	396	402	407	412
65	321	259	276	279	281	284	277	283	292	287	288	289	301	301
	322	288	292	295	298	300	296	306	308	310	311	313	317	318
	323	359	358	362	354	360	364	364	374	376	375	373	388	393
	324	309	302	313	306	305	311	312	314	323	324	322	327	354
	325	346	351	355	353	355	348	356	358	358	362	367	363	371
	MEAN:	314	316	321	318	321	319	324	329	331	332	333	339	347
66	326	246	244	246	248	249	255	252	262	254	255	254	262	263
	327	368	381	384	388	381	396	405	414	421	425	427	436	456
	328	381	381	386	380	383	386	416	439	426	438	452	438	445
	329	334	342	346	346	343	353	355	357	355	359	357	366	367
	330	320	323	320	322	323	321	327	330	341	339	343	345	345
	MEAN:	330	334	336	337	336	342	351	360	359	363	367	369	375
67	331	349	345	347	335	336	357	357	369	370	369	369	373	367
	332	309	318	324	321	320	330	324	324	331	329	333	341	341
	333	358	360	358	357	357	367	361	373	382	387	388	399	406
	334	281	293	293	298	305	306	307	310	306	308	302	309	308
	335	402	411	415	400	406	408	411	421	432	435	449	450	442
	MEAN:	340	345	347	342	345	354	352	359	364	366	368	374	373
68	336	324	338	336	331	332	334	337	343	353	346	342	349	357
	337	299	286	302	310	310	320	327	331	346	338	338	359	353
	338	341	337	336	345	351	351	348	348	355	352	347	359	358
	339	336	337	343	338	338	345	342	355	362	370	380	369	400
	340	324	320	326	335	327	331	337	348	342	342	342	362	354
	MEAN:	325	324	329	332	332	336	338	345	352	350	350	360	364
69	341	324	295	344	336	334	333	337	337	338	345	344	362	359
	342	314	327	341	318	313	314	318	338	355	339	348	347	342
	343	324	330	336	333	324	328	329	334	333	331	332	338	338
	344	389	395	399	398	394	399	405	405	406	435	431	436	437
	345	364	364	371	366	362	361	365	367	366	374	372	379	383
	MEAN:	343	342	358	350	345	347	351	356	360	365	365	372	372
70	346	391	402	404	414	421	427	434	449	451	451	455	475	467
	347	347	344	348	342	348	350	350	364	369	360	359	370	370
	348	368	361	376	378	375	379	386	393	392	391	388	401	404
	349	291	297	301	299	301	305	304	306	308	308	311	322	315
	350	323	321	329	329	334	334	334	347	345	340	353	360	360
	MEAN:	344	345	352	352	356	359	362	372	373	370	373	386	383
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		332	333	337	336	337	343	346	353	356	359	361	369	371
MEAN CHANGE:			2	4	-1	1	6	3	7	3	3	2	8	2

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APPENDIX 2

(Bodyweights - continued)

GROUP	1♀													
CAGE	RAT	...WEEK...												
	NO.	27	28	29	30	31	32	33	34	35	36	37	38	39
64	316	386	396	402	406	402	413	421	416	429	427	445	459	462
	317	413	418	428	425	426	430	439	450	460	465	478	482	485
	318	503	503	527	538	528	535	541	549	535	524	531	548	563
	319	422	422	418	432	434	447	452	464	466	476	487	498	503
	320	354	358	375	354	354	353	362	363	363	360	389	398	401
	MEAN:	416	419	430	431	427	435	443	448	451	450	466	477	483
65	321	300	307	307	306	307	308	303	314	325	331	344	335	335
	322	324	332	332	329	332	340	333	342	344	409	312	346	354
	323	393	403	408	400	392	391	383	387	405	407	410	412	406
	324	366	357	353	351	353	351	350	361	359	351	371	380	365
	325	375	377	376	377	382	391	382	388	396	372	427	423	428
	MEAN:	352	355	355	353	353	356	350	358	366	374	373	379	382
66	326	261	263	265	264	260	266	266	267	269	267	270	274	272
	327	467	468	473	477	482	504	501	495	504	513	521	536	535
	328	448	458	461	485	485	505	507	502	503	521	524	525	536
	329	364	372	374	370	378	388	383	392	393	397	398	406	402
	330	355	367	363	364	375	384	376	379	387	396	395	388	381
	MEAN:	379	386	387	392	396	409	407	407	411	419	422	426	425
67	331	343	374	382	361	383	395	394	396	411	419	435	419	427
	332	331	340	345	339	354	356	354	354	364	363	377	379	379
	333	413	411	406	390	408	415	410	410	418	421	425	422	433
	334	305	311	311	296	308	314	304	303	311	312	314	316	321
	335	442	453	450	437	461	470	467	473	483	486	494	497	504
	MEAN:	375	378	379	365	383	390	386	387	397	400	409	407	413
68	336	354	358	355	355	355	360	353	359	366	370	379	387	385
	337	362	368	362	358	358	368	368	374	382	386	382	395	394
	338	354	382	371	371	370	374	374	371	378	381	377	378	382
	339	400	413	410	409	413	430	430	435	447	451	465	453	453
	340	357	358	356	355	358	363	358	358	364	371	369	377	382
	MEAN:	365	376	371	370	371	379	377	379	387	392	394	398	399
69	341	353	348	361	355	348	338	337	347	358	369	365	377	375
	342	342	349	357	367	368	374	377	375	380	379	385	390	386
	343	333	336	353	335	337	342	344	343	346	347	349	347	345
	344	439	438	447	439	447	464	451	456	462	472	477	485	486
	345	331	387	401	399	396	402	406	409	415	426	429	434	432
	MEAN:	370	372	384	379	379	364	383	386	392	399	401	407	405
70	346	463	472	474	480	480	497	500	494	495	522	534	530	533
	347	380	372	378	380	380	394	388	392	402	398	402	395	392
	348	405	417	416	413	423	437	437	446	446	450	450	461	467
	349	320	316	327	332	337	346	352	354	359	363	363	361	362
	350	361	357	366	379	409	404	387	393	386	398	422	408	438
	MEAN:	336	387	392	397	406	416	413	416	418	426	434	431	438
GROUP SIZE =		70	70	70	70	70	70	69	69	69	69	69	69	69
GROUP MEAN :		373	378	381	380	384	390	389	392	398	402	409	412	415
MEAN CHANGE:			5	3	-1	4	6	0	3	6	4	7	3	3

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APPENDIX 2

(Bodyweights - continued)

GROUP 1♀ CAGE	RAT NO.	40	41	42	43	44	45	46	47	48	49	50	51	52
			...WEEK...											
64	316	475	471	474	478	439	487	484	504	502	512	524	516	521
	317	488	501	504	497	516	529	517	536	550	550	572	566	573
	318	582	595	609	618	620	631	617	642	649	656	665	652	658
	319	518	512	513	521	517	523	524	533	534	535	542	545	558
	320	407	419	409	406	418	410	391	410	400	400	400	393	398
	MEAN:	494	500	502	504	512	516	507	525	527	531	541	534	542
65	321	335	334	335	336	345	340	345	345	336	353	355	362	358
	322	356	354	356	360	357	372	359	353	341	347	350	355	360
	323	412	420	417	421	409	409	437	435	428	445	451	456	456
	324	395	400	398	401	403	409	415	425	419	430	435	431	445
	325	447	442	444	449	449	460	456	460	457	475	476	468	488
	MEAN:	389	390	390	394	394	398	402	404	396	410	413	414	421
66	326	274	278	280	269	287	282	279	280	281	281	287	288	288
	327	545	557	557	545	565	561	572	580	576	574	581	600	605
	328	534	549	553	534	560	558	569	569	564	568	573	551	564
	329	415	427	434	426	451	453	457	469	467	456	479	490	488
	330	393	406	414	410	424	427	438	434	434	436	447	447	444
	MEAN:	432	444	448	437	457	456	463	466	464	463	473	475	478
67	331	431	431	434	452	451	454	454	467	468	471	481	483	481
	332	371	385	369	391	395	393	401	405	409	417	420	436	444
	333	440	437	433	419	423	461	466	472	476	481	478	489	484
	334	322	320	320	326	317	321	321	324	330	326	331	335	330
	335	509	509	510	523	530	539	552	543	549	558	565	568	585
	MEAN:	415	416	417	422	423	434	439	442	446	451	455	462	465
68	336	387	391	390	391	391	394	395	394	405	404	412	430	435
	337	387	391	391	400	407	415	422	434	440	448	441	456	445
	338	390	398	399	402	404	412	416	420	425	427	427	446	443
	339	470	466	462	465	473	473	492	493	486	501	506	510	513
	340	381	380	379	380	393	391	392	401	402	420	431	420	417
	MEAN:	403	405	404	408	414	418	423	428	432	440	443	452	451
69	341	385	381	380	392	393	397	393	394	401	401	417	411	416
	342	395	402	395	401	410	413	412	413	414	417	428	417	432
	343	352	355	355	361	360	358	347	362	364	365	369	370	381
	344	491	500	501	511	517	519	537	537	552	556	547	558	564
	345	443	446	448	452	451	459	455	456	460	462	468	475	483
	MEAN:	413	417	416	423	426	429	429	432	438	440	446	446	455
70	346	541	560	564	568	575	579	594	593	590	595	598	595	604
	347	401	411	404	416	420	419	424	435	431	426	434	441	444
	348	466	473	479	489	487	432	494	496	496	497	502	500	521
	349	363	374	371	375	384	372	398	411	402	413	430	429	436
	350	432	434	438	434	453	447	449	463	454	456	459	481	473
	MEAN:	441	450	451	456	464	460	472	480	475	477	485	489	496
GROUP SIZE =		69	69	69	69	69	69	69	69	69	69	69	69	69
GROUP MEAN :		422	426	429	433	439	441	444	449	452	456	462	466	470
MEAN CHANGE:			4	2	4	6	2	3	5	3	4	6	4	3

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	19 RAT NO.	53	...WEEK... 54	55	56	57	58	59	60	61	62	63	64	65
64	316	537	530	538	536	523	529	540	532	549	543	551	552	547
	317	577	586	595	605	601	606	620	629	634	631	632	625	638
	318	674	674	656	662	667	667	650	671	664	673	676	650	653
	319	556	570	571	559	567	579	572	591	585	593	606	596	599
	320	406	413	408	414	419	427	427	430	436	445	440	436	441
	MEAN:	550	555	554	555	555	562	562	571	574	577	581	572	576
65	321	357	360	359	360	367	377	378	378	376	376	386	391	391
	322	363	360	367	367	361	369	369	370	368	370	375	379	376
	323	465	467	472	480	484	493	498	498	506	507	511	514	520
	324	457	461	462	465	474	483	485	480	480	488	496	499	504
	325	497	511	517	518	523	543	540	540	542	553	563	586	579
	MEAN:	428	432	435	438	442	453	454	453	454	459	466	474	474
66	326	290	291	288	297	290	293	294	295	296	299	301	311	308
	327	619	610	612	609	619	630	636	629	636	627	627		
	328	555	565	583	584	579	591	600	599	606	610	607	611	621
	329	492	500	508	488	506	522	521	522	525	538	551	555	555
	330	446	448	444	451	467	479	485	493	511	502	506	506	502
	MEAN:	480	483	487	486	492	503	507	508	515	515	518	496	497
67	331	489	488	495	490	515	518	519	529	535	538	544	532	539
	332	434	438	428	426	430	421	433	425	426	441	450	459	457
	333	483	477	452	459	467	477	490	494	495	493	504	511	512
	334	329	329	329	325	330	334	337	332	319	325	332	336	336
	335	577	566	561	575	582	600	594	590	598	600	614	609	611
	MEAN:	462	460	453	455	465	470	475	474	475	479	489	489	491
68	336	443	435	418	425	427	428	422	430	434	430	446	465	465
	337	458	461	445	457	455	468	469	470	467	475	479	475	475
	338	441	432	442	447	455	457	457	457	455	465	468	468	470
	339	499	495	500	522	521	520	535	534	530	545	536	540	559
	340	411	420	417	448	434	432	436	438	451	461	463	470	474
	MEAN:	450	449	444	460	458	461	464	466	467	475	478	484	489
69	341	417	420	404	416	416	426	426	412	397	408	416	427	419
	342	438	438	424	432	446	459	451	461	450	461	472	474	470
	343	393	391	384	396	393	396	394	385	378	388	394	404	403
	344	571	577	559	564	556	559	558	553	549	556	560	566	571
	345	484	484	501	510	506	503	510	505	497	513	532	544	559
	MEAN:	461	462	454	464	463	469	468	463	454	465	475	483	484
70	346	597	617	611	615	620	632	619	640	629	628	639	652	650
	347	440	446	445	448	450	462	462	464	464				
	348	516	520	512	519	517	527	530	535	554	550	556	578	562
	349	438	442	439	444	447	465	473	469	478	481	487	492	496
	350	463	478	463	486	489	498	506	509	510	518	521	534	545
	MEAN:	491	501	494	502	505	517	518	523	527	544	551	564	563
GROUP SIZE =		69	69	69	69	69	69	68	68	68	67	67	66	66
GROUP MEAN :		473	475	471	480	483	490	493	493	495	500	506	508	508
MEAN CHANGE:			3	-4	9	3	7	3	0	2	5	6	2	1

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APPENDIX 2

(Bodyweights - continued)

GROUP 19

CAGE	RAT NO.	66	67	68	69	70	71	72	73	74	75	76	77	78
			...WEEK...											
64	316	564	559	559	573	566	577	563	568	567	550	561	590	586
	317	668	659	664	648	671	670	679	691	704	708	711	718	719
	318	662	654	664	676	668	686	668	674	664	671	674	672	661
	319	605	602	623	623	629	643	637	659	651	652	665	654	673
	320	441	459	463	480	496	483	489	492	502	503	507	517	
	MEAN:	566	587	595	600	606	612	607	617	618	617	628	630	660
65	321	395	401	402	404	401	402	409	417	412	419	421	424	423
	322	378	381	385	387	386	386	393	392	399	397	403	404	408
	323	522	530	542	541	540	544	537	548	551	563	555	560	544
	324	515	521	525	532	531	536	536	545	548	544	563	554	548
	325	572	573	584	574	583	590	600	604	602	620	620	617	622
	MEAN:	476	481	488	488	488	492	495	501	502	509	512	512	509
66	326	309	309	312	314	317	324	321	322	327	332	330	332	328
	327													
	328	630	636	631	633	644	622	620	622	608	593	570	545	521
	329	556	569	564	562	567	569	573	573	574	589	583	596	585
	330	524	511	513	514	522	516	521	529	526	524	530	525	529
	MEAN:	505	506	505	506	513	508	509	512	509	510	503	500	491
67	331	554	553	556	562	566	566	560	574	571	577	581	583	570
	332	459	469	479	463	479	485	478	493	492	493	499	481	487
	333	520	517	496	518	541	509	504	511	511	492	500	497	483
	334	337	339	335	333	334	328	330	332	343	347	341	342	342
	335	605	614	607	613	597	592	577	575	564				
	MEAN:	495	498	495	498	503	496	490	497	496	477	480	476	471
68	336	470	471	463	461	459	470	480	486	490	497	506	502	497
	337	472	490	496	495	485	488	483	488	491	500	475	479	469
	338	477	488	488	486	493	497	485	481	494	484	498	497	503
	339	567	568	570	574	556	541	518	502	458	431			
	340	471	464	477	486	486	481	492	492	490	501	503	507	508
	MEAN:	491	496	499	500	496	495	490	490	485	483	496	496	494
69	341	430	432	431	438	439	442	445	436	454	434	457	439	429
	342	481	488	483	488	502	494	482	502	503	498	502	508	487
	343	410	399	409	414	437	414	415	431	427	429	437	436	411
	344	571	570	569	576	571	564	571	564	564	566	571	565	554
	345	580	582	564	593	601	596	602	611	611	626	629	626	616
	MEAN:	494	494	491	502	510	502	503	509	512	511	519	515	499
70	346	656	643	649	631	608	610	605	582	588	561	569	549	540
	347													
	348	530	561	579	591	597	580	576	590	587	583	588	590	583
	349	485												
	350													
	MEAN:	574	612	614	611	603	595	591	586	588	572	579	570	562
GROUP SIZE =		64	63	63	63	62	62	62	61	61	60	59	59	57
GROUP MEAN :		516	518	522	526	530	528	526	532	532	531	535	533	532
MEAN CHANGE:			2	4	4	4	-3	-2	6	0	-1	4	-2	-1

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APPENDIX 2

(Bodyweights - continued)

GROUP	19													
CAGE	RAT		...WEEK...											
	NO.	79	80	81	82	83	84	85	86	87	88	89	90	91
64	316	592	587	582	593	599	595	592	572	584	543	480	440	400
	317	725	726	725	726	732	725	731	726	720	696	695	650	625
	318	671	684	677	681	690	701	692	701	702	700	681	687	677
	319	670	674	689	684	690	698	697	709	710	719	723	726	722
	320													
	MEAN:	665	668	668	671	678	680	678	677	679	665	645	626	606
65	321	433	439	440	443	440	439	425	416	418	405	391	391	371
	322	407	422	412	423	419	425	424	422	423	428	429	438	451
	323	545	546	550	560	568	583	581	598	575	594	573	588	594
	324	559	552	569	573	576	576	581	568	590	583	583	575	559
	325	635	632	655	641	658	672	664	688	668	686	683	692	697
	MEAN:	516	518	525	528	532	539	535	538	535	539	532	537	534
66	326	329	333	334	341	346	338	345	346	345	347	351	351	355
	327													
	328													
	329	587	598	588	589	595	575	585	578	577	591	573	567	561
	330	533	531	526	526	547	524	521	523	530	517			
	MEAN:	483	487	483	485	496	479	484	482	484	485	462	459	458
67	331	570	575	592	608	616	620	628	617	642	653	638	638	579
	332	498	486	500	504	509	507	507	508	516	515	522	523	534
	333	476	485	443	464	457	446	435	426	418	415	398	392	392
	334	342	347	347	354	358	347	352	354	374	361	360	372	368
	335													
	MEAN:	472	473	471	483	485	480	481	476	488	486	480	481	468
68	336	493	502	504	512	522	523	525	528	531	536	542	550	559
	337	460	462	444	448	449	444	429	440	412	405	395	401	388
	338	494	527	495	497	503	498	493	480	455	427	426	401	403
	339													
	340	513	502	512	526	520	524	527	524	520	518	514	512	512
	MEAN:	470	498	489	496	499	497	494	493	480	472	469	466	466
69	341	430	436	446	442	456	442	452	450	453	436	443	448	453
	342	491	507	515	523	524	523	523	503	543	520	522	540	532
	343	435	433	425	442	442	459	459	474	493	482	490	499	
	344	557	562	571	595	585	596	590	598	607	582	569	597	599
	345	632	671	645	650	659	671	670	684	687	666	678	695	681
	MEAN:	509	522	520	530	533	538	539	542	557	537	544	556	566
70	346	559	551	559	555	536	539	517	514	494	476	460	372	
	347													
	348	592	600	599	606	599	617	618	619	631	633	648	651	657
	349													
	350													
	MEAN:	576	576	579	581	568	578	568	567	563	555	554	512	657
GROUP SIZE =		55	55	55	54	54	54	54	54	54	53	51	51	48
GROUP MEAN :		531	535	535	536	539	539	540	541	541	537	535	532	527
MEAN CHANGE:			4	0	1	3	0	1	1	0	-4	-2	-3	-5

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	19 RAT NO.	92	...WEEK... 93	94	95	96	97	98	99	100	101	102	103	104
64	316	360												
	317	604	590	565										
	318	667	675	672	665	648	651							
	319	726	740	733	736	720	675	715	718	699	695	677	679	665
	320													
	MEAN:	594	668	657	701	684	663	715	718	699	695	677	679	665
65	321	368	346	338	325									
	322	443	440	438	438	446	440	451	432	457	443	450	440	395
	323	599	605	593	599	609	605	611	602	598				
	324	535	497	489	480	449	447	436	379					
	325	700	739	692	697	702	696	695	681	679	677	678	656	661
	MEAN:	529	519	510	508	552	547	548	524	578	560	564	548	528
66	326	357	340	355	360	341	365	358	360	363	365	370	365	370
	327													
	328													
	329	547	504	512										
	330													
	MEAN:	452	422	434	360	341	365	358	360	363	365	370	365	370
67	331	511	461	412										
	332	538	538	555	538	531	540	535	538	527	521	527	494	515
	333	405	396	387	378	355	325	295						
	334	379	375	382	372	369	381	376	376	375	373	371	346	370
	335													
	MEAN:	458	443	434	429	418	415	402	457	451	447	449	420	443
68	336	553	564	569	554	560	578	575	570	562	566	575	548	546
	337	404	382	383	365	374	361	372	366	359				
	338	408	416	387	399	417	431	426	425	410	359	367		
	339													
	340	490	433	442	390									
	MEAN:	464	449	445	427	450	457	458	454	444	463	471	548	546
69	341	461	454	443	448	427	408	382	363	340				
	342	542	541	542	553	560	556	569	570	567	569	557	549	563
	343													
	344	600	605	597	608	593	599	586	581					
	345	706	707	708	710	719	725	730	733	737	743	740	712	741
	MEAN:	577	577	573	580	575	573	567	562	548	656	649	631	652
70	346													
	347													
	348	655	644	626	632	627	635	618	627	628	610	615	588	625
	349													
	350													
	MEAN:	655	644	626	632	627	635	618	627	628	610	615	588	625
GROUP SIZE =		46	44	44	39	37	36	34	33	30	27	25	23	21
GROUP MEAN :		528	527	524	520	523	532	523	519	516	519	520	517	525
MEAN CHANGE:			-1	-4	-4	3	9	-9	-3	-3	3	1	-3	8

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(Bodyweights - continued)

GROUP CAGE	19 RAT NO.	...WEEK... 105	106	107	108	109	110
64	316						
	317						
	318						
	319	674	661				
	320						
	MEAN:	674	661				
65	321						
	322	343					
	323						
	324						
	325	655	640				
	MEAN:	499	640				
66	326	382	378				
	327						
	328						
	329						
	330						
	MEAN:	382	378				
67	331						
	332	518	509				
	333						
	334	370	367				
	335						
	MEAN:	444	438				
68	336	541	552				
	337						
	338						
	339						
	340						
	MEAN:	541	552				
69	341						
	342	551	563				
	343						
	344						
	345	703	718				
	MEAN:	627	641				
70	346						
	347						
	348						
	349						
	350						
	MEAN:						
GROUP SIZE =		20	19	0	0	0	0
GROUP MEAN :		512	516	-	-	-	-
MEAN CHANGE:			3	-	-	-	-

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	2 ♀ RAT NO.	...WEEK... -3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
71	351	104	141	166	192	211	226	242	254	264	273	279	285	286	286	306	304	306
	352	109	149	177	207	232	252	262	273	281	291	294	295	304	312	310	321	322
	353	121	159	192	216	232	242	264	272	276	282	292	296	291	302	314	310	309
	354	136	169	196	216	239	254	269	294	311	311	319	325	339	344	352	362	364
	355	142	158	184	211	229	241	251	256	272	274	279	285	289	291	295	297	300
	MEAN:	122	155	183	208	229	243	258	270	281	286	293	297	302	307	315	319	320
72	356	107	134	156	175	189	199	219	231	234	251	252	259	252	260	270	268	274
	357	111	132	162	185	191	211	222	231	232	242	251	255	256	266	269	274	271
	358	121	152	177	195	211	231	239	252	259	276	276	280	286	294	300	298	304
	359	132	156	202	233	262	286	304	319	321	352	356	360	371	379	376	382	384
	360	140	144	169	185	204	222	239	246	256	264	276	270	281	291	300	296	302
	MEAN:	122	144	173	195	211	230	245	256	260	277	282	285	289	298	303	304	307
73	361	114	149	174	196	209	226	242	252	264	272	272	283	286	292	294	303	304
	362	136	156	186	203	221	234	249	256	254	271	272	273	279	291	298	297	272
	363	92	129	154	175	197	214	232	239	249	256	254	270	272	276	300	316	302
	364	128	169	209	240	269	292	304	321	339	349	351	358	369	381	399	392	388
	365	139	172	204	228	252	272	284	299	309	322	321	321	341	351	349	348	356
	MEAN:	122	155	185	208	230	248	262	273	283	294	294	301	309	318	328	331	324
74	366	128	154	182	199	219	236	244	252	264	272	291	279	282	294	300	294	300
	367	105	139	176	205	221	239	259	276	289	300	311	311	323	322	342	340	352
	368	138	170	202	212	232	249	259	269	281	285	291	290	299	304	304	298	309
	369	147	179	215	240	276	291	302	319	334	352	361	354	369	384	379	379	388
	370	115	157	189	212	242	269	286	302	319	341	358	359	371	393	406	404	419
	MEAN:	127	160	193	214	238	257	270	284	297	310	322	319	329	339	346	343	354
75	371	124	149	182	204	219	232	252	269	276	284	302	300	302	302	324	328	326
	372	83	112	144	167	186	202	212	224	232	246	244	245	252	262	269	266	268
	373	132	146	171	176	182	199	209	212	219	232	232	239	242	251	259	262	261
	374	142	166	200	215	224	244	264	275	281	294	300	300	304	312	322	324	322
	375	121	182	202	238	256	271	286	296	311	322	331	336	361	374	369	362	364
	MEAN:	120	151	180	200	213	230	245	255	264	276	282	284	292	300	309	308	308
76	376	132	142	191	204	216	232	252	262	269	276	281	284	286	291	299	305	309
	377	129	149	199	227	259	279	291	304	329	342	354	351	369	371	386	386	394
	378	109	136	187	216	239	261	282	287	291	306	315	325	326	329	349	347	352
	379	97	116	162	184	197	214	229	244	256	264	274	276	281	282	294	295	300
	380	144	156	200	223	249	266	276	292	306	304	324	337	335	346	356	365	371
	MEAN:	122	140	188	211	232	250	266	278	290	298	310	315	319	324	337	340	345
77	381	105	146	169	197	211	226	236	252	261	263	264	273	276	282	284	288	294
	382	111	142	176	201	214	234	254	259	262	282	291	287	291	300	305	310	311
	383	129	152	181	207	216	232	239	252	259	261	262	268	271	276	280	284	284
	384	136	176	192	217	236	252	276	274	294	294	296	305	300	331	329	327	334
	385	139	156	184	204	214	231	249	254	259	274	276	273	274	276	286	285	300
	MEAN:	124	154	180	205	218	235	251	258	267	275	278	281	282	293	297	299	305

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	2♀ RAT NO.	14	...WEEK... 15	16	17	18	19	20	21	22	23	24	25	26
71	351	306	308	317	318	310	323	324	328	328	335	336	342	348
	352	328	327	334	333	336	343	337	350	343	344	350	359	360
	353	314	315	310	307	308	315	325	322	336	351	362	350	348
	354	371	367	380	377	379	390	390	402	426	401	406	416	421
	355	300	298	308	301	300	305	308	318	314	308	317	324	326
	MEAN:	324	323	330	327	327	335	337	344	349	348	354	358	361
72	356	273	278	276	281	285	283	288	295	297	288	308	297	303
	357	274	278	273	276	277	281	280	284	289	286	294	300	306
	358	310	303	307	311	298	304	305	316	312	306	318	323	328
	359	389	411	408	398	394	397	388	391	389	397	399	410	419
	360	308	305	307	300	298	299	297	308	311	311	315	319	323
	MEAN:	311	315	314	313	310	313	312	317	320	318	327	330	336
73	361	309	306	306	307	310	317	322	312	341	348	354	358	359
	362	302	311	304	306	309	310	312	323	358	338	336	356	357
	363	308	302	300	322	332	327	316	322	328	328	329	342	344
	364	404	399	397	396	398	407	404	417	419	431	449	447	447
	365	360	359	353	355	361	367	351	360	382	387	384	385	393
	MEAN:	337	335	332	337	342	346	341	347	366	366	370	378	380
74	366	309	307	302	303	302	308	309	312	307	319	321	326	337
	367	354	354	361	358	363	358	361	369	382	387	395	414	412
	368	311	307	309	311	310	310	319	317	313	325	321	327	334
	369	396	389	380	387	387	396	397	392	393	409	413	434	433
	370	436	431	431	436	449	458	452	459	483	472	478	495	498
	MEAN:	361	358	357	359	362	366	368	370	376	382	386	399	403
75	371	341	340	342	341	343	348	347	356	361	356	356	369	373
	372	275	272	276	275	275	282	284	285	281	286	287	295	298
	373	269	268	263	269	266	269	272	282	276	299	286	290	298
	374	329	310	328	324	329	336	341	346	346	348	347	355	363
	375	371	362	398	399	390	401	400	392	411	436	436	456	460
	MEAN:	317	310	321	322	321	327	329	332	335	345	342	353	358
76	376	312	314	316	311	312	318	320	321	323	335	339	345	345
	377	409	405	399	402	405	398	398	410	415	408	415	433	445
	378	354	350	354	356	347	358	369	364	378	381	384	400	405
	379	300	300	304	308	307	311	311	314	318	324	323	334	336
	380	379	375	386	397	391	393	408	419	418	423	436	444	438
	MEAN:	351	349	352	355	352	356	361	366	370	374	379	391	394
77	381	296	289	293	291	289	294	293	302	298	304	301	313	316
	382	314	314	314	324	327	322	317	323	334	321	332	336	341
	383	284	283	287	301	315	289	292	292	290	297	296	300	303
	384	336	348	348	340	352	351	367	380	376	394	411	412	417
	385	302	304	298	286	295	289	292	297	301	307	306	319	315
	MEAN:	306	308	308	308	316	309	312	319	320	325	329	336	338

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	29 RAT NO.	27	28	29	30	31	32	33	34	35	36	37	38	39
		...WEEK...												
71	351	358	355	370	377	382	383	388	394	400	406	419	419	414
	352	361	364	372	363	366	367	372	374	380	387	389	380	367
	353	343	336	342	346	352	366	364	371	375	383	378	394	390
	354	416	426	445	448	454	467	465	472	480	485			
	355	322	325	326	322	332	332	326	319	326	334	329	340	324
	MEAN:	360	363	371	371	377	383	383	386	392	399	379	383	374
72	356	305	316	317	314	314	315	315	320	323	328	336	335	333
	357	297	295	306	306	303	308	309	302	313	317	327	323	325
	358	323	334	338	340	346	348	350	353	354	365	370	380	382
	359	420	427	431	435	437	439	445	435	443	448	451	460	458
	360	313	320	325	324	326	332	333	337	333	337	347	346	345
	MEAN:	332	333	343	344	345	348	350	349	353	359	366	369	369
73	361	370	372	375	378	387	393	394	394	395	407	434	423	416
	362	355	364	369	376	371	392	387	382	385	390	397	406	405
	363	340	339	342	346	351	357	353	358	357	377	386	385	388
	364	442	447	449	444	448	462	454	445	458	478	473	468	468
	365	396	394	398	401	406	400	397	399	401	412	415	419	443
	MEAN:	381	383	387	389	393	401	397	396	399	413	421	420	424
74	366	341	349	352	351	357	360	360	358	367	368	372	378	375
	367	423	431	434	446	449	447	445	440	463	466	467	481	483
	368	328	330	334	331	329	332	325	327	314	333	336	345	338
	369	434	449	447	450	449	457	448	454	473	475	484	491	488
	370	506	524	534	538	351	560	556	556	577	586	597	602	600
	MEAN:	406	417	420	423	427	431	427	427	439	446	451	459	457
75	371	366	403	416	411	406	421	405	432	415	414	419	409	412
	372	299	299	299	300	296	309	305	306	305	311	329	318	321
	373	293	303	307	305	302	309	307	312	312	314	325	314	316
	374	361	370	367	369	364	376	374	380	380	387	401	392	395
	375	461	433	480	492	472	496	491	501	503	510	527	518	526
	MEAN:	356	373	374	375	368	382	376	386	383	387	400	390	394
76	376	345	354	362	352	351	358	360	353	360	362	382	366	367
	377	440	452	463	457	466	472	474	469	485	478	470	494	495
	378	405	413	417	425	430	436	430	436	439	434	450	450	448
	379	331	317	338	343	340	342	345	347	348	351	359	362	360
	380	445	463	475	423	489	496	510	508	519	526	546	540	544
	MEAN:	393	401	411	412	415	421	424	423	430	430	441	442	443
77	381	313	321	319	318	318	322	315	325	327	330	337	334	337
	382	336	344	333	337	340	343	344	347	358	357	359	363	367
	383	316	308	306	305	303	303	299	301	303	308	310	308	296
	384	412	416	425	408	405	415	415	426	423	440	454	446	446
	385	316	323	321	324	325	330	329	329	333	338	341	351	352
	MEAN:	339	342	341	338	338	343	340	346	349	355	360	360	360

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	29 RAT NO.	40	...WEEK... 41	42	43	44	45	46	47	48	49	50	51	52
71	351	426	433	444	457	455	458	479	480	479	487	496	496	514
	352	392	390	395	400	405	410	406	413	412	419	423	427	432
	353	401	406	408	406	410	421	426	433	429	436	424	411	439
	354													
	355	363	352	346	352	351	354	354	357	362	356	358	359	361
	MEAN:	376	395	398	404	405	411	416	421	421	425	425	423	437
72	356	338	343	343	350	352	352	349	355	359	369	366	370	374
	357	329	338	335	332	342	352	349	342	354	344	352	376	381
	358	372	377	394	396	392	404	409	411	412	419	423	422	427
	359	465	471	476	481	482	484	486	491	497	492	495	515	527
	360	350	351	356	370	367	371	386	383	392	391	396	398	406
	MEAN:	375	380	381	386	387	393	396	396	403	403	406	416	423
73	361	435	429	428	443	441	442							
	362	408	411	417	425	435	434	442	446	456	450	465	457	466
	363	390	398	394	407	411	396	415	419	420	428	432	445	444
	364	478	473	476	493	499	509	520	514	521	525	533	541	543
	365	457	449	464	466	475	479	504	498	511	520	539	535	548
	MEAN:	434	432	436	447	452	452	470	469	477	481	492	495	500
74	366	387	396	386	385	379	381	396	394	402	418	425	417	418
	367	490	495	508	509	519	522	533	546	556	567	577	585	585
	368	341	342	348	360	354	359	362	370	370	374	373	379	383
	369	492	511	516	519	529	538	551	555	561	567	585	578	584
	370	609	620	630	619	642	638	649	643	652	652	651	667	667
	MEAN:	464	473	478	478	485	488	498	502	508	516	522	525	527
75	371	409	416	418	440	439	443	441	449	456	461	466	473	477
	372	328	328	336	337	337	337	337	344	351	349	351	356	358
	373	321	326	321	316	324	330	330	331	332	337	340	337	338
	374	399	408	410	410	417	420	424	428	430	440	433	428	440
	375	536	548	545	551	556	547	572	580	582	589	583	599	595
	MEAN:	399	405	406	411	415	415	421	426	430	435	435	439	442
76	376	370	372	381	389	398	404	401	411	411	420	424	424	423
	377	501	505	527	539	539	553	554	573	574	581	592	594	602
	378	461	449	450	465	467	470	480	483	483	504	502		
	379	362	371	374	381	386	392	391	398	404	401	409	403	404
	380	548	564	568	572	580	587	570	608	611	628	629	630	639
	MEAN:	448	452	460	469	474	481	479	495	497	507	511	513	517
77	381	340	342	345	349	354	371	367	371	370	373	368	353	377
	382	360	375	375	376	375	382	382	390	391	402	401	387	400
	383	312	317	316	313	319	320	317	318	314	315	326	307	316
	384	449	459	464	472	471	479	474	474	480	488	486	469	489
	385	353	356	376	381	379	389	399	409	420	424	443	425	431
	MEAN:	353	370	375	378	330	388	388	392	395	400	405	388	403

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	29 RAT NO.	53	54	55	56	57	58	59	60	61	62	63	64	65
			...WEEK...											
71	351	524	526	506	519	512	521	520	534	544	542	549	554	564
	352	434	432	431	439	450	455	454	451	468	468	480	485	500
	353	445	449	442	445	468	462	457	452	465	452	469	475	474
	354													
	355	371	375	362	375	381	384	376	379	381	383	381	369	360
	MEAN:	444	445	435	445	453	456	452	454	465	461	470	471	475
72	356	372	377	376	385	397	389	393	393	397	398	401	400	408
	357	373	379	367	387	378	388	399	389	396	392	395	403	400
	358	424	433	426	436	449	452	464	464	466	474	485	479	484
	359	522	525	518	531	539	543	543	543	550	547	560	569	562
	360	404	406	400	404	406	409	414	416	428	435	436	449	460
	MEAN:	419	424	417	429	434	436	443	441	447	449	455	460	463
73	361													
	362	470	469	478	480	491	502	504	497	502	509	509	529	531
	363	446	436	449	444	448	456	458	460	461	468	483	469	477
	364	542	542	555	553	550	567	568	574	574	590	586	599	599
	365	544	552	545	566	570	582	584	583	590	594	599	607	611
	MEAN:	501	505	507	511	515	527	529	529	532	540	544	551	555
74	366	444	447	438	435	441	440	450	445	452	463	463	473	475
	367	598	606	610	615	617	615	622	633	642	657	658	667	675
	368	389	390	388	391	404	413	420	422	422	434	439	461	454
	369	588	590	598	596	616	605	622	625	638	626	642	641	642
	370	675	688	690	693	705	706	713	723	729	736	749	760	767
	MEAN:	539	544	545	546	557	556	565	570	577	583	590	600	603
75	371	476	474	487	495	482	489	480	496	485	487	487	490	490
	372	365	369	364	376	378	371	371	380	378	388	408	403	403
	373	340	339	340	345	352	350	353	353	365	358	360	358	360
	374	442	440	434	450	450	459	461	461	465	461	470	470	475
	375	610	597	609	613	617	622	625	632	626	633	642	650	653
	MEAN:	447	444	447	456	456	458	458	464	464	465	473	474	476
76	376	429	434	423	436	440	433	437	450	455	459	468	470	474
	377	599	606	603	598	611	600	628	626	639	642	658	673	672
	378													
	379	415	419	433	425	433	442	443	440	439	436	454	473	468
	380	651	651	634	654	658	675	662	663	668	668	676	685	690
	MEAN:	524	528	523	528	536	538	543	545	550	551	564	575	576
77	381	385	400	394	391	405	414	414	409	416	429	425	431	441
	382	405	407	411	416	417	420	423	417	423	426	438	430	429
	383	319	325	319	330	336	343	342	342	347	341	342	345	349
	384	502	506	496	502	502	514	515	505	512	528	522	514	524
	385	441	466	457	464	471	484	479	485	487	491	487	499	499
	MEAN:	410	421	415	421	426	435	435	432	437	443	443	444	448

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(Bodyweights - continued)

GROUP CAGE	29 RAT NO.	66	67	68	69	70	71	72	73	74	75	76	77	78
			...WEEK...											
71	351	572	581	582	584	584	582	586	598	596	590	593		
	352	500	500	503	519	515	525	513	507	509	518	519	517	510
	353	472	482	486	482	483	476	471	457	477	462	462	466	453
	354													
	355	361	364	367	372	345								
	MEAN:	476	482	485	489	482	528	523	521	527	523	525	492	482
72	356	419	420	418	426	432	437	431	444	448	479	440	445	443
	357	404	402	408	408	416	420	413	427	435	451	429	432	425
	358	497	488	503	510	506	517	505	514	522	502	512	510	505
	359	568	581	579	592	600	598	591	610	618	615	616	624	619
	360	472	461	454	456	469	477	465	483	468	476	475	469	477
	MEAN:	472	470	472	478	485	490	481	496	498	505	494	496	494
73	361													
	362	518	541	550	558	557	549	553	565	564	566	574	577	575
	363	461	486	497	491	506	492	505	518	514	521	521	525	533
	364	591	599	617	622	626	622	628	628	633	626	633	640	640
	365	601	620	622	622	634	636	641	647	663	658	652	657	665
	MEAN:	543	562	572	573	581	575	582	590	594	593	595	600	603
74	366	487	479	486	483	489	484	489	507	507	512	519	523	525
	367	682	693	697	691	698	694	707	721	730	723	740	737	735
	368	458	463	477	471	474	494	492	489	507	508	507	523	511
	369	653	653	648	654	663	665	656	653	652	656	645	650	637
	370	774	785	792	764	781	783	794	794	805	802	803	808	813
	MEAN:	611	615	620	613	621	624	628	633	640	640	643	648	644
75	371	487	492	492	506	512	511	504	505	505	491	503	518	502
	372	410	405	423	411	428	429	425	435	433	436	447	438	441
	373	355	363	365	373	372	370	373	374	385	391	389	388	388
	374	485	506	496	491	498	491	504	495	503	502	502	511	509
	375	640	663	669	668	685	677	688	696	698	692	701	709	715
	MEAN:	475	486	489	490	499	496	499	501	505	502	508	513	511
76	376	482	469	480	482	469	472	460	472	477	464	475	483	473
	377	688	699	708	723	735	740							
	378													
	379	483	490	483	498	507	501	515	527	539	538	556	547	559
	380	698	702	716	717	725	720	717	728	718	721	724	714	719
	MEAN:	588	590	597	605	609	608	564	576	578	574	585	581	584
77	381	435	446	451	454	458	455	465	471	473	468	482	475	479
	382	440	440	458	444	458	463	454	466	460	465	463	464	464
	383	351	356	359	360	360	365	368	365	368	365	364	359	364
	384	527	549	542	545	545	537	550	535	547	547	533	544	524
	385	503	516	521	522	527	533	525	531	546	546	546	557	555
	MEAN:	451	461	466	465	470	471	472	474	479	478	478	480	477

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(Bodyweights - continued)

GROUP 29 CAGE	RAT NO.	79	...WEEK... 80	81	82	83	84	85	86	87	88	89	90	91
71	351													
	352	518	522	515	524	530	522	520	526	538	521	526	529	531
	353	459	465	459	460	465	459	462	449	437	422	394	367	362
	354													
	355													
	MEAN:	489	494	487	492	498	491	491	488	488	472	460	448	447
72	356	439	436	448	454	451	450	467						
	357	436	440	429	437	434	440	455	441	455	463	471	473	469
	358	503	509	510	522	521	532	525	526	511	500	457	473	533
	359	619	614	623	618	608	608	574	594	618	617	585		
	360	476	478	481	490	485	493	497	496	500	511	506	508	507
	MEAN:	495	495	498	504	500	505	504	514	521	523	505	485	503
73	361													
	362	579	585	591	590	601	599	596	609	611	612	613	620	621
	363	537	534	541	542	536	552	555	556	563	557	545	563	572
	364	648	657	657	666	672	684	682	686	683	683	683	688	665
	365	669	706	683	689	702	704	698	686	702	676	677	682	697
	MEAN:	608	621	618	622	628	635	633	634	640	632	630	638	644
74	366	527	518	523	522	529	547	534	544	547	561	571	573	565
	367	737	740	753	760	760	745	678	658	660	683	698	716	748
	368	521	539	530	535	530	534	528	538	531	540	546	549	551
	369	646	650	641	643	657	644	643	646	651	640	629	640	643
	370	822	806	856	874	870	872	879	888	841	871	883	872	894
	MEAN:	651	651	661	667	669	668	652	655	646	659	665	670	680
75	371	502												
	372	445	450	455	449	463	471	469	472	479	482	491	484	484
	373	402	395	385	388	398	399	386	397	420	432	430	440	448
	374	512	534	520	531	520	512	531	522	529	534	530	536	532
	375	730	745	755	745	760	751	754	756	765	772	781	793	805
	MEAN:	518	531	529	528	535	533	535	537	548	555	558	563	567
76	376	485	486	490	484	440	424	369	349					
	377													
	378													
	379	583												
	380	710	706	700	706	705	674	667	656	627	600	587	543	516
	MEAN:	593	596	595	595	573	549	518	503	627	600	587	543	516
77	381	473	483	488	489	491	501	513	500	518	516	530	530	542
	382	470	477	471	472	456	463	457	441	440	435	435	431	440
	383	376	378	362	385	383	378	379	385	387	392	388	388	393
	384	530	529	526	535	530	529	500	512	501	511	496	510	509
	385	558	576	587	588	604	602	608	615	620	629	631	647	664
	MEAN:	481	489	487	494	493	495	491	491	493	497	496	501	511

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(Bodyweights - continued)

GROUP CAGE	29 RAT NO.	...WEEK... 92	93	94	95	96	97	98	99	100	101	102	103	104
71	351													
	352	534	534	533	535	527	529	521	525	521	521	520	515	514
	353	317	303											
	354													
	355													
	MEAN:	426	419	533	535	527	529	521	525	521	521	520	515	514
72	356													
	357	465	474	474	472	489	491	475	481	494	495	480	497	
	358	543	540	536	540	545	557	562	570	575	582	581		
	359													
	360	513	507	509	510	512	520	515	493	498	494	499	483	497
	MEAN:	507	507	506	507	515	523	517	515	522	524	520	490	497
73	361													
	362	625	635	633	622	623	627	624	624	605	611	586	568	562
	363	582	575	573	575	584								
	364	694	705	694	701	716	715	691						
	365	671	635	600	593	553	523	447	455	415				
	MEAN:	643	636	625	623	619	622	587	540	510	611	586	568	562
74	366	558	567	556	571	585	590	597	602	597	609	608	617	631
	367	753	782	778	788	784	806	788	787	775	782	782	773	766
	368	554	556	560	558	568	577	575	580	562	570	580	581	577
	369	663	679	678	689	686	678	682	666	647	641	649	636	640
	370	891	924	927	947	943	955	954	969	950	953	963	970	972
	MEAN:	664	702	700	711	713	721	719	721	706	711	716	715	717
75	371													
	372	473	486	482	479	479	469	436	394					
	373	444	441	436	440	439	452	463	457	462	459	471	475	471
	374	543	539	533	535	531	546	547	545	540	541	546	546	556
	375	820	827	814	799	788	772	742	707	660	620	567	493	
	MEAN:	570	573	566	563	559	560	547	526	554	540	528	505	514
76	376													
	377													
	378													
	379													
	380	505	485	470	461	452	427							
	MEAN:	505	485	470	461	452	427							
77	381	547	553	551	553	561	569	562	556	551	556	548	550	556
	382	431	439	434	427	425	420	407	358	394	399	396	391	399
	383	399	406	400	401	409	412	407	409	403	411	418	407	412
	384	511	512	504	504	504	495	504	489	478	478	478	489	503
	385	666	664	656	656	628	587	581	558	574				
	MEAN:	511	515	509	508	505	497	492	474	480	461	460	459	468

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(Bodyweights - continued)

GROUP CAGE	29 RAT NO.	...WEEK... 105	106	107	108	109	110
71	351						
	352	522	510				
	353						
	354						
	355						
	MEAN:	522	510				
72	356						
	357						
	358						
	359						
	360	489	484				
	MEAN:	489	484				
73	361						
	362	556					
	363						
	364						
	365						
	MEAN:	556					
74	366	643	639				
	367	756	743				
	368	571	550				
	369	625	579				
	370	979	967				
	MEAN:	717	700				
75	371						
	372						
	373	477	486				
	374	546	553				
	375						
	MEAN:	512	520				
76	376						
	377						
	378						
	379						
	380						
	MEAN:						
77	381	563	556				
	382	391	392				
	383	421	432				
	384	507	530				
	385						
	MEAN:	471	478				

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(Bodyweights - continued)

GROUP CAGE	2♀ RAT NO.	...WEEK... -3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
78	386	96	126	166	174	186	202	214	229	234	246	239	255	257	270	276	282	282
	387	120	142	156	168	179	200	204	221	229	242	231	245	249	260	266	265	276
	388	122	162	186	215	229	252	259	272	278	284	276	290	294	299	302	304	306
	389	131	162	194	217	236	252	262	279	288	293	286	305	311	319	329	354	359
	390	140	179	219	241	262	281	286	300	311	322	311	330	342	351	360	356	364
	MEAN:	122	154	184	203	218	237	245	260	268	277	269	285	291	300	307	312	317
79	391	111	169	209	235	271	304	321	329	359	362	384	388	400	431	452	434	439
	392	134	152	176	196	209	222	237	249	268	264	269	273	279	281	294	298	294
	393	105	140	162	183	204	224	232	252	252	274	274	290	299	309	316	327	333
	394	127	160	182	207	229	234	242	256	269	271	278	288	289	296	306	309	322
	395	143	172	204	227	236	254	276	291	292	302	311	320	322	321	331	333	346
	MEAN:	124	159	187	210	230	248	262	275	288	295	303	312	318	328	340	340	347
80	396	121	156	184	217	234	254	269	282	299	304	310	320	329	341	344	357	362
	397	99	156	166	196	212	226	239	252	254	262	269	271	276	279	286	290	289
	398	137	168	194	216	226	236	262	269	276	284	294	294	298	306	311	309	314
	399	144	181	214	241	241	287	299	311	324	331	349	363	364	370	382	377	382
	400	119	164	187	214	232	252	258	284	284	303	300	310	321	340	334	335	341
	MEAN:	124	165	189	217	229	251	265	280	287	297	304	312	318	327	331	334	338
81	401	122	144	170	197	212	219	232	274	291	253	256	266	269	272	274	278	286
	402	99	146	172	196	214	222	241	252	259	271	282	290	289	300	314	317	324
	403	138	172	201	240	229	244	264	274	284	296	302	313	321	339	354	360	374
	404	150	174	200	215	232	236	242	269	269	272	292	288	291	300	300	304	311
	405	120	146	162	178	192	206	211	231	241	244	251	252	253	260	270	267	282
	MEAN:	126	156	181	205	216	225	238	260	269	267	277	282	285	294	302	305	315
82	406	134	152	181	196	214	224	246	246	254	261	264	265	272	279	286	291	294
	407	122	156	176	205	229	242	259	272	284	292	296	305	311	320	329	328	336
	408	120	149	172	200	212	224	232	251	259	271	276	280	284	295	309	318	324
	409	95	119	141	150	156	162	172	175	186	192	194	195	200	205	209	208	214
	410	141	172	204	236	262	288	309	312	338	342	361	366	376	382	404	400	414
	MEAN:	122	150	175	197	215	228	244	251	264	272	278	282	289	296	307	309	316
83	411	103	154	178	204	228	242	252	262	279	294	291	302	306	312	321	330	339
	412	112	154	186	211	241	252	274	279	299	316	319	310	329	339	349	345	359
	413	124	149	179	197	211	224	234	249	252	262	266	270	271	279	284	287	284
	414	132	164	192	210	232	249	276	286	300	303	314	319	322	339	342	347	351
	415	142	176	204	217	226	239	256	269	274	286	291	294	300	306	314	318	321
	MEAN:	123	159	188	208	228	241	258	269	281	292	296	299	306	315	322	325	331
84	416	90	128	162	181	206	221	229	246	249	271	272	261	270	276	281	285	279
	417	111	151	172	195	214	232	246	262	246	272	274	280	284	293	302	302	309
	418	121	156	176	195	211	226	236	244	252	271	269	265	274	291	292	294	300
	419	137	172	204	219	251	269	282	300	304	306	314	309	324	329	331	333	339
	420	141	174	191	200	221	236	242	249	256	264	264	272	279	289	290	284	282
	MEAN:	120	156	181	198	221	237	247	260	261	277	279	277	286	296	299	300	302
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		123	154	183	206	223	240	254	266	276	285	290	295	301	310	317	319	324
MEAN CHANGE:			31	29	22	18	17	14	12	9	9	5	5	6	9	8	2	4

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	29 RAT NO.	14	...WEEK... 15	16	17	18	19	20	21	22	23	24	25	26
78	386	288	287	293	298	294	306	301	298	310	311	311	317	319
	387	279	279	270	280	285	285	282	298	301	298	299	307	316
	388	314	310	312	313	310	315	311	324	328	331	337	333	340
	389	341	345	344	344	350	356	354	359	373	376	373	377	380
	390	365	366	377	380	364	375	373	374	372	385	399	389	391
	MEAN:	317	317	319	323	321	327	324	331	337	340	344	345	349
79	391	441	447	451	448	448	459	453	467	457	494	502	504	501
	392	302	301	309	305	302	305	305	308	310	309	305	322	318
	393	334	335	343	342	339	359	386	391	390	384	378	395	404
	394	323	315	322	329	322	332	331	337	334	338	357	355	353
	395	337	341	340	340	338	345	348	343	347	357	359	364	365
	MEAN:	347	348	353	353	350	360	365	369	368	376	380	388	388
80	396	371	366	372	371	371	377	381	396	393	394	405	428	429
	397	281	296	298	295	287	296	299	296	293	299	314	318	314
	398	322	321	354	338	331	329	347	329	327	331	328	339	341
	399	371	374	397	387	388	388	400	395	393	398	403	406	414
	400	349	350	358	348	359	357	356	358	362	362	360	376	399
	MEAN:	339	341	356	348	347	349	357	355	354	357	362	373	379
81	401	284	282	284	286	297	300	304	306	321	312	308	316	321
	402	323	331	340	340	339	339	351	359	355	363	362	370	373
	403	384	386	394	394	389	389	399	406	398	398	401	410	404
	404	316	315	320	316	314	317	317	318	327	329	325	334	341
	405	271	275	280	280	288	282	286	290	294	302	298	304	307
	MEAN:	316	318	324	323	325	325	331	336	339	341	339	347	349
82	406	306	306	304	299	302	306	301	303	312	320	308	323	327
	407	339	337	344	334	335	342	341	349	352	364	360	367	378
	408	334	323	332	333	329	334	331	338	347	347	364	384	387
	409	211	211	241	215	212	214	216	218	218	224	224	233	237
	410	418	421	433	433	415	422	426	427	428	447	445	465	475
	MEAN:	322	320	331	323	319	324	323	327	331	340	340	354	361
83	411	346	351	359	357	357	363	365	368	376	381	377	396	387
	412	361	369	374	364	369	371	377	383	397	409	406	429	430
	413	288	288	289	290	288	299	297	296	297	305	300	305	303
	414	356	357	361	362	373	377	373	366	382	380	382	410	403
	415	319	324	327	321	327	336	328	326	335	338	383	349	351
	MEAN:	334	338	342	339	343	349	348	348	357	363	370	378	375
94	416	283	283	286	287	289	293	295	296	312	300	298	304	306
	417	309	318	310	316	317	336	342	343	353	358	358	365	363
	418	296	299	299	304	306	318	322	326	323	327	323	337	323
	419	334	336	336	339	338	333	333	343	346	349	348	349	343
	420	291	292	288	291	300	299	297	302	308	313	305	314	312
	MEAN:	303	306	304	307	310	316	318	322	328	329	326	334	329
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		327	328	332	331	332	336	337	342	346	350	354	362	364
MEAN CHANGE:			0	4	0	1	4	2	4	5	4	3	8	3

APPENDIX 2

(Bodyweights - continued)

GROUP	42													
CAGE	RAT		...WEEK...											
	NO.	27	28	29	30	31	32	33	34	35	36	37	38	39
78	386	318	321	327	323	327	340	343	343	352	354	357	352	359
	387	307	313	312	307	300	318	316	314	323	314	326	331	321
	388	337	339	347	340	341	349	350	354	363	372	377	378	376
	389	371	381	380	383	385	396	396	416	408	407	409	419	421
	390	398	401	398	400	404	404	412	398	423	426	431	433	438
	MEAN:	346	351	353	351	351	361	363	365	374	375	380	383	383
79	391	503	509	466	495	489	494	519	533	529	522	537	549	562
	392	316	324	322	319	325	330	331	311	332	340	334	335	338
	393	400	391	365	390	402	414	413	411	416	420	425	423	431
	394	355	358	359	365	360	369	368	372	384	384	387	389	397
	395	366	380	377	381	373	382	375	381	378	381	397	396	385
	MEAN:	358	392	366	390	390	398	401	402	408	409	416	416	423
80	396	427	449	448	445	447	459	466	469	481	497	506	517	523
	397	305	308	309	317	319	333	333	336	340	347	355	352	355
	398	336	339	345	347	346	354	354	348	356	360	367	371	372
	399	414	431	420	413	424	403	404	412	423	433	441	425	431
	400	404	408	414	416	408	413	426	410	417	425	432	445	436
	MEAN:	377	387	387	388	389	392	397	395	403	412	420	422	423
81	401	325	333	328	318	314	326	338	344	341	342	336	337	337
	402	372	377	378	386	376	395	386	392	407	415	428	429	438
	403	428	429	428	435	442	445	446	451	461	485	487	489	494
	404	346	353	353	350	354	358	356	361	365	371	372	372	375
	405	308	310	312	314	317	324	323	323	325	327	339	338	343
	MEAN:	356	360	360	361	361	370	370	374	380	388	392	393	397
82	406	314	321	314	331	330	333	332	345	343	344	354	348	351
	407	381	375	371	382	389	406	392	394	394	398	398	408	404
	408	363	368	359	379	393	403	405	412	419	429	438	441	440
	409	228	237	224	231	234	227	232	238	240	237	239	245	245
	410	484	486	478	492	507	513	502	521	518	528	535	543	541
	MEAN:	354	357	349	363	371	376	373	382	383	387	393	397	396
83	411	387	386	409	398	404	415	419	421	427	426	438	441	445
	412	439	450	464	470	480	488	489	510	501	515	522	536	545
	413	304	306	307	305	308	317	309	313	317	319	327	325	329
	414	410	404	409	410	429	436	439	439	451	460	456	453	451
	415	346	349	355	344	355	349	359	383	385	381	376	368	378
	MEAN:	377	379	389	385	395	401	403	413	416	420	424	425	430
84	416	321	309	318	315	315	322	321	324	319	325	326	327	332
	417	365	360	359	363	369	376	381	388	388	400	400	397	407
	418	332	335	345	359	364	371	381	402	417	430	415	417	410
	419	359	361	363	363	365	369	377	379	385	394	402	412	418
	420	326	342	343	325	332	330	328	329	326	332	335	343	351
	MEAN:	341	341	346	345	349	354	358	364	367	376	376	379	384
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	69	69	69
GROUP MEAN :		365	370	373	374	376	383	383	386	391	397	402	403	404
MEAN CHANGE:			6	2	1	2	7	0	3	5	6	5	1	1

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APPENDIX 2

(Bodyweights - continued)

GROUP 29

CAGE	RAT NO.	40	41	42	43	44	45	46	47	48	49	50	51	52
		...WEEK...												
73	336	369	370	375	356	378	372	390	392	402	412	408	411	418
	367	341	336	336	345	347	352	351	354	357	354	356	357	367
	388	330	386	390	401	399	410	414	423	428	431	431	439	446
	389	422	425	427	432	435	441	450	449	456	445	442	440	445
	390	445	458	454	462	468	464	460	467	472	478	477	492	496
	MEAN:	391	395	396	399	405	408	413	417	423	424	423	428	434
79	391	552	549	566	522	545	548	537	557	561	582	579	581	576
	392	353	355	358	348	362	369	374	378	380	380	386	370	374
	393	435	440	438	428	455	462	459	471	472	482	484	498	507
	394	404	405	411	391	422	422	423	426	430	440	447	444	434
	395	395	398	398	381	402	402	395	406	401	415	417	426	437
	MEAN:	428	429	434	414	437	441	438	448	449	460	463	464	466
80	396	524	538	544	548	568	570	581	599	604	609	602	611	618
	397	358	361	366	364	379	382	387	381	396	397	399	401	413
	398	380	381	387	392	395	402	410	417	421	427	432	435	444
	399	438	433	429	427	433	436	435	434	432	428	424	441	446
	400	432	435	448	452	457	469	470	468	471	489	496	503	507
	MEAN:	426	430	435	437	446	452	457	460	465	470	471	478	486
81	401	345	347	356	359	366	365	371	368	362	371	373	379	386
	402	440	443	445	457	467	468	487	486	484	495	507	500	498
	403	486	500	511	513	516	502	500	518	512	538	532	543	536
	404	384	376	385	386	392	395	396	398	400	403	411	407	403
	405	331	343	351	348	352	349	352	359	362	367	370	367	365
	MEAN:	401	402	410	413	419	416	421	426	424	435	439	439	438
82	406	356	365	372	382	386	390	401	402	409	417	421	423	423
	407	410	413	408	415	413	420	430	437	450	446	460	453	460
	408	448	456	465	479	487	471	481	493	502	519	523	525	523
	409	241	246	248	251	251	251	252	255	257	258	261	270	262
	410	553	569	577	575	570	556	586	585	584	616	630	635	630
	MEAN:	402	410	414	420	421	418	430	434	440	451	459	461	460
83	411	446	449	460	473	464	481	478	477	484	478	481	502	498
	412	551	565	576	588	601	606	611	607	629	616	615	649	654
	413	337	329	334	327	332	331	335	337	339	332	341	351	348
	414	463	475	466	479	479	469	478	482	480	484	492	509	502
	415	372	377	381	376	382	383	414	404	412	399	418	428	418
	MEAN:	434	439	443	449	452	454	463	461	469	462	469	488	484
84	416	340	336	335	332	336	333	340	343	346	344	354	354	354
	417	413	415	407	416	411	416	420	425	437	419	430	423	434
	418	410	408	372	351	319	327	329	303					
	419	424	434	438	435	429	433	439	441	452	447	450	446	445
	420	368	364	362	355	379	387	402	408	412	403	415	430	423
	MEAN:	391	392	383	378	375	379	386	384	412	403	412	413	414
GROUP SIZE =		69	69	69	69	69	69	68	68	67	67	67	66	66
GROUP MEAN :		411	415	418	420	425	428	434	438	444	448	453	455	459
MEAN CHANGE:			4	3	2	5	3	5	4	6	4	4	2	4

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	29 RAT NO.	53	54	55	56	57	58	59	60	61	62	63	64	65
		...WEEK...												
78	386	419	427	419	437	458	453	449	444	456	477	478	479	495
	387	364	367	360	371	376	378	385	388	391	393	399	395	408
	388	445	445	429	447	453	456	453	455	454	455	458	460	460
	389	447	448	429	448	448	448	455	463	477	476	486	482	491
	390	489	494	487	505	501	507	506	507	520	520	521	520	521
	MEAN:	433	436	425	442	447	448	450	451	460	464	468	467	475
79	391	593	602	598	590	619	623	628	634	636	653	649	665	660
	392	382	386	384	400	407	408	403	406	408	410	419	436	441
	393	524	524	517	553	543	555	558	569	567	571	587	588	599
	394	455	465	451	470	478	481	482	490	491	496	509	509	517
	395	428	428	424	435	438	440	437	438	463	449	468	457	454
	MEAN:	476	481	475	490	497	501	502	507	509	516	526	531	534
80	396	627	615	611	613	621	616	628	635	640	651	655	658	668
	397	417	409	410	425	423	431	428	435	440	437	444	436	444
	398	446	451	452	454	460	464	472	475	481	489	500	510	526
	399	450	453	448	457	461	467	471	481	480	478	479	479	479
	400	518	517	513	514	517	535	522	521	534	527	533	533	541
	MEAN:	492	489	487	493	496	503	504	509	515	516	522	523	532
81	401	378	363	381	382	388	393	392	402	394	396	414	409	399
	402	503	501	507	522	529	532	526	542	544	539	560	570	561
	403	547	551	562	557	562	559	570	561	584	591	597	611	594
	404	407	423	425	429	438	438	434	445	442	456	450	460	455
	405	371	373	381	388	398	404	409	415	409	408	408	409	400
	MEAN:	441	446	451	456	463	465	466	473	475	478	486	492	482
82	406	429	427	426	430	436	443	452	453	455	461	466	471	468
	407	465	465	463	473	471	470	477	474	478	477	485	478	484
	408	535	527	523	542	559	566	552	567	565	578	582	586	576
	409	268	269	264	270	271	274	274	279	280	295	286	286	288
	410	639	633	636	644	669	667	680	680	692	698	710	724	711
	MEAN:	467	464	463	472	481	484	487	491	494	502	506	509	505
83	411	508	516	507	511	522	545	543	549	550	575	580	580	579
	412	666	667	651	684	676	677	691	693	678	689	708	705	709
	413	359	360	356	372	370	372	382	376	370	382	391	394	393
	414	516	517	508	515	528	530	533	535	537	558	556	556	554
	415	427	422	427	438	445	453	452	456	453	464	454	465	470
	MEAN:	495	496	490	504	508	515	520	522	518	534	538	540	541
84	416	360	363	352	370	391	373	379	383	384	385	385	394	396
	417	447	439	449	437	451	454	447	462	457	463	458	466	471
	418													
	419	460	461	465	461	466	468	476	478	484	479	487	501	497
	420	431	434	435	439	435	439	443	441	442	464	472	468	472
	MEAN:	425	424	425	427	436	434	436	441	442	448	451	457	459
GROUP SIZE =		66	66	66	66	66	66	66	66	66	66	66	66	66
GROUP MEAN :		465	467	464	472	479	482	485	487	491	496	502	506	508
MEAN CHANGE:			3	-3	8	6	4	2	3	4	5	6	4	2

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	29 RAT NO.	66	67	68	69	70	71	72	73	74	75	76	77	78
			...WEEK...											
78	386	496	490	510	506	523	529	526	536	541	554	555	555	558
	387	409	413	418	417	422	418	423	428	434	441	448	455	446
	388	467	469	473	470	473	471	470	467	476	484	475	483	476
	389	489	490	496	495	501	498	496	506	502	507	499	497	490
	390	533	527	530	523	542	524	533	541	545	542	536	538	539
	MEAN:	479	473	485	482	492	488	490	496	500	506	503	506	502
79	391	654	671	677	683	682	688	678	685	698	683	691	693	675
	392	444	438	427	426	446	437	445	446	452	444	451	456	443
	393	606	625	617	625	631	621	630	635	647	638	659	649	632
	394	517	535	525	530	556	554	564	572	574	577	580	577	585
	395	464	465	473	471	478	478	461	488	483	479	480	479	491
	MEAN:	537	547	544	547	559	556	556	565	571	564	572	571	569
80	396	657	671	691	687	704	701	707	723	720	718	719	716	718
	397	438	423	436	442	453	458	455	463	466	465	471	472	474
	398	514	520	514	531	561	539	550	568	571	575	582	592	597
	399	498	498	499	502	507	511	503	508	507	511	507	503	511
	400	553	546	561	569	553	556	571	566	585	582	587	590	598
	MEAN:	532	533	540	546	556	553	557	566	570	570	573	575	580
81	401	408	415	421	415	434	416	436	430	455	427	445	427	442
	402	577	586	600	603	604	612	616	619	632	655	652	651	649
	403	629	636	641	632	650	662	657	674	682	671	670	669	657
	404	464	473	477	471	481	486	477	490	501	494	496	505	500
	405	425	429	429	425	436	439	436	449	446	445	423	453	450
	MEAN:	501	508	514	509	521	523	524	532	543	538	537	541	540
82	406	475	479	486	494	504	495	499	500	496	485	491	505	477
	407	484	495	494	496	507	497	506	506	511	510	517	521	514
	408	591	578	580	583	587	601	595	591	608	601	603	603	608
	409	291	297	297	297	307	298	302	308	309	319	316	326	314
	410	724	729	730	738	761	759	757	763	771	757	768	768	772
	MEAN:	513	516	517	522	533	530	532	534	539	534	539	545	537
83	411	600	601	600	616	631	638	638	638	648	651	663	657	639
	412	731	733	737	735	744	741	740	746	735	745	742	734	724
	413	398	405	404	399	412	413	405	402	400	409	420	415	394
	414	572	566	570	568	573	579	573	574	590	591	581	581	576
	415	473	476	475	479	490	474	481	490	495	487	479	490	480
	MEAN:	555	556	557	559	570	569	567	570	574	577	581	575	563
84	416	403	404	410	405	404	392	391	407	398	398	391	392	394
	417	476	482	491	478	483	481	467	483	482	481	486	483	470
	418													
	419	513	520	517	527	528	525	513	525	517	483	450	410	394
	420	480	483	490	486	479	456	466	470	482	466	465	475	462
	MEAN:	468	472	477	474	474	464	459	471	470	457	448	440	430
GROUP SIZE =		66	66	66	66	66	65	64	64	64	64	64	63	63
GROUP MEAN :		514	519	523	525	532	533	531	537	542	540	541	542	539
MEAN CHANGE:			5	4	1	7	1	-3	6	5	-1	1	0	-3

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	RAT NO.	79	80	81	82	83	84	85	86	87	88	89	90	91
			...WEEK...											
78	386	561	564	565	575	565	578	591	606	607	593	610	620	611
	387	457	456	467	480	470	480	475	495	512	472	496	506	503
	388	489	510	486	496	494	490	490	497	498	492	493	503	479
	389	496	502	508	504	506	493	490	499	520	494			
	390	532	540	545	544	553	551	546	553	559	542	547	547	538
	MEAN:	507	514	514	520	522	518	518	530	539	519	537	544	538
79	391	672	657	663	661	663	661							
	392	451	451	629	446	441	449	448	457	457	465	461	462	471
	393	643	641	659	664	661	657	656	629	602	544	516	476	
	394	596	535	599	594	591	607	603	611	620	625	623	635	668
	395	493	488	485	495	480	485	499	487	507	500	509	498	523
	MEAN:	571	564	567	572	567	572	552	546	547	534	527	518	554
80	396	730	728	739	762	758	764	774	791	779	787	785	800	807
	397	480	478	485	488	491	492	496	497	500	513	507	511	510
	398	602	621	634	639	627	620	611	605	600	606	607	613	617
	399	513	524	520	525	517	527	512	519	527	515	534	537	541
	400	600	600	620	619	633	631	642	648					
	MEAN:	585	590	600	607	605	607	607	612	602	605	608	615	619
81	401	436	444	443	446	456	448	458	464	471	466	477	483	495
	402	667	664	670	692	701	716	711	727	718	738	738	747	762
	403	663	679	689	706	724	716	720	724	738	727	705	679	647
	404	508	498	505	509	500	519	516	516	524	534	524	530	542
	405	457	461	461	472	467	470	474	474	481	478	480	484	488
	MEAN:	546	549	554	565	570	574	576	581	586	589	585	585	587
82	406	479	492	499	506	520	511	520	521	540	539	543	553	565
	407	521	533	520	523	537	542	542	548	553	549	552	563	571
	408	603	598	605	616	616	623	632	643	641	645	647	656	667
	409	327	321	330	332	337	342	341	341	352	354	348	355	341
	410	782	796	797	827	843	842	850	842	865	840	845	839	864
	MEAN:	542	547	550	561	571	572	577	579	590	585	587	593	602
83	411	656	659	658	639	634	629	616	619	621	632	623	620	613
	412	746	756	760	771	778	779	784	778	788	797	791	803	800
	413	412	423	427	433	442	448	454	446	456	459	459	456	461
	414	578	588	605	622	614	619	611	617	625	618	611	609	612
	415	492	487	497	495	506	514	510	517	532	527	530	530	542
	MEAN:	577	583	589	592	595	598	595	595	604	607	603	604	606
84	416	397	393	410	417	425	430	424	433	421	427	433	442	452
	417	486	496	505	513	517	523	519	524	533	534	544	543	551
	418													
	419	394	419	399										
	420	476	489	487	505	507	519	517	446	531	522	527	538	547
	MEAN:	438	449	450	478	483	491	487	468	495	494	501	508	517
GROUP SIZE =		63	61	61	60	60	60	59	58	56	56	55	54	53
GROUP MEAN :		545	549	552	560	562	563	559	561	568	566	566	568	576
MEAN CHANGE:			5	3	9	1	1	-4	2	7	-2	0	2	8

000297

(Bodyweights - continued)

GROUP CAGE	29 RAT NO.	92	93	94	95	96	97	98	99	100	101	102	103	104
		...WEEK...												
78	386	625	627	639	644	650	662	657	664	664	658	655	647	639
	387	522	530	515	548	542	533	559	571	573	566	583	570	583
	388	508	517	532	516	525	523	521	532	529	540	542	525	
	389													
	390	541	545	539	542	538	535	527	518	522	516	520	511	508
	MEAN:	549	555	556	563	564	563	566	571	572	570	575	563	577
79	391													
	392	462												
	393													
	394	647	647	653	654	654	658	662	657	662	654	663	670	666
	395	520	529	524	527	503	531	529	515	509	511	500	503	507
	MEAN:	543	588	589	591	579	595	596	586	586	583	582	587	587
80	396	813	621	828	827	831	838	832	827	823	810	811	815	820
	397	521	516	518	518	524	529	534	528	533	526	535	540	545
	398	632	634	641	636	635	647	651	656	653	647	652	666	671
	399	539	536	528	493									
	400													
	MEAN:	626	627	629	619	663	671	672	670	670	661	666	674	679
81	401	493	502	503	507	505	511	509	508	498	495	486	469	497
	402	763	773	780	777	782	773							
	403	612												
	404	546	557	558	563	557	571	585	585	587	593	578	546	563
	405	497	508	502	501	503	511	498	490	482	484			
	MEAN:	582	585	586	587	587	592	531	528	522	524	532	508	530
82	406	558	567	567	583	603	612							
	407	577	585	583	610	620	630							
	408	679	677	669	677	667	647	587	551	480				
	409	362	359	357	367	379	375	364	373	358	360	346	325	366
	410	871	866	876										
	MEAN:	609	611	610	559	567	566	476	462	419	360	346	325	366
83	411	603	583	579	563	554								
	412	801	797	810	822	809	811	797	791	742	768	747	718	725
	413	463	465	459	459	463	463	462	442	406	405	401	350	
	414	610	620	624	630	634	640	641	637	590	622	600	570	585
	415	536	526	533	535	537	545	548	540	522	546	537	523	546
	MEAN:	603	598	601	602	599	615	612	603	565	585	571	540	619
84	416	453	448	455	446	455	453	456	433	460	443	432	416	433
	417	542	516	517	503	483	469	468	454					
	418													
	419													
	420	557	559	555	556	566	568	561	569	566	575	568	539	566
	MEAN:	517	508	509	502	501	497	495	485	513	509	500	478	500
GROUP SIZE =		53	51	50	49	48	46	42	41	39	36	35	34	30
GROUP MEAN :		577	580	584	579	580	582	572	563	561	568	567	556	576
MEAN CHANGE:			3	4	-5	1	1	-9	-10	-2	7	-1	-11	20

000298

APPENDIX 2

(Bodyweights - continued)

GROUP 2♀

CAGE	RAT NO.	105	...WEEK... 106	107	108	109	110
78	386	648	676				
	387						
	388						
	389						
	390	499	498				
	MEAN:	574	587				
79	391						
	392						
	393						
	394	676	685				
	395	510	511				
	MEAN:	593	598				
80	396	811	803				
	397	547	554				
	398	671	684				
	399						
	400						
	MEAN:	676	680				
81	401	496	490				
	402						
	403						
	404	566	563				
	405						
	MEAN:	531	527				
82	406						
	407						
	408						
	409	363	376				
	410						
	MEAN:	363	376				
83	411						
	412	723	710				
	413						
	414	580	578				
	415	559	567				
	MEAN:	621	618				
84	416	428	430				
	417						
	418						
	419						
	420	577	580				
	MEAN:	503	505				
GROUP SIZE =		29	28	0	0	0	0
GROUP MEAN :		576	577	-	-	-	-
MEAN CHANGE:			0	-	-	-	-

000299

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	3? RAT NO.	...WEEK... -3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
35	421	119	148	175	195	222	230	242	252	264	269	272	264	277	286	284	284	290
	422	137	180	215	236	253	260	282	290	300	309	320	319	327	330	343	344	342
	423	107	136	168	183	204	220	231	231	237	242	246	243	247	263	269	262	264
	424	128	155	190	204	211	231	241	249	258	274	284	274	273	291	294	292	296
	425	126	147	168	196	200	212	221	232	248	242	251	252	246	255	269	264	263
	MEAN:	123	153	183	203	218	231	243	251	261	267	275	270	274	285	292	289	291
36	426	128	162	191	216	271	250	267	279	288	302	300	309	313	319	320	329	337
	427	104	146	172	196	211	232	249	254	268	272	296	286	300	309	310	311	325
	428	137	162	196	205	232	250	261	266	274	284	283	291	287	291	296	300	301
	429	146	162	185	216	232	250	262	276	282	291	299	308	310	329	334	331	343
	430	111	150	176	200	216	226	246	262	264	269	282	284	281	293	302	304	305
	MEAN:	125	156	184	207	232	242	257	267	275	284	292	296	298	308	312	315	322
37	431	138	162	181	196	204	216	229	233	238	252	251	252	246	260	268	270	272
	432	127	162	187	217	241	260	276	295	312	326	330	334	347	361	391	384	403
	433	120	152	186	204	211	234	246	253	260	264	256	269	269	272	279	276	290
	434	107	152	176	208	232	244	251	265	273	279	282	289	283	292	300	296	296
	435	142	167	199	220	232	246	265	272	284	282	294	299	298	293	307	304	307
	MEAN:	127	159	186	209	224	240	253	264	273	281	283	289	289	296	309	306	314
38	436	135	177	206	236	261	274	296	300	312	314	316	324	337	349	344	354	355
	437	129	162	190	217	222	229	261	265	274	288	300	301	300	321	326	329	320
	438	114	149	175	198	209	224	246	253	257	271	281	278	279	291	299	294	292
	439	106	136	166	190	204	220	232	243	246	261	261	266	273	283	289	284	291
	440	141	172	201	221	241	259	272	276	288	296	300	304	316	327	324	328	336
	MEAN:	125	159	188	212	227	241	261	267	275	286	292	295	301	314	316	318	319
39	441	85	125	152	183	200	212	223	236	248	259	263	269	273	283	286	282	291
	442	111	152	182	207	222	250	261	268	277	289	292	300	304	310	310	319	327
	443	121	154	178	211	226	242	254	268	278	288	292	300	300	309	311	324	319
	444	132	172	194	222	244	262	276	294	312	319	322	331	329	351	361	352	363
	445	162	193	212	225	232	251	266	268	271	291	294	286	287	300	312	311	311
	MEAN:	122	159	184	210	225	243	256	267	277	289	293	297	299	311	316	318	322
90	446	98	143	171	199	212	234	242	260	268	281	294	291	302	311	330	319	322
	447	114	158	197	216	236	250	261	281	284	291	301	302	302	312	322	324	320
	448	126	155	191	207	222	234	254	264	273	279	292	290	298	312	319	321	332
	449	138	165	195	228	236	253	266	275	282	302	316	319	317	337	331	339	343
	450	142	177	210	226	249	274	291	297	309	321	322	319	331	339	344	344	336
	MEAN:	124	160	193	215	231	249	263	275	283	295	305	304	310	322	329	329	331
91	451	119	152	182	198	211	244	252	263	279	284	296	299	300	328	316	312	316
	452	132	168	205	230	251	281	300	310	322	336	336	352	354	374	379	384	387
	453	94	135	160	182	202	221	236	237	247	252	266	267	273	279	276	282	288
	454	123	144	179	195	211	222	242	246	252	256	264	266	271	274	280	276	283
	455	152	182	226	251	274	293	301	314	324	324	337	334	339	353	348	352	349
	MEAN:	124	156	190	211	230	252	266	274	285	290	300	304	307	322	320	321	325

000300

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	♀ RAT NO.	...WEEK... 14	15	16	17	18	19	20	21	22	23	24	25	26
85	421	297	295	289	299	302	305	317	310	312	316	308	319	327
	422	349	354	346	349	347	355	369	365	375	380	370	387	386
	423	262	263	256	274	288	278	281	279	274	277	268	280	286
	424	320	306	308	303	305	316	310	316	317	329	337	356	362
	425	270	295	296	268	270	272	275	282	289	290	285	276	294
	MEAN:	300	303	299	299	302	305	310	310	313	318	314	328	331
86	426	347	357	361	359	365	370	375	379	383	395	397	407	416
	427	321	334	342	334	328	337	342	341	334	345	351	359	361
	428	315	306	301	301	307	315	325	319	328	331	332	338	338
	429	342	341	353	347	347	346	348	346	358	365	368	374	375
	430	307	314	315	319	315	320	327	326	328	330	335	344	335
	MEAN:	326	330	334	332	332	338	343	342	346	353	357	364	365
87	431	272	270	273	286	278	284	299	284	288	290	289	295	297
	432	406	401	406	414	410	419	423	441	463	457	451	459	462
	433	290	280	279	281	285	287	290	291	295	293	293	325	297
	434	304	304	299	307	310	317	320	317	317	323	320	328	323
	435	303	305	308	295	303	308	312	313	316	315	313	318	320
	MEAN:	315	312	313	317	317	323	329	329	336	336	333	345	340
88	436	358	354	361	354	354	361	373	373	379	388	389	397	403
	437	330	321	336	337	341	347	335	343	363	363	372	381	381
	438	299	297	300	292	297	304	301	299	305	306	309	317	318
	439	275	299	302	302	300	304	308	314	312	319	311	318	324
	440	331	329	333	330	336	337	349	353	353	361	365	366	373
	MEAN:	323	320	326	323	326	331	333	336	342	347	349	356	360
89	441	292	293	293	289	290	295	301	306	309	311	302	317	319
	442	332	332	337	336	340	344	347	360	357	367	350	356	374
	443	330	324	333	333	336	338	351	345	347	351	347	364	370
	444	355	367	366	367	368	382	395	385	388	399	392	410	413
	445	319	322	318	311	316	322	324	315	328	340	331	336	344
	MEAN:	326	328	329	327	330	336	344	342	346	354	344	357	364
90	446	326	330	332	328	336	337	342	344	345	367	366	361	366
	447	327	328	318	313	330	334	338	352	359	373	369	383	387
	448	337	341	341	331	332	346	348	358	363	374	366	374	390
	449	335	346	352	343	349	354	364	367	371	377	373	383	388
	450	342	347	346	337	343	351	357	360	363	368	365	374	375
	MEAN:	333	338	338	330	338	344	350	356	360	372	368	375	381
91	451	320	332	326	324	300	336	339	335	347	338	346	348	354
	452	388	389	395	386	384	381	391	405	415	406	411	422	421
	453	287	285	286	286	288	290	292	296	302	296	305	303	304
	454	285	289	292	286	284	291	299	299	299	291	297	309	315
	455	357	351	366	354	355	362	362	350	369	363	374	375	375
	MEAN:	327	329	333	327	322	332	337	337	346	339	347	351	354

000301

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	3♀ RAT NO.	27	28	29	30	31	32	33	34	35	36	37	38	39
		...WEEK...												
85	421	317	328	334	326	326	332	335	337	347	350	348	358	354
	422	385	398	395	402	406	416	402	405	420	430	433	426	432
	423	285	289	287	293	298	289	289	290	289	288	291	292	291
	424	364	371	375	385	382	396	396	408	407	415	421	468	440
	425	288	296	296	302	304	313	314	320	319	320	317	326	329
	MEAN:	323	336	337	342	341	349	347	352	356	361	362	374	369
86	426	418	438	438	441	446	452	444	448	444	448	443	466	473
	427	370	380	379	378	382	392	390	406	412	416	424	424	431
	428	342	345	347	348	346	353	345	352	359	357	358	358	365
	429	377	381	382	382	389	401	399	405	406	411	416	425	424
	430	344	350	366	374	377	393	391	391	401	405	417	409	419
	MEAN:	370	379	383	385	388	394	394	400	404	407	412	416	422
87	431	300	298	294	297	301	301	296	303	306	308	309	311	309
	432	434	473	484	509	525	548	553	562	580	596	621	610	584
	433	294	300	298	295	291	294	289	292	290	288	277	300	293
	434	329	337	335	334	335	341	340	339	349	360	348	357	365
	435	325	330	330	332	330	338	332	334	337	343	350	351	350
	MEAN:	340	348	348	353	356	364	362	366	372	379	381	386	380
88	436	404	420	410	412	412	423	418		421	432	448	441	443
	437	379	395	391	403	401	410	398		402	410	412	409	416
	438	322	333	327	330	322	328	327	+	343	351	362	367	365
	439	334	342	349	363	365	373	369		373	388	394	397	404
	440	368	377	377	389	392	403	397		353	415	411	432	436
	MEAN:	361	373	371	379	378	387	382		378	399	405	409	413
89	441	330	337	339	341	341	345	347		355	356	369	370	381
	442	370	380	379	380	382	400	397		400	413	422	415	428
	443	376	385	392	391	396	399	396	+	408	414	425	425	426
	444	414	419	419	425	424	426	417		416	425	435	436	431
	445	346	346	345	352	352	354	351		377	377	366	365	360
	MEAN:	367	373	375	378	379	385	382		391	397	403	402	405
90	446	366	367	366	370	368	377	366		375	387	400	411	411
	447	394	392	409	405	416	421	415		423	433	446	441	444
	448	385	387	394	401	398	406	403	+	405	411	412	421	427
	449	386	397	398	395	401	402	403		420	415	431	427	432
	450	377	378	369	400	409	408	409		421	423	432	428	438
	MEAN:	382	384	391	394	398	403	399		409	414	424	426	430
91	451	357	351	350	357	363	369	364	369	371	374	408	380	382
	452	424	425	442	441	461	469	459	460	460	460	469	466	475
	453	305	311	308	308	306	315	307	309	319	324	321	328	335
	454	315	319	326	328	336	336	342	340	341	346	346	356	356
	455	373	330	384	387	392	402	395	392	405	401	412	412	417
	MEAN:	355	357	362	364	372	378	373	374	379	381	391	388	393

+ Bodyweight data for cages 88, 89 and 90 not available for week 34 due to a technical oversight

000302

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	3♀ RAT NO.	40	41	42	43	44	45	46	47	48	49	50	51	52
		...WEEK...												
85	421	359	361	362	368	372	375	378	385	386	332	395	398	401
	422	429	436	445	440	438	438	448	464	477	464	490	499	493
	423	296	296	295	298	299	301	297	304	305	304	305	309	311
	424	439	429	439	434	443	449	463	471	478	486	499	498	495
	425	339	336	344	346	346	343	356	360	370	369	374	375	380
	MEAN:	372	372	377	377	381	382	388	397	403	391	413	416	416
86	426	483	495	498	500	512	506	530	522	520	531	533	542	546
	427	437	439	446	448	456	463	469	473	489	493	496	505	511
	428	366	372	381	378	385	382	387	390	394	395	401	396	398
	429	426	439	444	447	455	458	464	473	483	493	497	510	515
	430	420	423	429	433	445	445	449	455	462	477	468	479	482
	MEAN:	426	434	440	441	451	451	460	464	470	478	479	486	490
87	431	312	313	314	313	335	321	327	332	333	334	341	341	348
	432	612	618	619	629	644	637	651	655	653	658	663	679	674
	433	300	306	306	299	309	305	302	297	288	304	313	308	317
	434	360	365	365	370	372	374	381	383	382	392	400	395	405
	435	337	353	357	353	357	358	365	373	373	385	381	382	385
	MEAN:	384	391	392	393	403	399	405	408	406	415	420	421	426
88	436	446	444	441	433	420	420	410	405	404	424	424	424	454
	437	420	434	443	449	450	449	468	463	446	466	468	473	484
	438	368	373	369	378	376	369	375	371	366	387	377	377	381
	439	402	409	419	420	426	430	428	435	437	415	415	427	446
	440	435	444	451	457	470	464	471	477	468	485	495	497	500
	MEAN:	414	421	425	427	428	426	430	430	424	435	436	440	453
89	441	377	375	388	386	388	394	398	398	404	422	415	418	428
	442	432	440	450	448	438	449	461	472	472	489	479	479	492
	443	433	435	439	438	451	452	461	463	456	480	476	480	502
	444	438	444	446	445	459	458	467	472	471	485	477	479	485
	445	365	374	384	388	391	399	408	406	413	420	429	431	440
	MEAN:	409	414	421	421	425	430	439	442	443	459	455	457	469
90	446	337	421	425	433	444	446	447	454	451	463	457	469	482
	447	449	459	459	454	476	478	486	492	491	499	512	514	512
	448	431	445	444	455	456	459	466	469	472	475	476	470	486
	449	435	442	445	444	455	447	455	456	468	475	486	483	484
	450	448	456	457	468	472	472	478	476	478	487	476	479	494
	MEAN:	430	445	446	451	461	460	466	469	472	480	481	483	492
91	451	385	392	392	397	395	397	401	399	403	406	422	435	426
	452	490	489	507	506	515	509	526	537	537	541	550	553	556
	453	340	345	342	345	348	341	344	341	349	351	350	351	351
	454	359	367	375	374	390	389	395	398	404	413	414	412	425
	455	420	424	428	440	431	431	432	439	442	423	447	453	451
	MEAN:	399	403	409	412	416	413	420	423	427	427	437	441	442

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	39 RAT NO.	53	...WEEK... 54	55	56	57	58	59	60	61	62	63	64	65
85	421	398	399	400	410	409	414	415	425	430	432	440	443	447
	422	511	502	501	509	509	523	525	535	528	544	533	546	553
	423	316	315	317	318	320	322	321	323	329	334	337	341	338
	424	498	501	510	513	508	515	519	517	529	536	535	544	545
	425	373	381	392	397	401	396	389	400	400	395	407	406	404
	MEAN:	419	420	424	429	429	434	434	440	443	448	450	456	457
86	426	543	537	534	551	555	564	567	561	564	562	579	575	572
	427	529	515	513	521	523	543	523	518	519	519	531	534	539
	428	405	404	396	404	407	407	408	405	412	412	415	416	421
	429	527	535	521	551	546	556	559	558	575	565	569	560	557
	430	483	494	484	501	502	512	508	533	520	517	525	536	530
	MEAN:	497	497	490	506	507	516	513	515	518	515	524	524	524
87	431	345	332	349	354	355	360	357	364	364	369	378	382	383
	432	684	675	668	685	665	677	672	669	690	672	699	699	695
	433	321	321	314	324	330	344	331	331	337	329	332	333	337
	434	407	414	408	402	415	411	412	417	414	426	420	417	440
	435	390	392	382	387	390	392	394	395	401	403	407	412	421
	MEAN:	429	431	424	430	431	437	433	435	441	440	447	449	455
88	436	444	446	432	460	458	459	470	475	487	485	491	493	509
	437	481	482	468	490	489	491	510	494	501	498	495	503	498
	438	386	392	403	412	405	415	407	414	420	414	428	423	418
	439	423	444	443	447	453	463	468	450	463	461	456	460	463
	440	518	524	533	526	538	547	539	545	557	558	554	573	581
	MEAN:	450	458	456	467	469	475	479	476	486	483	485	490	494
89	441	427	438	421	424	431	440	435	438	433	437	445		
	442	498	505	501	500	508	511	508	511	511	529	539	529	532
	443	493	494	489	492	499	520	503	508	518	514	529	542	531
	444	483	493	479	483	482	491	492	489	486	492	497	496	483
	445	443	436	442	447	453	464	460	470	474	481	496	499	495
	MEAN:	469	477	466	469	475	485	480	483	484	491	501	517	510
90	446	477	471	478	493	501	506	518	525	529	537	543	538	543
	447	517	509	526	526	520	534	534	529	529	537	545	540	556
	448	500	497											
	449	481	465	471	482	493	479	489	482	492	486	493	485	500
	450	488	482	495	496	508	510	511	515	518	524	525	530	540
	MEAN:	493	483	493	499	506	507	513	513	517	521	527	523	535
91	451	429	408	419	445	448	457	435	433	442	459	455	453	465
	452	551	517	515	505	489	465	455	443	428	422	411	399	396
	453	353	336	354	357	360	367	371	367	369	374	372	371	373
	454	435	427	445	443	449	435	465	449	431	440	449	440	436
	455	451	433	440	452	461	471	470	472	479	493	491	485	493
	MEAN:	444	424	435	440	441	439	439	433	430	438	436	430	433

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	RAT NO.	66	67	68	69	70	71	72	73	74	75	76	77	78
		...WEEK...												
85	421	446	448	446	461	454	448	466	459	459	458	472	459	460
	422	558	565	570	585	573	530	586	590	596	593	600	609	604
	423	345	348	351	357	355	351	354	361	372	376	365	369	372
	424	549	559	557	556	566	562	567	574	564	565	560	553	505
	425	416	412	422	437	417	422	429	433	447	456	433	448	449
	MEAN:	463	466	469	479	473	473	480	485	488	490	486	488	478
86	426	573	582	570	559	552	561	557	556	554	584	580	575	579
	427	548	558	546	547	542	529	526	525	525	534	547	536	537
	428	419	416	411	410	418	409	406	412	415	413	409	410	402
	429	545	506	451										
	430	551	532	557	543	552	555	549	530	549	537	547	536	537
	MEAN:	527	519	507	515	516	514	510	506	511	517	521	514	514
87	431	388	392	392	405	409	400	407	412	420	421	440	432	428
	432	701	685	690	699	715	666	690	684	670	674	654	623	
	433	344	344	355	339	361	353	363	369	367	367	368	374	378
	434	420	429	428	441	434	430	436	434	446	434	440	432	447
	435	427	431	428	436	447	429	430	436	421	440	444	441	442
	MEAN:	456	456	459	464	473	456	465	467	465	467	469	460	424
88	436	521	532	541	544	539	537	537	549	552	560	571	567	574
	437	501	504	521	530	541	540	521	530	546	532	541	553	558
	438	435	418	419	440	414	410	406	415	416	417	422	437	437
	439	448	488	481	496	485	479	492	500	481	487	487	491	495
	440	577	591	580	592	600	594	594	601	605	600	611	612	612
	MEAN:	496	507	508	520	516	512	510	519	520	519	526	532	535
89	441													
	442	534	531	532	551	551	547	545	555	558	555	556	558	552
	443	532	558	547	559	567	564	573	572	581	575	579	579	574
	444	486	503	498	501	511	509	490						
	445	498	497	519	520	522	519	518	534	540	533	545	542	550
	MEAN:	513	522	524	533	538	535	532	554	560	554	560	560	559
90	446	559	538	543	548	532	530	541	524	512	520	522	517	521
	447	554	554	545	548	544	545	549	553	524	542	523	536	545
	448													
	449	500	512	493	514	512	517	515	517	522	523	513	525	524
	450	545	550	546	557	552	558	553	572	559	554	555	567	561
	MEAN:	540	539	532	542	535	538	540	542	529	535	528	536	538
91	451	461	466	463	477	471	469	475	485	484	478	484	485	489
	452	390	378	365	357	351	340	340						
	453	379	395	382	395	395	397	404	404	404	398	399	401	390
	454	439	449	457	467	466	475	475	476	480	479	472	479	486
	455	499	505	510	524	532	529	538	537	521	550	550	563	550
	MEAN:	434	439	435	444	443	442	446	476	472	476	476	482	479

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(Bodyweights - continued)

GROUP CAGE	♀ RAT NO.	...WEEK... 79	80	81	82	83	84	85	86	87	88	89	90	91
85	421	462	450	476	476	480	471	483	475	502	489	499	502	508
	422	603	616	625	626	629	622	633	635	635	629	632	625	545
	423	382	370	378	384	383	380	378	385	392	423	400	392	403
	424	460	430	416	395	366	332							
	425	432	431	442	459	462	461	468	471	478	483	468	488	490
	MEAN:	468	459	467	468	464	453	496	492	502	506	500	502	487
86	426	579	576	574	565	558	560	565	560	567	562	566	571	573
	427	530	540	543	543	560	550	548	555	555	556	558	549	556
	428	393	411	408	413	418	419	414	417	414	414	415	404	407
	429													
	430	517	535	527	524	525	512	521	531	517	538	512	508	511
	MEAN:	505	516	513	511	515	510	512	516	513	518	513	508	512
87	431	448	430	442	435	448	454	448	465	458	472	459	473	483
	432													
	433	393	374	367	371	383	370	362	384	399	391	393	402	406
	434	440	453	438	452	457	455	451	463	468	461	469	483	493
	435	444	444	448	456	467	460	471	468	471	470	480	476	482
	MEAN:	431	425	424	429	439	435	433	445	449	449	450	459	466
88	436	560	579	571	583	583	592	596	606	606	607	602	608	621
	437	561	572	566	574	571	579	588	588	591	604	605	616	634
	438	440	456	454	451	459	454	464	484	481	484	482	490	501
	439	502	505	504	516	522								
	440	609	618	606	616	623	621	626	637	628	623	624	624	621
	MEAN:	534	546	540	548	552	562	569	579	577	580	578	585	594
89	441													
	442	569	571	569	572	564	569	557	552	570	554	556	563	561
	443	543	561	561	580	554	582	558	481					
	444													
	445	542	571	568	591	581	600	596	613	608	621	618	643	634
	MEAN:	551	568	566	581	566	584	570	549	589	588	587	603	598
90	446	523	529	528	529	543	537	545	556	560	547	553	557	572
	447	536	548	536	548	556	536	548	546	541	554	563	556	561
	448													
	449	529	530	532	533	541	540	546	552	548	544	556	557	566
	450	563	560	559	563	566	574	582	580	587	586	588	595	588
	MEAN:	538	542	539	543	552	547	555	559	559	558	565	566	572
91	451	482	489	490	486	482	490	482	487	491	499	499	501	510
	452													
	453	407	393	401	391	383	375	353						
	454	482	469	476	491	490	502	502	502	515	508	496	512	519
	455	564	560	581	577	587	601	615	628	608	604	614	599	572
	MEAN:	484	478	487	486	486	492	488	539	538	537	536	537	534

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	SP RAT NO.	92	93	94	95	96	97	98	99	100	101	102	103	104
		...WEEK...												
85	421	500	503	509	503	508	517	511	511	518	513	520	528	518
	422	501												
	423	398	407	406	396	404	410	399	411	411	403	424	416	415
	424													
	425	496	501	515										
	MEAN:	474	470	477	450	456	464	455	461	465	458	472	472	467
86	426	552	534	499	477	450	433	428	425	434	445	460	477	480
	427	545	554	534	541	534	543	529	515	512	493	451	449	422
	428	418	426	413										
	429													
	430	496	502	497	496	507	498	499	499	492	484	473	478	468
	MEAN:	503	504	486	505	497	491	485	480	479	474	461	468	457
87	431	480	492	481	492	482	492	495	492	497	492	500	483	495
	432													
	433	400	402	397	396	399	393	391	389	380	400	397	390	404
	434	494	480	503	507	505	505	511	505	512	520	518	514	499
	435	496	499	489	487	489	506	498	502	486	499	484	494	482
	MEAN:	468	468	468	471	469	474	474	472	469	473	475	470	470
88	436	618	621	627	623	633	637	634	625	621	628	632	635	642
	437	635	633	637	640	651	609	640						
	438	512	506	515	508	508	506	494	501	474	441	436	419	399
	439													
	440	615	612	612	610	612	614	606	596	582	581	598	568	559
	MEAN:	595	593	598	595	601	592	594	574	559	550	555	541	533
89	441													
	442	553	540	532	520	503	507	483	482	470	453	452	455	430
	443													
	444													
	445	652	652	658	666	689	682	674	666	660	681	675	679	670
	MEAN:	603	596	595	593	596	595	579	574	565	567	564	567	550
90	446	588	578	591	585	589	583	590	600	592	590	584	596	603
	447	570	562	572	565	568	564	574	557	580	593	579	582	576
	448													
	449	575	578	583	556	584	602	587	593	594	595	595	594	598
	450	606	617	625	593	622	617	614	618	621	582	541		
	MEAN:	565	584	593	575	591	592	591	592	597	590	575	591	592
91	451	515	516	522	520	523	524	529	526	529	538	530	532	538
	452													
	453													
	454	511	522	523	539	544	556	574	575	570	596			
	455	505	508	510	506	462								
	MEAN:	510	515	518	522	510	540	552	551	550	567	530	532	538

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	39 RAT NO.	...WEEK... 105	106	107	108	109	110
85	421	517	520				
	422						
	423	415	411				
	424						
	425						
	MEAN:	466	466				
86	426	496	493				
	427	436	445				
	428						
	429						
	430	456	439				
	MEAN:	463	459				
87	431	491	510				
	432						
	433	405	407				
	434	500	471				
	435	483	483				
	MEAN:	470	468				
88	436	640	618				
	437						
	438						
	439						
	440	553					
	MEAN:	597	618				
89	441						
	442	394	366				
	443						
	444						
	445						
	MEAN:	394	366				
90	446	599	594				
	447	576	552				
	448						
	449	598	592				
	450						
	MEAN:	591	579				
91	451	532	540				
	452						
	453						
	454						
	455						
	MEAN:	532	540				

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APPENDIX 2

(Bodyweights - continued)

GROUP 39 CAGE	RAT NO.	...WEEK... -3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
92	456	124	157	183	206	221	241	259	269	277	292	299	300	300	312	327	319	311
	457	92	125	150	168	182	200	219	222	227	244	246	252	250	263	271	264	268
	458	135	173	206	232	249	263	284	292	300	304	311	311	313	322	329	332	336
	459	142	176	210	245	261	279	300	300	304	329	331	336	342	354	350	354	356
	460	110	168	190	208	232	250	262	270	283	288	294	294	307	311	316	323	345
	MEAN:	121	160	188	212	229	247	265	271	278	291	296	299	302	312	319	318	323
93	461	137	162	182	197	212	226	236	242	251	263	266	271	276	283	294	286	291
	462	124	155	170	180	195	211	232	236	249	249	254	261	263	273	279	284	283
	463	118	156	187	204	221	224	241	242	253	254	271	274	281	282	294	289	293
	464	86	124	152	167	183	195	211	212	224	239	234	236	241	254	252	254	261
	465	139	168	190	216	232	244	251	260	269	276	282	284	291	291	301	302	307
	MEAN:	121	153	176	193	209	220	234	238	249	256	261	265	270	277	284	283	287
94	466	134	166	191	210	219	240	236	266	270	277	282	284	291	300	309	308	310
	467	127	150	180	200	220	234	254	258	263	279	282	281	296	304	302	300	305
	468	112	153	185	207	232	252	261	273	284	294	300	302	317	316	320	314	327
	469	104	146	175	195	211	232	251	268	267	276	284	289	297	303	306	309	311
	470	140	162	191	215	221	248	262	268	269	283	291	296	299	314	311	310	320
	MEAN:	123	155	184	205	221	241	253	267	271	282	288	290	300	307	310	308	315
95	471	94	125	160	183	200	210	226	235	244	246	256	256	257	263	268	270	275
	472	112	154	187	220	242	260	282	290	299	311	316	326	327	344	354	349	355
	473	123	163	192	220	246	265	291	306	307	312	329	341	347	347	361	362	371
	474	136	166	192	224	239	244	256	266	274	274	282	282	289	292	300	300	306
	475	140	170	199	220	242	260	271	280	290	296	300	309	310	319	323	324	327
	MEAN:	121	156	186	213	234	248	265	275	283	288	297	303	306	313	321	321	327
96	476	107	147	200	190	200	207	222	240	247	254	261	263	271	284	289	294	301
	477	114	167	170	215	232	259	272	292	284	288	296	298	300	311	320	329	324
	478	127	172	203	226	242	265	295	292	311	312	329	329	329	333	336	342	341
	479	132	148	173	193	200	215	227	233	240	242	252	249	251	263	267	266	272
	480	144	170	190	221	234	259	276	283	292	306	316	321	327	338	341	330	334
	MEAN:	125	161	187	209	222	241	258	266	275	280	291	292	296	306	311	312	314
97	481	115	130	170	188	206	223	241	245	242	261	271	279	281	289	306	296	298
	482	134	136	202	232	269	285	300	320	327	341	364	366	387	393	408	409	415
	483	108	115	182	214	241	259	282	281	290	294	304	312	310	316	342	341	343
	484	123	128	181	200	209	256	254	242	248	252	262	266	271	289	287	289	295
	485	145	163	205	225	242	259	276	277	274	282	300	302	310	324	329	322	321
	MEAN:	125	134	188	212	233	256	271	273	276	286	300	305	312	322	334	331	334
98	486	121	161	196	216	226	244	267	272	268	282	284	286	287	307	312	309	316
	487	102	141	172	194	214	222	246	255	263	272	284	290	293	306	316	315	311
	488	132	168	200	227	241	258	271	281	294	302	304	312	321	330	335	336	342
	489	141	177	196	228	249	263	282	300	304	311	321	319	329	339	343	346	353
	490	116	148	173	192	200	216	232	240	257	251	261	262	269	272	281	279	289
	MEAN:	122	159	187	211	226	241	260	270	277	284	291	294	300	311	317	317	322
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		123	156	186	209	226	242	258	266	274	283	290	293	297	308	314	313	318
MEAN CHANGE:			32	30	23	17	17	15	9	8	9	7	3	4	10	6	0	4

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(Bodyweights - continued)

GROUP CAGE	39 RAT NO.	...WEEK... 14	15	16	17	18	19	20	21	22	23	24	25	26
92	456	328	321	322	315	316	321	328	330	339	347	348	357	358
	457	264	266	274	269	272	278	276	276	286	292	309	309	318
	458	332	335	343	334	334	341	347	345	344	353	346	358	357
	459	355	348	355	347	343	352	339	365	365	372	370	376	374
	460	329	325	327	324	324	353	353	345	341	344	364	378	374
	MEAN:	322	319	324	318	318	329	329	332	335	342	347	356	356
93	461	291	293	291	295	286	294	296	295	298	301	298	295	301
	462	288	287	293	293	289	293	298	303	307	310	311	318	313
	463	292	291	283	283	289	299	299	310	309	309	311	309	307
	464	262	262	265	261	260	265	268	268	264	272	280	283	283
	465	311	311	315	316	297	304	313	311	316	325	326	327	317
	MEAN:	289	289	289	290	284	291	295	297	299	303	305	306	304
94	466	316	318	320	316	312	321	322	325	329	338	337	345	339
	467	311	311	311	309	309	313	323	347	342	344	344	348	346
	468	328	326	329	313	332	338	337	337	346	344	346	350	357
	469	317	320	309	313	316	319	327	321	330	334	336	339	337
	470	317	317	313	312	315	316	325	317	324	328	323	331	323
	MEAN:	318	318	316	313	317	321	327	329	334	338	337	343	340
95	471	277	281	284	273	271	284	282	283	288	297	292	297	287
	472	374	367	375	373	378	386	391	383	393	394	395	402	403
	473	378	381	384	373	379	376	381	388	396	403	408	413	404
	474	308	307	321	311	306	311	313	313	314	323	320	328	339
	475	332	334	336	333	332	342	346	339	346	361	354	359	360
	MEAN:	334	334	340	333	333	340	343	341	347	356	354	360	359
96	476	300	298	321	308	307	304	311	311	318	312	322	328	320
	477	340	346	353	350	353	355	356	352	358	354	361	368	363
	478	347	350	349	349	354	359	362	355	367	370	386	404	377
	479	276	272	274	273	278	282	297	286	292	289	288	295	289
	480	348	342	342	350	341	341	352	351	357	352	363	375	366
	MEAN:	322	322	328	326	327	328	336	331	338	335	344	354	343
97	481	304	305	308	303	307	323	326	321	326	320	325	335	332
	482	411	426	429	436	427	425	448	457	453	469	468	489	493
	483	347	355	363	351	351	363	374	378	378	383	382	388	379
	484	294	297	303	297	295	301	304	311	320	326	320	335	331
	485	333	331	327	331	339	345	352	350	358	360	352	366	356
	MEAN:	338	343	346	344	344	351	361	363	367	372	369	383	378
98	486	315	312	328	325	325	326	336	339	341	341	344	349	349
	487	326	323	318	328	340	352	362	367	370	377	371	381	372
	488	337	340	351	349	346	351	354	362	368	369	364	371	371
	489	351	361	382	372	364	359	372	373	373	382	381	396	395
	490	287	289	294	289	293	292	298	302	305	311	307	311	310
	MEAN:	323	325	335	333	334	336	344	349	351	356	353	362	359
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		321	322	325	322	323	329	334	335	340	344	344	353	352
MEAN CHANGE:			1	3	-3	1	6	5	1	5	4	0	8	0

000310

APPENDIX 2

(Bodyweights - continued)

GROUP 39

CAGE	RAT NO.	27	28	29	30	31	32	33	34	35	36	37	38	39
		...WEEK...												
92	456	365	365	386	392	380	383	389	395	392	409	416	419	415
	457	318	318	306	334	335	340	343	348	353	360	364	378	374
	458	358	365	371	375	367	373	373	371	378	382	379	383	390
	459	372	371	377	381	376	371	371	378	382	390	388	402	399
	460	376	369	383	378	365	364	372	375	386	393	398	397	404
	MEAN:	358	356	365	372	365	366	370	373	378	387	389	396	396
93	461	307	307	311	309	305	306	308	315	312	320	320	319	321
	462	316	327	324	326	326	328	320	331	336	334	342	340	339
	463	309	311	309	316	311	313	312	314	316	312	327	328	333
	464	281	286	295	299	296	304	301	308	312	309	318	322	324
	465	329	331	335	343	346	350	347	358	362	366	373	381	385
	MEAN:	308	312	315	319	317	320	318	325	328	328	336	338	340
94	466	342	349	336	333	337	350	345	347	358	360	355	360	352
	467	345	356	354	349	349	353	356	356	361	358	362	390	366
	468	358	349	358	356	361	367	371	371	374	375	385	386	388
	469	340	344	353	353	355	365	367	371	375	380	387	381	384
	470	324	335	337	335	326	337	336	337	341	342	342	353	349
	MEAN:	342	347	348	345	346	354	355	356	362	363	366	374	368
95	471	289	239	290	291	290	295	297	295	304	310	310	310	312
	472	402	419	413	413	422	452	448	449	450	459	455	461	449
	473	404	411	425	436	436	453	458	455	466	472	480	490	490
	474	347	344	350	333	339	336	330	336	339	342	343	362	373
	475	367	374	365	375	382	384	378	378	383	394	393	395	398
	MEAN:	362	367	369	370	374	384	382	383	388	395	396	404	404
96	476	326	333	341	343	339	353	353	354	359	362	367	371	368
	477	367	381	382	392	388	392	401	406	409	415	423	424	420
	478	377	372	375	375	371	386	381	380	384	391	398	398	400
	479	287	292	298	304	292	304	304	304	313	316	321	323	322
	480	372	375	376	381	384	401	393	390	387	409	412	418	418
	MEAN:	346	351	354	359	355	367	366	367	370	379	384	387	386
97	481	349	336	331	335	340	348	352	352	359	361	344	368	366
	482	509	520	524	539	553	551	560	567	589	585	549	578	582
	483	397	382	396	396	401	413	413	416	420	425	402	425	437
	484	331	341	343	351	365	371	381	384	392	403	395	389	414
	485	358	355	338	355	374	377	377	381	383	382	366	386	387
	MEAN:	389	387	386	395	407	412	417	420	429	431	411	429	437
98	486	354	347	346	349	351	360	360	356	357	357	362	362	362
	487	374	372	379	391	394	403	408	401	414	420	429	432	434
	488	376	373	369	385	382	392	392	384	391	391	402	404	410
	489	409	399	397	396	396	411	409	425	440	456	439	440	446
	490	316	319	319	323	323	337	330	330	341	336	320	351	361
	MEAN:	366	362	362	369	369	381	380	379	389	392	390	398	403
GROUP SIZE =		70	70	70	70	70	70	70	55	70	70	70	70	70
GROUP MEAN :		355	360	362	366	367	375	373	372	381	387	389	395	396
MEAN CHANGE:			4	2	4	1	8	-2	-1	9	6	3	5	1

000311

APPENDIX 2

(Bodyweights - continued)

GROUP	39													
CAGE	RAT		...WEEK...											
	NO.	40	41	42	43	44	45	46	47	48	49	50	51	52
92	456	412	417	419	425	437	439	458	459	472	465	464	446	481
	457	379	375	380	383	397	389	404	411	421	411	421	424	440
	458	399	394	399	404	399	405	414	421	423	420	423	416	436
	459	405	409	410	420	419	415	419	425	431	429	437	433	443
	460	408	408	420	428	456	443	447	447	453	455	469	480	488
	MEAN:	401	401	406	412	422	418	428	433	440	436	443	440	458
93	461	324	326	333	332	336	337	339	340	350	351	360	357	360
	462	339	345	349	356	353	354	355	358	360	364	362	371	378
	463	337	329	338	332	326	321	331	341	332	338	341	344	339
	464	309	328	334	334	344	345	350	357	365	372	378	378	383
	465	389	395	401	403	405	407	411	420	424	435	439	440	447
	MEAN:	340	343	351	351	353	353	357	363	366	372	376	378	382
94	466	355	362	371	371	367	374	381	384	385	391	406	420	408
	467	371	375	384	384	391	395	399	406	412	413	404	400	415
	468	390	397	397	401	404	397	407	412	410	416	419	426	428
	469	391	391	393	399	407	409	415	418	422	430	433	435	446
	470	341	367	368	375	381	382	396	393	404	416	416	425	429
	MEAN:	370	379	383	386	390	391	400	403	407	413	416	421	425
95	471	311	318	315	318	318	318	323	325	336	346	342	341	330
	472	469	482	485	488	496	512	528	533	526	547	547	551	557
	473	491	497	507	513	517	521	528	529	540	555	551	551	556
	474	377	390	379	375	373	371	381	362	385	382	393	387	398
	475	403	406	432	429	439	439	433	440	436	435	438	443	449
	MEAN:	410	419	424	425	428	432	439	438	445	453	454	455	458
96	476	374	333	382	385	394	382	396	395	406	410	420	421	368
	477	437	441	450	449	461	469	485	484	479	480	496	504	476
	478	405	416	418	413	422	415	424	425	428	449	453	444	421
	479	324	327	331	332	332	335	335	344	346	347	355	352	340
	480	421	441	443	447	453	458	466	465	483	495	487	494	448
	MEAN:	392	402	405	405	412	412	421	423	428	436	442	443	411
97	481	371	365	379	385	391	386	393	400	402	392	402	413	415
	482	598	598	602	620	619	624	639	645	646	630	641	643	611
	483	440	447	453	465	471	476	481	492	499	494	496	508	507
	484	421	424	429	429	438	445	445	451	486	451	462	464	473
	485	354	394	396	396	409	419	435	444	450	449	450	452	446
	MEAN:	443	446	452	459	466	470	479	486	497	483	490	496	490
98	486	368	368	372	370	354	373	381	386	390	381	394	397	394
	487	446	446	443	450	430	430	469	471	473	475	475	475	469
	488	410	420	423	425	407	427	432	435	446	447	461	458	459
	489	456	450	457	466	453	470	483	432	492	482	498	497	505
	490	371	374	376	371	362	379	393	392	398	405	401	401	406
	MEAN:	410	412	414	416	401	416	432	433	440	438	446	446	447
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		400	406	410	413	417	418	426	429	433	437	442	444	447
MEAN CHANGE:			6	5	2	4	1	8	3	4	4	5	3	3

000312

APPENDIX 2

(Bodyweights - continued)

GROUP 39 CAGE	RAT NO.	...WEEK... 53	54	55	56	57	58	59	60	61	62	63	64	65
92	456	489	494	488	500	504	510	509	516	523	519	535	534	532
	457	440	448	442	442	463	463	458	467	471	473	487	487	496
	458	442	450	444	458	460	471	471	483	486	491	509	517	512
	459	445	443	434	445	441	442	442	447	445	441	445	441	436
	460	494	505	482	501	524	533	536	536	538	540	533	555	561
	MEAN:	462	466	458	469	478	484	483	490	493	493	502	507	507
93	461	363	366	368	376	377	385	384	389	385	390	398	399	401
	462	376	376	374	377	380	386	385	386	385	395	399	394	402
	463	337	350	339	340	342	349	349	355	357	361	368	368	370
	464	400	392	399	400	405	417	413	411	418	414	425	422	432
	465	460	454	450	462	462	473	475	478	478	485	497	497	490
	MEAN:	387	388	386	391	393	402	401	404	405	409	417	416	419
94	466	412	400	413	423	417	436	417	413	417	421	429	429	429
	467	417	416	423	423	439	440	443	444	450	448	461	462	466
	468	434	413	436	438	438	442	443	446	450	445	452	453	448
	469	444	430	444	442	449	451	458	459	455	464	467	475	471
	470	435	421	426	431	432	442	444	449	447	469	456	451	455
	MEAN:	428	417	428	431	435	442	441	442	444	449	453	454	456
95	471	338	345	340	343	349	346	359	357	352	372	367	366	377
	472	559	570	569	571	578	587	591	579	596	605	611	625	632
	473	560	555	558	576	580	580	575	583	581	586	593	592	606
	474	415	414	422	414	428	423	433	431	437	431	433	430	411
	475	475	469	490	494	496	512	511	527	526	532	536	530	546
	MEAN:	469	471	476	480	486	490	494	495	498	505	508	509	514
96	476	408	415	417	414	427	440	447	448	450				
	477	498	495	495	511	520	512	532	534	533	542	556	568	571
	478	433	450	442	440	448	458	463	458	470	476	488	473	490
	479	351	361	353	351	360	367	369	367	371	376	372	381	387
	480	477	478	477	483	496	507	504	502	511	511	522	538	534
	MEAN:	433	440	437	440	450	457	463	462	467	476	485	490	496
97	481	422	414	415	392	323								
	482	642	670	653	676	654	652	653	651	638	649	644	637	637
	483	512	508	504	513	500	528	523	523	519	517	527	521	511
	484	485	490	485	490	519	498	509	506	512	517	521	532	528
	485	445	445	436										
	MEAN:	501	505	499	518	499	559	562	560	556	561	564	563	559
98	486	421	420	410	411	416	420	415	448	463	458	455	459	462
	487	475	481	486	472	485	466	440	453	462	476	479	496	493
	488	475	474	472	459	469	456	435	457	461	463	476	481	495
	489	521	523	532	538	535	541	543	574	577	589	614	630	655
	490	409	416	417	418	409	422	417	417	427	427	423	429	431
	MEAN:	460	463	463	460	463	461	450	470	478	483	489	499	507
GROUP SIZE =		70	70	69	68	68	67	67	67	67	66	66	65	65
GROUP MEAN :		453	453	452	458	460	467	467	469	473	476	482	484	487
MEAN CHANGE:			0	-1	6	3	7	0	3	3	4	5	2	3

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APPENDIX 2

(Bodyweights - continued)

GROUP 39 CAGE	RAT NO.	66	67	68	69	70	71	72	73	74	75	76	77	78
			...WEEK...											
92	456	548	552	552	553	572	577	568	583	577	583	588	587	573
	457	504	507	515	515	530	525	521	533	512	532	529	535	528
	458	520	522	524	525	537	540	549	554	559	559	579	563	576
	459	447	437	421	408	409	392	378	363					
	460	564	567	570	578	580	591	609	597	600	598	599	594	601
	MEAN:	517	517	516	516	526	525	525	526	562	568	574	570	570
93	461	412	426	420	431	437	430	427	447	435	453	451	447	468
	462	410	412	399	420	427	421	423	421	429	433	436	434	439
	463	368	365	372	364	379	380	375	368	382	383	384	383	378
	464	441	426	449	452	463	456	459	474	473	477	476	485	476
	465	510	500	506	506	508	512	511	516	523	529	527	519	514
	MEAN:	428	426	429	435	443	440	439	445	448	455	455	454	455
94	466	428	429	442	452	447	455	459	469	470	468	482	480	476
	467	478	487	476	477	494	488	483	490	496	494	499	514	497
	468	462	463	459	465	483	477	483	476	471	477	475	466	458
	469	433	474	471	477	470	469	472	434	425	414	418	424	419
	470													
	MEAN:	463	463	462	468	474	472	474	467	466	463	469	471	463
95	471	373	363	381	375	370	376	388	387	377	383	387	376	386
	472	615	597	614	615	625	637	650	643					
	473	600	605	610	602	614	629	622	626	637	635	641	646	637
	474	412	410	415	415	415	417	418	420	428	421	425	430	429
	475	545	529	524	527	526	531	532	526	527	520	533	544	523
	MEAN:	509	501	509	507	510	518	522	520	492	490	497	499	494
96	476													
	477	582	591	599	602	616	621	623	630	638	642	653	654	653
	478	499	516	509	508	520	518	521	531	534	531	533	543	531
	479	384	399	392	393	398	396	408	410	400	404	411	410	412
	480	538	554	547	560	565	556	566	582	588	595	592	596	587
	MEAN:	501	515	512	516	525	523	530	538	540	543	547	551	546
97	481													
	482	637	654	634	645	622	638	613	630	607	610	592	563	546
	483	509	307	510	509	527	519	523	526	528	526	530	525	520
	484	527	546	532	544	555	553	562	547	559	570	563	567	554
	485													
	MEAN:	558	569	559	566	568	570	566	568	565	569	562	552	540
98	486	469	482	485	489	498	494	506	517	521	525	520	516	512
	487	516	515	510	522	507	512	501	511	516	526	517	514	498
	488	500	509	519	509	522	520	525	523	533	548	535	541	526
	489	663	687	693	723	731	755	755	767	756	786	793	794	768
	490	427	435	434	443	444	461	467	456	474	465	475	477	454
	MEAN:	516	526	528	537	540	548	551	555	560	570	568	568	552
GROUP SIZE =		64	64	64	63	63	63	63	61	59	59	59	59	58
GROUP MEAN :		492	494	494	500	503	502	504	509	510	513	514	514	509
MEAN CHANGE:			3	-1	6	3	-1	2	5	0	3	2	0	-6

000314

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	SQ RAT NO.	...WEEK... 79	80	81	82	83	84	85	86	87	88	89	90	91
92	456	590	591	592	599	602	593	583	580	573	533	484	434	
	457	559	533	535	547	543	561	557	567	568	569	582	584	596
	458	594	596	605	611	620	628	633	656	646	647	640	648	638
	459													
	460	602	594	623	599	588	605	533	571	567	535	497	450	
	MEAN:	566	579	589	589	588	597	589	594	589	571	551	529	617
93	461	458	455	468	467	469	485	469	480	487	486	496	489	508
	462	423	444	435	447	444	456	458	459	468	484	483	465	
	463	381	393	401	386	395	383	381	404	407	406	421	412	442
	464	493	506	497	486	494	489	490	502	505	497	499	510	509
	465	520	528	509	500	512	507	497	503	500	492	477	477	479
	MEAN:	455	465	462	457	463	464	459	470	473	473	475	471	485
94	466	481	498	491	485	488	495	492	493	493	507	492	492	492
	467	488	500	515	525	532	535	527	528	534	542	527	528	517
	468	462	447	444	406	402	405	387	393	382	402	399	394	391
	469	424	413	411	406	406								
	470													
	MEAN:	464	465	465	456	457	478	469	471	470	484	473	471	467
95	471	376	401	386	391	380	385	373	375	380	377	377	377	373
	472													
	473	626	631	654	659	657	674	680	687	700	694	703	713	724
	474	423	431	432	443	441	450	449	449	455	450	451	452	444
	475	539	550	550	559	541	557	555						
	MEAN:	491	503	506	513	505	517	514	504	512	507	510	514	514
96	476													
	477	664	655	700	682	676	695	693	699	701	694	678	691	689
	478	551	555	557	561	567	572	569	580	598	595	588	591	592
	479	415	423	415	418	419	438	433						
	480	587	592	600	591	598	615	612	606	609	619	612	620	617
	MEAN:	554	556	568	563	565	580	577	628	636	636	626	634	633
97	481													
	482	540	550	544	526	516	507	502	497	484	432	394	343	310
	483	534	533	532	527	537	528	532	541	540	534	525	524	537
	484	567	578											
	485													
	MEAN:	547	554	538	527	527	518	517	519	512	483	460	434	424
98	486	518	508	529	515	532	521	546	561	566	566	560	558	559
	487	499	493	488	485	477	477	464	468	460	458	440	420	425
	488	534	553	555	561	562	572	567	572	571	588	584	575	564
	489	801	800	795										
	490	458	459	475	461	464	480	482	471	492	481	483	487	486
	MEAN:	562	563	568	506	509	513	515	518	522	523	517	510	509
GROUP SIZE =		58	58	57	56	56	54	53	50	49	49	49	49	46
GROUP MEAN :		510	513	514	510	511	515	518	525	528	527	522	521	526
MEAN CHANGE:			3	1	-5	1	4	3	8	3	-1	-4	-1	5

000315

(Bodyweights - continued)

GROUP CAGE	39 RAT NO.	...WEEK... 92	93	94	95	96	97	98	99	100	101	102	103	104
92	456													
	457	539	596	597	604	605	602	607	598	594	589	572	562	533
	458	634	621	604	601	586	580	537	512	489	461	437		
	459													
	460													
	MEAN:	612	610	601	603	596	591	572	555	542	525	505	562	533
93	461	495	499	506	506	519	517	520	531	538	548	563	581	596
	462													
	463	460	416	425	431	430	434	426	412	394	375	375	334	309
	464	506	515	512	506	502	506	500	506	502	505	513	522	522
	465	464	457	442	426	418	414	411	394	389	372	375	292	
	MEAN:	481	472	471	467	467	468	464	461	456	450	457	432	476
94	466	507	500	527	528	521	532	535	528	541	534	553	556	555
	467	540	519	525	522	517	524	518	508	497	491	491	488	485
	468													
	469													
	470													
	MEAN:	524	510	526	525	519	528	527	518	519	513	522	522	520
95	471	374	366	366	353	370	348	338	326	303				
	472													
	473	728	736	740	736	732	730	718	684	575				
	474	456	441	448	456	460	474	457	458	466	456	458	432	448
	475													
	MEAN:	519	514	518	515	521	517	504	489	448	456	458	432	448
96	476													
	477	701	703											
	478	594	594	605	611	602	609	614	615	613	624	628	596	600
	479													
	480	620	623	632	623	605	593	575	560	537	528	490	448	
	MEAN:	638	640	619	617	604	601	595	588	575	576	559	522	600
97	481													
	482													
	483	521	533	531	535	517	520	540						
	484													
	485													
	MEAN:	521	533	531	535	517	520	540						
98	486	570	568	552	540	505	500	360						
	487	413	364	386	389	384	368	374	327	298				
	488	584	587	605	612	613	614	610	606	591	590	585	562	566
	489													
	490	500	477	500	488	490	487	479	506	373				
	MEAN:	517	499	511	507	498	492	456	480	421	590	585	562	566
GROUP SIZE =		44	43	42	40	40	39	39	36	36	32	31	29	27
GROUP MEAN =		534	532	530	530	529	529	523	518	507	519	513	506	512
MEAN CHANGE:			-2	-2	0	-1	1	-7	-4	-12	12	-6	-7	6

000316

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	39 RAT NO.	105	...WEEK... 106	107	108	109	110
92	456						
	457	528	501				
	458						
	459						
	460						
	MEAN:	528	501				
93	461						
	462						
	463						
	464	527	526				
	465						
	MEAN:	527	526				
94	466	562	548				
	467	482	476				
	468						
	469						
	470						
	MEAN:	522	512				
95	471						
	472						
	473						
	474	453	453				
	475						
	MEAN:	453	453				
96	476						
	477						
	478	599	597				
	479						
	480						
	MEAN:	599	597				
97	481						
	482						
	483						
	484						
	485						
	MEAN:						
98	486						
	487						
	488	574	575				
	489						
	490						
	MEAN:	574	575				
GROUP SIZE =		23	22	0	0	0	0
GROUP MEAN :		514	505	-	-	-	-
MEAN CHANGE:			-8	-	-	-	-

000317

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	49 RAT NO.	-3	...WEEK... -2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
99	491	127	163	202	223	241	258	281	291	297	302	316	319	316	334	340	339	335
	492	106	144	172	194	211	233	241	251	257	269	271	279	279	283	296	294	304
	493	135	171	207	232	262	277	302	315	334	329	344	352	350	357	371	372	365
	494	139	171	201	219	239	259	272	280	276	294	309	302	299	324	321	324	335
	495	110	165	186	214	246	265	276	296	308	311	316	329	337	343	348	354	357
	MEAN:	123	163	194	216	240	258	274	287	294	301	311	316	316	328	335	337	339
100	496	132	170	201	229	249	264	276	293	302	309	311	316	302	324	337	336	338
	497	121	152	182	205	221	234	246	255	264	269	271	274	281	282	285	288	292
	498	121	146	170	189	200	215	232	233	238	246	264	259	257	273	280	272	281
	499	106	151	186	212	229	241	271	277	281	293	301	302	317	311	324	332	326
	500	141	168	194	219	231	245	262	263	279	292	292	290	297	306	314	314	321
	MEAN:	124	157	187	211	226	240	257	264	273	282	288	288	291	299	308	308	312
101	501	84	122	148	161	184	200	211	215	228	239	245	246	247	262	261	259	262
	502	116	148	174	192	211	222	234	244	251	256	262	264	269	272	279	282	282
	503	129	148	177	196	214	224	250	257	270	274	291	290	298	309	315	322	326
	504	132	168	202	221	261	276	300	311	324	334	346	351	359	364	366	359	370
	505	139	166	183	209	232	255	266	285	306	311	316	324	331	344	350	360	367
	MEAN:	120	150	177	196	220	235	252	262	276	283	292	295	301	310	314	316	321
102	506	88	126	152	167	281	194	216	215	221	232	244	239	241	252	263	257	270
	507	116	155	182	201	221	237	251	261	273	281	291	288	291	319	320	316	325
	508	127	165	209	228	252	265	282	287	298	311	320	339	339	348	354	362	362
	509	132	170	201	224	253	260	271	280	280	288	283	289	297	299	312	309	315
	510	144	171	197	218	236	234	246	256	257	272	276	270	281	292	292	294	304
	MEAN:	121	157	188	208	249	238	253	260	266	277	283	285	290	302	308	308	315
103	511	109	140	171	191	211	222	242	250	257	262	272	281	279	285	295	299	305
	512	131	158	192	211	229	244	261	281	294	299	302	312	320	329	333	339	349
	513	98	129	170	184	204	223	242	240	254	266	271	262	278	286	290	286	292
	514	126	163	190	216	226	251	264	272	282	290	300	294	309	311	319	323	317
	515	138	159	194	216	234	246	261	269	288	282	293	291	291	300	306	311	311
	MEAN:	120	150	183	204	221	237	254	262	275	280	288	288	295	302	309	312	315
104	516	124	151	176	191	201	175	221	237	240	256	273	266	267	283	290	294	305
	517	94	125	169	191	221	184	264	277	289	291	321	331	337	348	359	352	365
	518	132	161	197	221	246	202	263	272	283	309	299	299	309	319	330	331	335
	519	142	164	201	226	241	205	262	277	294	312	326	330	339	357	354	364	372
	520	119	143	165	186	193	182	232	233	237	242	252	252	254	269	276	272	273
	MEAN:	122	149	182	203	220	190	248	259	269	282	294	296	301	315	322	323	330
105	521	124	158	190	219	239	259	272	282	294	304	319	322	327	337	342	339	347
	522	100	142	180	202	221	241	261	271	281	289	301	312	302	311	322	319	332
	523	133	167	201	231	249	264	274	285	295	306	318	315	326	343	348	341	346
	524	144	176	205	231	252	272	284	287	302	304	319	315	326	329	335	339	341
	525	111	156	182	211	232	246	256	275	274	282	294	293	300	306	309	300	306
	MEAN:	122	160	192	219	239	256	269	280	289	297	310	311	316	325	331	328	334

000318

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	49 RAT NO.	14	15	16	17	18	19	20	21	22	23	24	25	26
			...WEEK...											
99	491	342	349	349	342	346	358	363	359	365	372	384	379	384
	492	307	304	306	300	306	311	312	312	319	325	323	332	330
	493	377	381	383	384	379	388	385	388	393	396	394	406	407
	494	335	341	343	339	346	353	354	348	360	381	376	390	394
	495	370	367	367	360	358	364	371	356	371	373	367	384	388
	MEAN:	346	348	350	345	347	355	357	353	362	369	369	378	381
100	496	340	334	337	343	350	356	358	363	366	371	384	383	381
	497	290	286	289	293	295	300	307	305	313	310	307	319	315
	498	287	283	285	285	288	290	294	293	301	303	301	304	308
	499	322	332	330	326	335	342	362	352	358	360	355	370	365
	500	318	324	327	332	330	339	341	328	350	353	346	359	357
	MEAN:	311	312	314	316	320	325	332	328	338	339	339	347	345
101	501	265	267	270	266	269	275	297	287	281	284	278	289	285
	502	284	286	292	294	299	302	306	310	311	318	315	327	329
	503	326	334	340	328	336	343	350	349	363	364	364	380	377
	504	383	379	395	385	400	408	413	423	422	422	414	427	429
	505	383	388	398	397	403	409	416	417	418	429	433	456	468
	MEAN:	328	331	339	334	341	347	356	357	359	363	361	376	378
102	506	262	265	262	251	267	271	273	275	274	276	280	286	289
	507	326	327	331	334	349	355	344	347	338	344	354	354	361
	508	368	369	369	352	359	364	373	378	374	381	385	402	402
	509	316	306	313	321	321	324	319	326	326	319	318	329	320
	510	303	293	295	294	298	302	302	300	302	304	310	313	311
	MEAN:	315	312	314	310	319	323	322	325	323	325	329	337	337
103	511	302	310	311	307	302	318	318	317	320	331	327	335	330
	512	345	342	352	337	347	351	363	375	372	376	382	391	386
	513	296	295	304	294	294	295	297	296	294	303	303	307	309
	514	336	336	325	319	320	330	335	346	363	354	344	353	351
	515	313	317	321	308	315	317	325	328	330	336	341	341	341
	MEAN:	318	320	323	313	316	322	328	332	336	340	339	345	343
104	516	299	303	309	312	321	322	341	353	353	356	355	369	373
	517	372	371	382	373	370	376	389	375	387	388	397	418	420
	518	341	339	346	333	334	334	329	325	337	342	351	352	354
	519	383	381	387	380	387	391	391	405	412	417	414	437	438
	520	282	275	291	268	270	284	286	280	288	296	300	299	305
	MEAN:	335	334	343	333	336	341	347	348	355	360	363	375	378
105	521	352	352	351	355	366	352	379	380	384	384	391	399	399
	522	334	334	337	327	337	317	337	339	350	355	368	369	367
	523	348	356	356	351	359	344	360	365	379	372	381	375	378
	524	340	338	341	345	339	329	350	350	356	355	353	362	363
	525	306	305	312	320	317	330	327	323	320	325	334	340	338
	MEAN:	336	337	339	340	344	334	351	351	358	358	365	369	369

000319

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	49 RAT NO.	27	...WEEK... 28	29	30	31	32	33	34	35	36	37	38	39
99	491	386	397	400	401	393	399	400	400	400	413	420	416	427
	492	338	343	338	356	342	357	352	367	355	365	362	373	373
	493	411	416	417	426	423	435	437	434	437	439	451	452	463
	494	398	417	422	437	442	458	460	467	477	486	490	496	504
	495	399	405	405	421	403	423	430	440	415	427	430	440	452
	MEAN:	386	396	396	408	401	414	416	422	417	426	431	435	444
100	496	396	405	400	399	401	412	417	417	420	426	431	438	439
	497	311	310	310	315	311	321	317	314	322	323	327	334	336
	498	311	311	314	315	313	316	313	318	323	325	327	345	339
	499	369	364	378	376	380	382	372	377	381	393	398	407	406
	500	366	360	365	367	358	365	362	366	371	384	382	389	387
	MEAN:	351	350	353	354	353	359	356	358	363	370	373	383	381
101	501	283	284	290	292	288	291	287	288	291	293	298	304	304
	502	329	335	338	337	334	341	339	340	348	350	354	358	359
	503	382	381	392	391	390	392	398	404	411	421	420	429	431
	504	435	444	443	452	451	468	470	468	476	476	487	483	490
	505	477	488	492	513	513	534	528	552	559	554	561	572	569
	MEAN:	381	386	391	397	395	405	404	410	417	419	424	429	431
102	506	290	287	293	298	298	297	299	295	301	312	307	314	315
	507	365	358	369	380	376	374	373	366	380	384	408	399	406
	508	407	410	418	424	423	425	429	436	434	437	446	454	457
	509	326	326	324	339	342	342	335	339	345	348	357	363	366
	510	304	296	308	311	306	312	317	320	321	325	328	335	337
	MEAN:	338	335	342	350	349	350	351	351	356	361	369	373	376
103	511	339	336	338	341	350	347	344	341	353	360	365	371	380
	512	388	389	390	395	395	402	408	402	408	417	418	425	419
	513	325	311	312	310	313	314	309	316	320	321	327	361	360
	514	357	378	380	362	359	368	378	375	372	375	387	404	401
	515	342	349	335	345	346	355	353	358	363	372	383	396	389
	MEAN:	350	353	351	351	353	357	358	358	363	369	376	391	390
104	516	373	380	389	398	400	399	401	407	399	403	414	416	425
	517	429	432	447	446	450	444	446	459	459	463	473	478	486
	518	351	360	368	363	370	368	366	371	373	375	383	383	384
	519	439	440	449	448	449	455	453	459	465	476	476	481	479
	520	305	302	306	306	309	308	308	318	319	318	327	329	324
	MEAN:	380	383	392	392	396	395	395	403	403	407	415	417	420
105	521	408	420	431	428	434	440	435	437	454	458	455	471	471
	522	373	378	376	376	380	384	383	384	395	397	402	409	408
	523	399	397	403	411	403	403	401	404	408	413	408	417	422
	524	364	375	376	374	372	381	370	376	381	382	388	389	400
	525	343	351	352	351	353	356	353	355	361	360	357	371	370
	MEAN:	377	384	388	388	388	393	388	391	400	402	402	411	414

000320

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	49 RAT NO.	40	...WEEK... 41	42	43	44	45	46	47	48	49	50	51	52
99	491	422	428	441	438	435	431	451	455	466	479	483	490	491
	492	377	385	391	381	333	392	405	410	414	412	424	421	422
	493	408	473	486	484	435	494	505	504	505	514	519	529	537
	494	510	520	539	539	537	530	543	555	560	566	564	587	604
	495	452	459	468	465	470	479	485	439	496	515	523	520	522
	MEAN:	446	453	465	461	463	465	478	483	488	497	503	509	515
100	496	441	453	453	453	459	464	472	480	489	505	508	506	504
	497	352	364	341	346	345	338	334	342	340	347	350	355	355
	498	331	337	342	339	341	340	351	348	349	354	356	359	358
	499	412	420	426	429	437	443	449	455	459	465	477	479	480
	500	388	395	400	397	403	406	408	415	419	426	417	419	418
	MEAN:	385	394	392	393	397	398	403	408	411	419	422	424	423
101	501	304	310	311	316	322	321	323	332	328	330	329	336	338
	502	359	361	365	368	370	369	376	384	389	404	401	401	403
	503	430	434	440	440	446	447	459	463	474	482	487	497	499
	504	434	508	513	513	518	524	531	544	554	565	566	560	570
	505	575	590	596	609	511	623	631	643	658	666	662	666	683
	MEAN:	431	441	445	449	453	457	464	473	481	489	489	492	499
102	506	320	325	327	332	335	333	341	358	345	348	356	357	366
	507	421	425	416	409	420	420	425	442	440	445	448	456	460
	508	460	466	484	487	490	487	502	506	512	516	518	522	528
	509	356	369	369	374	376	372	379	385	394	400	397	398	401
	510	341	347	354	355	360	367	379	387	386	393	382	404	405
	MEAN:	382	386	390	391	396	396	405	416	415	421	420	427	432
103	511	379	388	385	391	398	390	395	405	400	414	412	420	441
	512	428	431	435	432	441	443	452	454	463	470	471	473	477
	513	346	342	344	343	357	347	342	352	358	357	333	364	366
	514	402	398	395	393	391	418	424	427	440	438	432	422	432
	515	395	397	405	398	397	401	407	412	419	427	425	432	414
	MEAN:	390	391	393	391	397	400	404	410	416	421	415	422	426
104	516	434	442	442	455	468	474	490	492	498	505	507	522	520
	517	498	501	502	503	508	516	520	523	511	537	521	528	532
	518	393	403	403	404	406	406	410	415	420	432	441	450	462
	519	498	497	498	510	518	528	529	541	533	538	559	574	585
	520	325	335	337	341	350	338	351	348	358	370	364	372	386
	MEAN:	430	436	436	443	450	452	460	464	464	476	478	489	497
105	521	478	473	498	505	502	499	505	510	519	535	528	535	538
	522	419	416	422	429	435	433	439	449	460	441	467	467	437
	523	423	412	431	430	432	430	442	438	440	463	452	450	452
	524	389	390	401	412	417	418	429	437	438	440	441	447	479
	525	377	375	375	365	367	376	379	395	392	398	402	401	404
	MEAN:	417	414	425	426	431	431	439	446	450	455	458	460	462

000321

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	49 RAT NO.	...WEEK... 53	54	55	56	57	58	59	60	61	62	63	64	65
99	491	489	492	497	504	502	510	515	511	521	522	531	538	547
	492	436	442	459	457	466	465	476	472	478	495	497	480	512
	493	552	549	553	567	568	577	572	577	599	610	617	611	638
	494	600	602	617	620	609	618	627	624	628	645	653	656	662
	495	520	518	534	529	533	522	520	509	511	514	512	512	506
	MEAN:	519	521	532	535	536	538	542	539	547	557	562	559	573
100	496	484	512	516	511	513	519	535	525	533	527	546	533	534
	497	359	357	355	359	361	360	358	374	375	373	374	382	378
	498	368	370	365	369	366	366	371	380	381	397	402	407	397
	499	488	490	497	511	496	505	513	525	523	518	533	545	544
	500	422	424	428	422	418	419	420	425	422	418	422	444	438
	MEAN:	424	431	432	434	431	434	439	446	447	447	455	462	458
101	501	339	343	348	344	350	347	360	357	365	366	372	374	376
	502	411	412	411	410	415	420	419	427	427	435	435	429	438
	503	503	500	499	509	509	523	521	524	539	538	557	550	561
	504	560	576	574	583	589	590	602	598	604	608	625		
	505	689	682	670	696	701	692	695	693	703	694	706	707	715
	MEAN:	500	503	500	508	513	514	519	520	528	528	539	515	523
102	506	365	364	364	367	374	371	385	386	383	374	399	409	402
	507	461	480	481	479	485	499	509	513	515	517	511	516	513
	508	524	536	528	523	526	531	534	525	527	525	524	530	521
	509	407	410	413	414	428	422	430	432	438	445	445	461	460
	510	422	419	418	428	422	428	425	440	433	445	450	446	448
	MEAN:	436	442	441	442	447	450	457	459	459	461	466	472	469
103	511	437	432	465	452	464	466	466	468	480	471	498	498	502
	512	477	482	483	487	486	490	487	487	503	504	508	502	497
	513	368	371	369	372	372	370	371	376	376	383	382	396	395
	514	444	440	435	422	431	453	453	450	455	469	456	478	481
	515	422	429	432	436	434	434	431	421	435	436	438	444	448
	MEAN:	430	431	437	434	437	443	442	440	450	453	456	464	465
104	516	519	532	517	528	543	537	552	549	561	566	564	575	567
	517	526	517	518	528	526	527	516	507	512	485	491	497	480
	518	458	461	453	459	473	472	473	481	481	480	481	482	480
	519	602	619	621	628	637	654	642	657	659	667	659	655	649
	520	398	383	370	376	398	392	405	410	417	413	420	433	437
	MEAN:	501	502	496	504	515	516	518	521	526	522	523	528	523
105	521	538	537	528	534	543	550	551	552	557	564	560	569	581
	522	477	485	475	492	492	496	509	517	521	520	541	526	547
	523	454	450	447	437	449	455	440	455	450	451	456	461	449
	524	455	454	456	452	458	457	468	473	466	476	482	495	493
	525	407	399	408	399	396	411	398	406	404	419	418	419	426
	MEAN:	466	465	463	463	468	474	473	481	480	486	491	494	499

000322

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	49 RAT NO.	...WEEK... 66	67	68	69	70	71	72	73	74	75	76	77	78
99	491	564	562	570	570	567	585	578	599	597	603	603	619	617
	492	517	527	522	525	536	533	542	560	541	555	537	532	545
	493	644	657	654	667	676	680	686	688	689	701	707	708	711
	494	676	683	695	694	700	705	706	706	713	703	713	720	709
	495	523	536	526	541	545	550	560	553	564	570	579	576	576
	MEAN:	585	593	593	599	605	611	614	621	621	626	628	631	632
100	496	543	559	560	548	552	563	562	552	557	571	570	565	562
	497	386	380	383	385	385	400	393	401	398	396	399	406	408
	498	399	403	399	405	408	412	424	413	447	458	451	454	459
	499	555	546	560	565	565	572	561	573	576	570	577	578	558
	500	448	455	457	468	472	468	466	464	462	474	478	479	474
	MEAN:	466	469	472	474	476	483	481	481	488	494	495	496	492
101	501	379	389	385	381	392	390	401	402	413	414	405	405	414
	502	447	446	457	455	464	460	460	459	464	458	455	454	458
	503	565	566	576	569	571	574	560	575	578	571	586	574	578
	504													
	505	740	739	744	751	741	740	738	741	748	757	759	772	779
	MEAN:	533	536	541	539	542	541	540	544	551	550	551	551	557
102	506	403	412	415	414	418	420	409	420	422	420	428	438	427
	507	511	522	526	521	533	537	501	534	536	541	546	549	556
	508	533	540	527	538	546	547	509	546	534	550	546	538	543
	509	469	481	489	496	501	498	488	514	521	519	521	520	517
	510	452	456	441	442	452	447	447	464	465	455	470	479	486
	MEAN:	474	482	480	482	490	490	471	496	496	497	502	505	506
103	511	515	510	522	533	535	534	523	528	538	541	533	539	536
	512	516	518	522	541	537	541	547	541	546	543	555	564	564
	513	410	404	407	420	407	412	416	414	417	424	424	433	436
	514	497	491	496	488	503	509	506	510	508	515	512	505	509
	515	457	463	464	468	475	473	472	477	478	484	487	485	485
	MEAN:	479	477	482	490	491	494	493	494	497	501	502	505	506
104	516	596	593	589	598	603	612	602	614	606	628	623	627	637
	517	470	460	451	439	435	427	422	387	370	354	327	303	286
	518	495	490	492	500	498	488	488	486	473	477	476	476	476
	519	637	622	588	604	489	457							
	520	449	451	458	461	467	465	480	472	469	473	481	487	477
	MEAN:	529	523	516	520	498	490	498	490	480	483	477	473	469
105	521	583	586	585	588	596	601	597	627	610	614	618	616	618
	522	548	549	535	540	539	534	533	538	543	572	593	597	609
	523	455	458	460	453	466	455	473	470	456	463	462	461	465
	524	486	478	491	495	496	497	507	515	514	518	524	522	523
	525	427	420	438	435	432	428	425	432	428	442	451	444	444
	MEAN:	500	478	502	502	506	503	507	516	510	522	530	528	532

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(Bodyweights - continued)

GROUP CAGE	RAT NO.	...WEEK... 79	80	81	82	83	84	85	86	87	88	89	90	91
99	491	618	625	641	635	650	637	668	667	672	683	678	684	702
	492	557	575	563	573	572	572	569	567	578	583	584	594	602
	493	713	728	741	735	757	775	773	798	792	789	784	795	801
	494	722	733	728	722	724	726	745	735	756	745	747	754	759
	495	536	593	599	598	611	621	622	631	632	628	630		
	MEAN:	639	651	654	653	663	670	675	680	686	686	695	707	716
100	496	572	579	562	578	584	568	570	581	582	575	587	588	591
	497	404	406	412	412	417	412	422	442	424	436	424	439	431
	498	455	466	477	469	476	483	486	492	507	512	511	514	526
	499													
	500	474	479	478	480	486	495	493	495	502	494	491		
	MEAN:	476	483	482	485	491	490	493	503	504	504	503	514	516
101	501	405	422	432	429	439	447	443	453	460	463	463	473	485
	502	454	449	441										
	503	591	599	613	598	589	597	596	586	605	593	597	589	599
	504													
	505	792	792	792	795	798	806	808	812	816	825	823	813	817
	MEAN:	561	566	570	607	609	617	616	617	627	627	628	625	634
102	506	435	447	435	445	439	440	442	432	443	438	434	423	416
	507	554	548	564	571	570	569	565	581	589	593	592	607	598
	508	532	530	563	543	544	547	542	544	546	551	559	555	564
	509	528	545	532	542	542	543	527	510	500	473	445	372	306
	510	484	477	496	500	503	510	502	513	514	520	524	521	522
	MEAN:	507	509	518	520	520	522	516	516	518	515	511	496	481
103	511	545	572	572	555	557	563	573	569	578	597	583	589	596
	512	568	568	566	576	567	580	578	574	580	583	589	599	604
	513	431	433	448	427	426	432	441	432	429	429	431	434	428
	514	505	504	511	513	515	527	522	532	536	547	536	540	555
	515	492	495	500	495	491	500	495	496	501	509	505	506	522
	MEAN:	508	514	519	513	511	520	522	521	525	533	529	534	541
104	516	635	640	648	660	673	671	669	666	660	637	616		
	517													
	518	466	449	468	463	469	483	466	471	472	475	467	460	458
	519													
	520	470	503	506	452	408	391	354						
	MEAN:	524	531	541	525	517	515	496	569	566	556	542	460	458
105	521	615	614	616	624	645	626	638	623	635	632	642	641	651
	522	615	625	635	647	660	650	646	654	665	667	660	661	659
	523	464	471	466	445	461	466	458	471	473	469	468	455	445
	524	524	539	566	539	551	548	554	560	561	561	556	553	554
	525	447	441	446	471	469	451	443	446	446	446	439	442	452
	MEAN:	533	538	546	545	557	548	548	551	556	555	553	550	552

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	RAT NO.	92	...WEEK... 93	94	95	96	97	98	99	100	101	102	103	104
99	491	694	678	700	701	711	715	724	725	727	720	738	749	749
	492	598	582	612	615	612	633	633	630	644	652	666	655	646
	493	778	768	768	795	799	809	767	766	766	756	730	710	697
	494	754	729	761	751	745	742	721	727	712	719	691	661	642
	495													
	MEAN:	711	689	710	716	717	725	716	712	712	712	706	694	684
100	496	622	607	596	593	588	566	567	559	533	552	493	490	464
	497	435	444	438	449	454	454	458	443	442	434	426	425	423
	498	519	524	534	536	537	539	544	537	550	545	559	565	563
	499													
	500													
	MEAN:	525	525	523	526	526	520	523	513	508	510	493	493	490
101	501	480	481	483	482	488	483	482	489	480	478	490	491	495
	502													
	503	601	593	582	566	543	527	490	468	445	441	386	371	357
	504													
	505	826	821	824	820	807	809	798	788	771	772	762	760	743
	MEAN:	636	632	630	623	613	606	590	582	565	564	546	541	532
102	506	401	403	384	383	385	400	388	381					
	507	570	599	615	625	603	609	619	635	591	638	638	641	646
	508	555	553	546	543	544	543	526	533	489	512	509	502	503
	509													
	510	517	529	530	539	541	543	538	564	498	499	460	428	371
	MEAN:	511	521	519	523	518	524	518	528	526	550	536	524	507
103	511	606	597	601	608	603	608	608	609	579	512	455	397	
	512	603	612	610	607	611	618	623	614	624	622	624	615	613
	513	399	429	444	440	439	442	447	461	438	451	436	446	440
	514	567	570	577	565	569	568	565	573	582	589	588	589	579
	515	511	510	520	524	532	525	530	521	518	520	524	531	522
	MEAN:	537	544	550	549	551	552	555	556	548	539	525	516	539
104	516													
	517													
	518	452	451	443	451	453	446	451	447	440	443	437	447	444
	519													
	520													
	MEAN:	452	451	443	451	453	446	451	447	440	443	437	447	444
105	521	647	667	650	652	647	645	635	631					
	522	662	650	645	631	622	608							
	523	446	442	427	420	399	432	408	351					
	524	551	551	566	555	562	581	566	559	563	579	588	586	588
	525	450	461	453	453	446	462	454	447	453	465	470	460	458
	MEAN:	551	554	548	542	535	546	516	497	508	522	529	523	523

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	49 RAT NO.	105	...WEEK... 106	107	108	109	110
99	491	763	761				
	492	636	643				
	493	702	629				
	494	619					
	495						
	MEAN	680	678				
100	496	473	457				
	497	421	402				
	498	571	557				
	499						
	500						
	MEAN:	488	472				
101	501	501	507				
	502						
	503	338					
	504						
	505	723	683				
	MEAN:	521	595				
102	506						
	507	652	670				
	508	498	480				
	509						
	510						
	MEAN:	575	575				
103	511						
	512	612	618				
	513	442	447				
	514	574	582				
	515	518	503				
	MEAN:	537	538				
104	516						
	517						
	518	456	449				
	519						
	520						
	MEAN:	456	449				
105	521						
	522						
	523						
	524	598	610				
	525	458	462				
	MEAN:	528	536				

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	4 ♀ RAT NO.	...WEEK... -3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
106	526	134	164	192	211	235	256	274	282	306	319	319	322	329	339	348	341	349
	527	129	158	185	204	215	231	240	252	260	264	276	269	276	282	281	279	286
	528	116	159	190	209	233	258	262	273	278	290	294	294	300	316	316	315	322
	529	104	142	179	194	220	234	246	253	271	276	282	284	289	300	300	294	300
	530	161	190	217	246	264	282	294	302	317	322	326	334	337	349	352	356	358
	MEAN:	129	163	193	213	233	252	263	272	286	294	299	301	306	317	319	317	323
107	531	102	146	187	211	239	257	273	285	301	302	304	315	320	328	330	329	336
	532	121	159	182	211	223	242	253	255	267	277	281	281	281	297	304	302	301
	533	126	158	186	211	227	245	256	271	288	291	296	291	307	316	320	323	324
	534	130	154	185	206	224	241	252	269	271	286	292	299	306	311	321	324	331
	535	140	175	213	236	256	276	292	302	311	312	321	324	330	344	346	346	352
	MEAN:	124	158	191	215	234	252	265	276	288	294	299	302	309	319	324	325	329
108	536	100	151	180	206	224	239	241	270	282	291	291	321	324	333	337	331	331
	537	111	142	176	196	211	230	240	251	260	272	276	279	287	294	300	302	302
	538	122	135	166	182	195	216	230	240	249	252	262	264	269	272	276	275	280
	539	135	166	190	211	231	242	256	272	276	281	292	300	300	310	308	311	315
	540	147	166	196	211	224	246	263	262	277	286	294	294	303	311	316	310	321
	MEAN:	123	152	182	201	217	235	246	259	269	276	283	292	297	304	307	306	310
109	541	109	141	166	186	202	222	234	238	241	251	262	260	260	272	283	282	282
	542	137	184	211	226	251	271	282	290	309	311	311	311	321	337	342	334	349
	543	109	156	185	204	229	237	252	262	274	282	292	294	306	311	315	321	329
	544	121	152	183	199	216	232	240	252	266	270	281	277	289	294	297	294	303
	545	141	167	192	206	215	226	232	245	251	252	254	261	267	263	270	276	277
	MEAN:	123	160	187	204	223	238	248	257	268	273	280	281	289	295	301	301	308
110	546	130	153	180	196	211	220	231	225	237	239	252	254	257	259	264	262	261
	547	102	145	180	209	230	254	271	279	292	302	310	304	319	333	333	334	340
	548	137	177	192	211	232	249	259	263	274	282	286	281	297	304	310	309	309
	549	139	163	190	206	220	246	262	264	268	272	298	282	287	296	302	309	303
	550	121	160	190	219	236	251	264	278	280	289	292	302	306	311	319	319	318
	MEAN:	126	160	186	208	226	244	257	262	270	277	288	285	293	301	306	307	306
111	551	121	134	176	192	216	230	241	249	256	269	272	274	277	289	290	299	302
	552	106	118	175	202	212	250	271	290	291	309	326	329	306	343	351	359	377
	553	136	140	196	219	234	252	263	275	284	283	291	293	297	306	306	319	311
	554	141	138	184	209	226	241	254	261	267	269	276	274	296	297	290	297	301
	555	120	118	167	176	200	216	236	242	251	259	271	271	273	290	294	298	300
	MEAN:	125	130	180	200	218	238	253	263	270	278	287	288	290	305	306	314	318
112	556	134	167	196	206	224	240	246	258	267	271	276	276	283	294	304	298	302
	557	126	155	185	202	221	235	249	263	272	272	291	291	300	309	312	314	316
	558	114	145	174	189	205	216	225	245	247	249	262	263	261	274	271	274	278
	559	100	150	193	219	250	260	276	297	311	319	329	341	349	366	370	384	391
	560	139	167	190	199	214	231	234	238	248	251	262	256	259	269	278	270	276
	MEAN:	123	157	188	203	223	236	246	260	269	272	284	285	290	302	307	308	313
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		123	155	186	207	228	239	256	266	276	283	292	294	299	309	314	315	320
MEAN CHANGE:			31	32	21	21	12	17	10	10	7	9	2	5	10	5	1	5

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APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	4♀ RAT NO.	...WEEK... 14	15	16	17	18	19	20	21	22	23	24	25	26
106	526	357	356	354	366	361	358	362	356	368	368	359	361	378
	527	287	279	283	282	279	281	287	285	290	288	292	307	316
	528	333	335	336	341	344	347	350	355	345	359	361	367	369
	529	305	302	307	296	307	305	307	301	303	318	304	315	317
	530	367	365	375	377	374	378	390	381	400	408	401	416	414
	MEAN:	330	327	331	332	333	334	339	336	341	348	343	353	359
107	531	343	340	349	342	338	349	352	347	353	362	358	357	361
	532	305	309	307	308	305	310	314	314	317	328	314	330	322
	533	331	329	333	314	321	331	339	329	331	348	332	343	344
	534	338	339	336	335	334	343	343	342	344	353	346	356	348
	535	355	361	359	358	353	365	368	373	370	375	376	380	380
	MEAN:	334	336	337	331	330	340	343	341	343	353	345	353	351
108	536	335	338	348	342	346	351	345	337	352	362	363	369	365
	537	293	312	311	311	306	312	315	313	328	328	331	339	338
	538	300	281	282	281	290	295	312	292	290	293	296	304	308
	539	318	320	325	316	322	324	328	325	324	320	312	331	320
	540	324	323	328	321	321	320	326	324	330	333	321	331	334
	MEAN:	314	315	319	314	317	320	325	318	325	327	325	335	333
109	541	292	294	293	284	288	305	331	293	294	303	303	311	305
	542	351	348	344	351	351	354	358	368	373	378	369	387	386
	543	330	322	334	337	336	342	362	354	353	361	353	371	364
	544	311	303	299	296	297	308	320	318	327	333	333	336	330
	545	281	281	282	281	283	289	312	298	305	291	326	316	327
	MEAN:	313	310	310	310	311	320	337	326	330	333	337	344	342
110	546	266	269	259	262	263	269	267	250	271	263	254	270	234
	547	348	351	356	353	351	371	377	362	365	380	369	375	369
	548	316	311	312	308	311	324	325	326	333	340	336	350	353
	549	301	308	313	313	312	341	368	315	328	336	335	349	334
	550	316	318	325	325	323	334	337	339	337	346	347	347	345
	MEAN:	309	311	313	312	312	328	335	318	327	333	328	338	327
111	551	302	306	309	314	313	324	327	321	304	323	325	328	325
	552	394	383	376	376	382	389	395	405	384	411	403	414	406
	553	313	321	331	329	326	331	339	334	317	341	334	352	357
	554	297	295	299	305	308	312	337	316	294	317	327	332	325
	555	306	302	305	311	308	318	322	321	306	330	324	341	330
	MEAN:	322	321	324	327	327	335	344	339	321	344	343	353	349
112	556	302	297	303	305	303	311	318	319	321	327	328	331	326
	557	320	333	334	326	327	326	334	340	348	346	344	351	351
	558	278	278	283	284	284	291	296	290	292	297	295	304	297
	559	397	403	407	410	403	404	428	432	438	449	447	444	445
	560	276	271	274	273	277	284	290	288	295	295	286	300	294
	MEAN:	315	316	320	320	319	323	333	334	339	343	340	346	343
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		323	324	327	324	327	332	339	336	340	346	345	354	352
MEAN CHANGE:			0	3	-3	2	5	7	-3	3	6	-1	9	-1

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APPENDIX 2

(Bodyweights - continued)

GROUP	49													
CAGE	RAT		...WEEK...											
	NO.	27	28	29	30	31	32	33	34	35	36	37	38	39
106	525	380	380	383	389	388	390	388	392	395	393	397	400	400
	527	314	301	306	304	299	291	305	316	322	328	326	323	317
	528	361	370	366	373	387	386	391	387	388	398	397	400	402
	529	317	321	325	330	334	343	328	335	346	355	356	361	363
	530	422	416	430	433	429	434	436	440	449	467	460	462	462
	MEAN:	359	358	362	366	367	369	370	374	380	383	387	389	389
107	531	366	362	364	361	361	373	358	328	334	357	366	368	372
	532	322	322	328	328	326	333	329	330	334	338	344	345	347
	533	345	339	344	344	353	357	351	356	363	359	377	374	371
	534	359	360	360	368	365	361	367	367	375	373	377	378	373
	535	375	378	384	391	381	390	386	388	396	394	399	408	396
	MEAN:	353	352	356	358	357	363	358	354	360	364	373	375	372
108	536	360	371	373	376	363	380	382	386	380	384	385	369	381
	537	333	341	342	346	339	345	346	346	348	346	344	344	346
	538	303	309	313	311	308	316	316	311	322	321	326	328	327
	539	324	324	328	328	326	332	332	333	334	336	336	341	335
	540	340	341	340	342	339	352	353	355	358	365	369	373	379
	MEAN:	332	337	339	341	335	345	346	346	348	350	352	351	354
109	541	312	322	307	311	310	318	319	323	325	329	340	342	342
	542	377	374	386	395	394	404	396	400	406	406	417	405	406
	543	361	366	370	370	368	377	376	376	389	386	387	397	389
	544	329	323	325	333	324	332	341	334	351	354	365	373	365
	545	312	310	312	309	309	322	331	280	262	308	321	324	289
	MEAN:	338	339	342	344	341	351	353	343	347	357	366	368	358
110	546	214	218	229	240	229	221	226	222	229	233	237	231	228
	547	380	383	388	397	383	398	408	396	402	408	423	419	425
	548	354	359	366	369	372	384	383	388	390	400	409	418	423
	549	349	349	354	361	359	368	361	370	367	373	370	380	379
	550	345	351	350	352	344	355	364	367	378	385	390	372	372
	MEAN:	328	332	337	344	337	345	348	349	353	360	366	364	365
111	551	334	330	337	334	339	352	349	354	354	346	358	362	362
	552	424	426	425	438	446	462	467	481	485	489	494	501	505
	553	345	348	348	349	352	360	358	366	371	372	384	383	380
	554	338	344	328	332	332	356	331	338	335	333	337	338	337
	555	337	332	345	346	347	352	356	364	368	366	369	372	380
	MEAN:	356	356	357	360	363	376	372	381	383	381	388	391	393
112	556	326	327	335	332	340	344	343	343	343	356	354	363	361
	557	342	353	355	366	366	382	369	388	389	384	407	410	403
	558	299	297	304	304	302	305	299	306	307	314	317	318	316
	559	470	468	476	477	486	503	502	512	515	527	537	535	543
	560	295	301	305	304	304	337	343	331	324	328	325	331	346
	MEAN:	346	349	355	357	360	374	371	376	376	382	388	391	394
GROUP SIZE =		70	70	70	70	70	70	70	70	70	70	70	70	70
GROUP MEAN :		356	358	362	363	364	371	370	373	376	381	386	391	391
MEAN CHANGE:			2	4	3	-1	7	-1	2	4	5	5	4	1

000329

APPENDIX 2

(Bodyweights - continued)

GROUP CAGE	49 RAT NO.	40	...WEEK... 41	42	43	44	45	46	47	48	49	50	51	52
106	526	400	413	411	411	412	409	420	420	420	430	412	417	454
	527	321	325	328	340	353	340	344	373	366	360	337	372	373
	528	406	412	416	418	428	430	438	444	453	455	434	459	466
	529	369	372	378	383	339	388	395	405	400	412	390	414	423
	530	466	473	481	486	487	488	488	510	515	527	505	503	530
	MEAN:	392	399	403	408	414	411	417	430	431	437	416	433	449
107	531	377	377	379	383	383	388	385	383	387	395	394	396	398
	532	343	350	353	353	358	352	358	363	366	365	375	384	386
	533	381	371	370	376	361	375	381	383	393	399	402	410	412
	534	376	386	384	381	368	386	409	411	411	412	409	406	407
	535	413	409	408	410	429	420	404	415	415	420	435	437	440
	MEAN:	377	379	379	381	384	384	387	391	394	398	403	407	409
108	536	401	402	414	411	420	428	435	412	428	437	439	446	450
	537	356	362	369	373	368	377	385	367	374	380	392	392	396
	538	333	340	341	345	347	346	341	330	340	350	349	354	361
	539	334	349	352	357	354	356	352	329	355	369	369	361	379
	540	386	392	387	372	361	363	358	322	353	360	370	386	382
	MEAN:	362	369	373	372	370	374	374	352	370	379	384	388	394
109	541	349	353	357	354	367	369	366	371	379	390	391	397	381
	542	416	427	429	429	437	429	435	437	428	432	435	427	425
	543	393	404	405	409	414	426	414	417	431	435	444	442	440
	544	371	376	375	380	381	389	412	416	431	434	439	448	445
	545	331	332	336	341	340	346	355	363	364	359	357	355	352
	MEAN:	372	379	380	385	338	392	396	401	407	410	413	414	409
110	546	227	230	229										
	547	425	429	434	436	434	436	454	453	450	465	463	462	458
	548	424	422	438	437	448	444	455	473	478	480	480	489	476
	549	393	389	395	396	401	405	412	421	411	425	441	430	435
	550	376	379	377	394	402	404	400	425	392				
	MEAN:	369	370	375	416	421	422	430	443	433	457	461	460	456
111	551	366	370	379	377	383	383	389	392	391	393	399	401	408
	552	507	515	526	532	531	532	533	522	528	535	554	554	562
	553	378	386	391	392	391	394	408	407	412	419	423	429	435
	554	338	341	341	342	339	342	347	344	352	344	349	329	357
	555	335	394	397	400	404	403	411	415	421	420	421	426	436
	MEAN:	395	402	407	409	410	411	418	416	421	422	429	428	440
112	556	365	370	375	371	367	372	375	376	372	353	346	349	384
	557	423	437	435	450	452	468	474	462	468	443	437	438	481
	558	316	322	323	323	327	325	326	324	330	303	310	315	337
	559	553	566	572	581	578	574	582	589	606	580	590	590	629
	560	346	348	348	356	350	363	384	398	389	366	385	386	411
	MEAN:	401	409	411	416	415	420	428	430	433	409	414	416	448
GROUP SIZE =		70	70	70	69	69	69	69	69	69	68	68	68	68
GROUP MEAN :		396	401	405	410	413	415	422	426	429	435	435	440	447
MEAN CHANGE:			5	4	5	3	2	6	4	4	5	1	5	7

000330

APPENDIX 2

(Bodyweights - continued)

GROUP	49													
CAGE	RAT		...WEEK...											
	NO.	53	54	55	56	57	58	59	60	61	62	63	64	65
106	526	461	444	447	429	429	435	442	443	449	455	464	471	463
	527	369	378	380	380	384	395	399	399	415	406	414	416	422
	528	469	469	477	475	492	485	498	512	511	510	513	517	528
	529	410	418	422	421	422	433	437	445	460	470	462	471	477
	530	524	535	536	540	536	551	560	550	549	553	553	562	555
	MEAN:	447	449	452	449	453	460	467	470	477	479	481	487	489
107	531	399	406	406	417	415	424	417	418	422	422	426	420	426
	532	397	399	398	400	405	406	408	414	411	413	420	419	422
	533	424	426	435	430	430	447	453	458	457	457	470	468	474
	534	412	411	416	430	421	422	425	445	453	464	467	451	470
	535	450	450	449	460	462	462	462	468	468	473	481	483	487
	MEAN:	416	418	421	427	427	432	433	441	442	446	453	448	456
108	536	470	469	468	471	472	492	488	481	498	499	495	504	498
	537	402	401	405	404	402	408	403	416	424	429	425	422	434
	538	369	371	378	374	381	381	392	390	397	405	418	417	422
	539	385	383	380	387	390	397	392	394	400	398	391	410	413
	540	374	379	396	384	375	378	372	397	410	398	401	392	406
	MEAN:	400	401	405	404	404	411	409	416	426	426	426	429	435
109	541	380	387	392	390	400	406	412	414	422	411	433	433	433
	542	428	443	441	447	473	463	466	474	474	470	473	475	482
	543	446	447	447	462	466	478	489	483	487	485	498	502	506
	544	446	456	446	452	455	469	478	494	490	498	495	471	477
	545	357	375	364	377	382	390	390	397	378				
	MEAN:	411	422	418	426	435	441	447	452	450	466	475	470	475
110	546													
	547	461	474	468	475	483	487	493	497	505	512	508	519	521
	548	498	496	484	498	503	518	519	519	523	552	550	543	554
	549	423	440	442	436	460	451	466	469	460	471	465	475	474
	550													
	MEAN:	461	470	465	470	482	485	493	495	496	512	508	512	516
111	551	402	430	426	433	427	436	441	449	433	450	454	442	452
	552	567	563	540	553	550	555	558	562	551	569	571	586	590
	553	438	431	442	438	433	445	451	453	463	461	458	467	474
	554	355	357	355	357	352	355	355	363	355	367	362	361	362
	555	443	447	447	452	449	459	458	458	462	475	480	489	461
	MEAN:	441	446	442	447	442	450	453	457	453	464	465	469	468
112	556	379	385	388	391	394	392	394	389	388	373	401	415	422
	557	488	502	511	516	521	531	531	538	540	549	557	547	556
	558	341	338	342	342	342	354	343	355	358	356	356	354	362
	559	632	634	633	627	646	660	649	652	651	662	674	678	691
	560	425	422	436	422	433	444	448	454	457	457	468	459	468
	MEAN:	453	456	462	460	467	476	473	478	479	479	491	491	500
GROUP SIZE =		68	66	68	68	68	68	68	68	68	67	67	66	66
GROUP MEAN :		450	453	454	457	461	466	468	472	475	480	485	485	488
MEAN CHANGE:			3	1	3	4	5	3	4	3	5	5	0	3

APPENDIX 2

(Bodyweights - continued)

GROUP 49 CAGE	RAT NO.	66	67	68	69	70	71	72	73	74	75	76	77	78
		...WEEK...												
106	526	475	499	510	512	524	527	530	544	583	553	545	549	563
	527	433	439	445	471	450	455	463	470	474	481	488	480	484
	528	530	529	535	542	547	547	547	560	553	558	568	559	563
	529	479	478	467	471	488	499	488	492	491	503	493	501	503
	530	572	549	536	545	538	540	548	530	504	499	476	467	449
	MEAN:	498	499	499	508	509	514	515	519	521	519	514	511	512
107	531	428	422	423	428	430	439	440	466	437	427	451	438	451
	532	428	427	428	440	436	441	432	444	446	438	449	453	447
	533	475	475	487	500	508	508	500	522	518	505	533	535	533
	534	481	498	485	489	498	490	482	497	500	503	508	519	516
	535	493	498	486	507	504	503	484	502	513	484	512	504	515
	MEAN:	461	462	462	473	475	476	468	486	483	471	491	490	492
108	536	499	510	505	499	521	530	519	526	513	528	541	531	540
	537	424	435	431	443	443	457	455	458	449	461	460	479	470
	538	418	428	425	435	434	432	436	441	475	425	412	424	422
	539	423	417	418	418	425	424	426	432	438	433	444	442	443
	540	414	400	410	406	402	418	412	414	410	413	417	408	411
	MEAN:	436	438	438	440	445	452	450	454	457	452	455	457	457
109	541	448	439	445	445	457	454	452	458	450	458	464	464	456
	542	485	496	480	495	493	489	481	483	489	506	520	531	535
	543	521	523	528	537	540	533	531	534	515	536	535	526	531
	544	506	520	512	519	537								
	545													
	MEAN:	470	495	491	499	507	492	488	492	485	500	506	507	507
110	546													
	547	523	549	549	570	559	555	553	568	571	576	564	563	564
	548	566	560	569	582	589	570	578	553	485				
	549	479	486	487	503	498	503	499	516	506	514	517	513	519
	550													
	MEAN:	523	532	535	552	549	543	543	546	521	545	541	538	542
111	551	453	468	471	488	506	517	521	538	528	502	545	541	530
	552	588	605	612	594	572	580	577	571	575	594	595	596	572
	553	480	485	495	505	497	494	502	519	501	508	508	509	493
	554	371	360	368	385	373	367	372	379	378	375	378	365	372
	555	486	500	497	523	514	509	520	517	512	513	528	530	504
	MEAN:	477	484	489	499	492	493	498	505	499	498	511	508	494
112	556	414	406	429	432	440	439	439	452	453	471	463	463	463
	557	558	557	562	556	540	545	552	574	558	578	588	581	567
	558	357	344	343	330	341	356	350	390	370	369	373	371	365
	559	678	693	699	696	681	704	715	739	731	749	744	735	736
	560	477	478	479	500	481	492	500	525	505	516	512	504	496
	MEAN:	497	496	502	503	497	507	511	536	523	537	536	531	525
GROUP SIZE =		66	66	66	66	66	65	64	64	64	63	63	63	63
GROUP MEAN :		475	497	498	504	504	505	504	512	510	513	516	516	515
MEAN CHANGE:			2	1	6	0	1	-1	8	-3	3	3	0	-1

000332

(Bodyweights - continued)

GROUP	49													
CAGE	RAT	...WEEK...												
	NO...	79	80	81	82	83	84	85	86	87	88	89	90	91
106	526	568	570	577	584	592	60[illegible]	610	614	620	622	600	580	561
	527													
	528	558	600	611	588	593	605	630	603	626	625	621	626	627
	529	501	504	506	516	514	515	521	516	524	512	514	501	465
	530													
	MEAN:	542	558	565	563	566	574	587	578	590	586	578	569	551
107	531	449	439	466	445	443	443	448	458	447	431	447	453	469
	532	455	458	450	471	468	466	474	480	473	483	479	486	490
	533	539	540	542	550	561	550	561	570	565	557	571	581	591
	534	535	546	532	515	535	548	539	546	545	547	572	571	585
	535	501	514	512	526	521	522	528	534	532	532	522	529	531
	MEAN:	496	500	500	501	506	506	510	518	512	510	518	524	533
108	536	541	541	547	546	560	565	546	562	566	578	587		
	537	481	486	486	509	513	527	507	520	524	532	543	551	561
	538	434	446	442	457	463	456	445	453	468	469	472	475	479
	539	452	460	448	455	459	465	451	469	469	470	486	477	479
	540	415	412	420	411	429	418	399	420	419	411	419	413	408
	MEAN:	465	469	469	476	485	486	470	485	489	492	501	479	482
109	541	467	468	467	465	469	482	467	487	491	501	499	512	519
	542	534	547	554	554	563	558	560	572	575	572	559	555	555
	543	543	556	546	560	561	562	560	558	572	576	569	576	573
	544													
	545													
	MEAN:	515	524	522	526	531	534	529	539	546	550	542	548	549
110	546													
	547	562	559	554	565	568	590	585	595	605	604	610		
	548													
	549	517	522	520	509	496	443	391	348	302				
	550													
	MEAN:	540	541	537	537	532	517	488	472	454	604	610		
111	551	522	532	565	546	563	573	571	579	579	584	576	595	605
	552	596	601											
	553	490	528	520	521	509	529	505	516	521	532	522	516	527
	554	374	423	403	371	387	381	386	395	394	400	400	392	399
	555	509	507	522	512	519	535	528	534	537	545	538	551	550
	MEAN:	498	518	503	488	495	505	495	506	508	515	509	514	520
112	556	460	470	483	477	467	490	482	494	511	513	533	519	519
	557	567	557	581	599	582	594	605	603	616	623	633	647	655
	558	371	377	378	389	371	386	389	380	394	408	397	409	412
	559	730	747	755	711	677	678	673						
	560	499	510	517	520	508	527	521	508	492	449	418	376	
	MEAN:	525	532	543	539	521	535	534	496	503	498	495	488	529
GROUP SIZE =		59	59	58	57	57	57	57	55	55	54	54	49	48
GROUP MEAN :		522	530	533	533	535	538	535	539	542	547	545	541	546
MEAN CHANGE:			8	3	0	2	3	-3	4	3	5	-1	-5	5

(Bodyweights - continued)

GROUP CAGE	69 RAT NO.	92	...WEEK... 93	94	95	96	97	98	99	100	101	102	103	104
106	526	552	504	466	425	376								
	527													
	528	643	643	634	637	620	620	618	604	603	599	568	589	588
	529	447	402	357	330									
	530													
	MEAN:	547	516	486	464	498	620	618	604	603	599	568	589	588
107	531	490	487	462	461	453	461	469	446					
	532	489	483	488	464	494	503	498	524	496	491	490	496	499
	533	590	599	596	590	603	598	599						
	534	578	604	599	584	592	593	613	614	612	591	616	623	636
	535	531	533	534	531	525	537	529	534	528	539	539	537	538
	MEAN:	536	541	536	526	533	538	542	530	545	540	548	552	558
108	536													
	537	570	572	567	568	565	576	578	565	567	567	555	570	584
	538	486	488	493	482	492	504	510	497	490	502	507	509	509
	539	486	478	481	480	475	478	486	474	474	474	472	486	485
	540	399	406	402	396	421	400	394	382	394	387	380	377	
	MEAN:	465	486	486	482	488	490	492	480	481	483	479	486	526
109	541	516	516	517	519	520	527	531	523	529	528	491	502	517
	542	553	537	522	520	509	500	473	445	414				
	543	588	587	572	586	586	580	585	566	562	570	531		
	544													
	545													
	MEAN:	552	547	537	542	538	536	530	511	502	549	511	502	517
110	546													
	547													
	548													
	549													
	550													
	MEAN:													
111	551	613	600	587										
	552													
	553	528	521	518	513	506	529	536						
	554	398	395	398	403	413	400	377	332	281				
	555	571	555	545	545	541	548	544	540	548	521	517	493	516
	MEAN:	528	518	512	487	487	492	486	436	415	521	517	493	516
112	556	520	544	520	514	528	519	522	527	503	527	526	503	524
	557	658	657	652	640	637	633	634	642	637	633	571	590	587
	558	411	416	399	399	395	357	396	408	336				
	559													
	560													
	MEAN:	530	539	524	518	520	503	517	526	492	580	549	547	556
GROUP SIZE :		47	47	47	46	45	44	43	41	37	34	34	33	31
GROUP MEAN :		551	548	545	541	544	549	545	539	536	554	542	539	547
MEAN CHANGE:			-2	-3	-4	3	5	-4	-7	-3	18	-12	-3	7

000334

(Bodyweights - continued)

GROUP 49 CAGE	RAT NO.	...WEEK... 105	106	107	108	109	110
106	526						
	527						
	528	592	606				
	529						
	530						
	MEAN:	592	608				
107	531						
	532	506	533				
	533						
	534	643	655				
	535	551	541				
	MEAN:	567	566				
108	536						
	537	587	592				
	538	515	512				
	539	479	476				
	540						
	MEAN:	527	527				
109	541	527	537				
	542						
	543						
	544						
	545						
	MEAN:	527	537				
110	546						
	547						
	548						
	549						
	550						
	MEAN:						
111	551						
	552						
	553						
	554						
	555	517	483				
	MEAN:	517	483				
112	556	532	549				
	557	575	585				
	558						
	559						
	560						
	MEAN:	554	567				
GROUP SIZE :		30	26	0	0	0	0
GROUP MEAN :		553	554	-	-	-	-
MEAN CHANGE:			1	-	-	-	-

APPENDIX 3

Cage mean water consumption (ml/rat/day)

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0 (Control)	1000	3000	10000

Week 6

Group	Day	Cage number													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1♂	1	42	41	35	49	39	50	30	29	55	43	44	41	39	34
	2	40	42	34	36	34	36	38	32	46	32	31	38	35	34
	3	52	44	38	42	43	45	41	42	57	44	43	35	42	38
	4	42	47	33	41	42	45	44	37	47	39	38	41	39	38
	5	46	45	36	36	39	47	43	41	45	44	34	41	36	35
Cage mean		44	44	35	41	39	45	39	36	50	40	38	39	38	36

Group	Day	Cage number													
		43	44	45	46	47	48	49	50	51	52	53	54	55	56
4♂	1	41	36	40	41	39	48	41	40	38	40	35	38	41	45
	2	34	37	34	35	35	36	37	30	30	36	38	37	42	39
	3	37	41	44	42	40	34	43	38	43	43	50	43	52	43
	4	38	41	41	40	40	44	44	36	43	45	41	47	51	43
	5	37	39	36	39	39	40	45	35	38	41	39	48	49	42
Cage mean		37	39	39	39	39	40	42	36	38	41	41	43	47	42

000336

APPENDIX 3

(Water consumption - continued)

Week 6

Group	Day	Cage number													
		57	58	59	60	61	62	63	64	65	66	67	68	69	70
1♀	1	37	32	34	34	29	35	31	26	21	31	33	23	35	24
	2	29	30	31	28	28	30	25	27	27	18	27	30	25	33
	3	33	35	32	27	33	39	29	29	27	22	25	35	37	28
	4	41	40	37	38	32	32	33	33	29	26	30	35	35	41
	5	32	36	35	33	35	37	36	32	31	26	30	30	32	34
Cage mean		34	35	34	32	31	35	31	29	27	25	29	31	33	32

Group	Day	Cage number													
		99	100	101	102	103	104	105	106	107	108	109	110	111	112
4♀	1	30	28	31	38	25	55	35	26	28	25	25	26	40	21
	2	32	23	30	30	29	36	34	28	27	30	29	29	27	26
	3	35	29	31	34	28	36	38	40	32	29	30	29	32	35
	4	35	30	33	36	32	37	33	34	34	30	29	26	30	33
	5	35	27	35	33	28	35	34	27	32	27	34	28	30	32
Cage mean		33	27	32	34	28	40	35	31	31	28	29	28	32	29

000337

APPENDIX 3

(Water consumption - continued)

Week 12

Group	Day	Cage number													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1♂	1	43	37	34	37	34	36	36	37	47	32	37	37	34	32
	2	48	41	37	40	39	40	41	36	45	36	39	38	36	34
	3	46	41	33	37	38	43	41	42	46	35	35	40	37	36
	4	47	45	35	38	37	44	37	38	48	38	36	40	34	33
	5	39	40	34	37	39	37	38	35	45	33	37	37	36	32
Cage mean		45	41	35	38	37	40	39	38	46	35	37	38	35	33

Group	Day	Cage number													
		43	44	45	46	47	48	49	50	51	52	53	54	55	56
4♂	1	32	41	36	38	36	36	34	29	34	40	36	39	51	37
	2	30	40	34	42	36	42	41	34	31	39	28	38	50	35
	3	35	39	37	44	38	41	42	35	36	45	44	41	50	38
	4	34	39	38	42	39	38	42	33	36	39	37	40	49	36
	5	31	30	33	41	35	42	38	31	33	39	35	37	44	36
Cage mean		32	38	36	41	37	40	39	32	34	40	36	39	49	36

000338

APPENDIX 3

(Water consumption - continued)

Week 12

Group	Day	Cage number													
		57	58	59	60	61	62	63	64	65	66	67	68	69	70
1♀	1	29	32	32	31	30	25	30	30	27	26	28	31	30	27
	2	27	33	31	25	30	27	29	29	25	24	26	30	30	31
	3	32	39	33	31	32	26	31	27	29	25	28	32	30	33
	4	25	32	32	29	32	28	26	28	26	21	23	12	28	33
	5	26	32	28	48	28	26	29	27	26	21	24	30	28	27
Cage mean		28	34	31	33	30	26	29	28	27	23	26	27	29	30

Group	Day	Cage number													
		99	100	101	102	103	104	105	106	107	108	109	110	111	112
4♀	1	32	27	33	33	29	33	32	28	31	27	30	29	30	31
	2	30	22	30	28	27	29	25	23	27	26	28	27	26	30
	3	35	28	32	37	29	35	33	26	32	31	29	28	30	28
	4	28	22	L	30	26	29	32	26	30	26	30	29	29	32
	5	31	26	39	34	26	41	33	28	31	26	25	24	22	22
Cage mean		31	25	34	32	27	33	31	26	30	27	28	27	27	29

L Bottle leaked, no value available

000339

APPENDIX 3

(Water consumption - continued)

Week 24

Group	Day	Cage number													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1♂	1	41	45	39	37	39	43	39	43	L	37	29	37	36	37
	2	40	42	39	36	36	43	41	42	47	38	39	42	36	33
	3	45	41	39	39	36	52	36	46	37	36	36	43	37	33
	4	43	39	38	36	37	41	57	33	44	34	35	41	37	31
	5	41	39	29	34	33	40	57	48	L	32	39	30	31	34
Cage mean		42	41	37	36	36	44	46	42	43	35	36	39	35	34

Group	Day	Cage number													
		43	44	45	46	47	48	49	50	51	52	53	54	55	56
4♂	1	38	33	37	46	42	48	42	35	34	37	44	35	42	31
	2	40	34	36	38	40	30	44	34	32	41	39	39	28	33
	3	59	35	41	42	41	43	33	36	37	38	42	38	51	37
	4	34	32	36	32	42	30	41	32	31	38	39	38	44	32
	5	34	55	34	34	33	54	41	28	31	34	28	40	50	30
Cage mean		41	38	37	38	40	41	40	33	33	38	38	38	43	33

L Bottle leaked, no value available

000340

APPENDIX 3

(Water consumption - continued)

Week 24

Group	Day	Cage number													
		57	58	59	60	61	62	63	64	65	66	67	68	69	70
1♀	1	30	35	37	30	30	29	31	29	29	25	28	32	35	34
	2	27	19	35	29	30	29	28	29	26	25	28	L	34	23
	3	28	36	38	61	31	31	25	32	26	24	34	49	34	26
	4	24	28	34	42	27	62	30	29	23	22	24	34	31	31
	5	28	34	30	24	30	24	18	29	27	23	24	34	36	34
Cage mean		27	30	35	37	30	35	26	30	26	24	28	37	34	30

Group	Day	Cage number													
		99	100	101	102	103	104	105	106	107	108	109	110	111	112
4♀	1	32	25	28	36	26	32	35	28	32	32	31	32	32	32
	2	31	26	29	32	25	34	33	25	27	31	29	27	30	39
	3	47	29	44	35	26	32	34	32	28	30	29	27	29	28
	4	28	22	28	30	21	32	31	26	30	25	29	27	28	32
	5	31	25	28	32	26	33	34	26	28	23	27	24	29	28
Cage mean		34	25	31	33	25	33	33	27	29	28	29	27	30	32

L Bottle leaked, no value available.

000341

APPENDIX 3

(Water consumption - continued)

Week 79

Group	Day	Cage number													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1♂	1	31	35	40	33	39	35	35	31	43	29	28	33	32	35
	2	43	38	61	37	41	40	41	39	53	L	28	42	34	46
	3	43	39	53	37	36	38	39	36	47	33	27	44	37	39
	4	49	67	53	39	42	39	41	37	L	34	27	49	38	40
	5	47	41	54	39	44	44	63	30	55	54	27	50	36	42
	6	50	38	54	27	41	40	38	36	53	37	30	39	40	42
	7	61	33	18	35	36	30	36	33	45	31	29	30	39	36
Cage mean		46	42	48	35	40	38	42	35	49	36	28	41	37	40

Group	Day	Cage number													
		15	16	17	18	19	20	21	22	23	24	25	26	27	28
2♂	1	44	42	42	39	L	40	40	32	64	39	42	30	30	39
	2	44	41	44	45	L	39	39	29	68	42	48	46	33	41
	3	38	38	47	50	L	37	38	34	70	42	47	46	31	44
	4	42	40	50	39	L	38	32	33	70	38	46	47	32	41
	5	50	41	49	46	L	40	38	34	73	37	50	46	37	42
	6	48	44	L	46	L	45	43	37	79	43	55	48	39	46
	7	42	39	45	40	L	41	34	52	70	37	45	42	45	40
Cage mean		44	41	46	44		40	38	36	71	40	48	44	35	42

L Bottle leaked, no value available

000342

APPENDIX 3

(Water consumption - continued)

Week 79

Group	Day	Cage number													
		29	30	31	32	33	34	35	36	37	38	39	40	41	42
3♂	1	63	36	37	34	19	48	44	44	49	46	57	37	35	38
	2	64	40	36	37	25	31	46	33	43	52	36	42	28	32
	3	65	42	39	40	26	42	29	61	51	46	34	40	28	38
	4	63	40	35	34	36	39	45	37	47	50	42	43	30	35
	5	63	43	36	37	28	47	45	38	48	59	38	41	31	37
	6	58	37	38	38	34	51	49	44	75	54	34	42	33	36
	7	64	42	40	34	29	48	47	34	43	52	31	40	30	32
Cage mean		63	40	37	36	28	44	44	42	51	51	39	41	31	35

Group	Day	Cage number													
		43	44	45	46	47	48	49	50	51	52	53	54	55	56
4♂	1	44	48	41	41	30	35	45	28	33	34	38	51	32	40
	2	55	51	47	38	31	39	47	33	37	35	52	56	33	38
	3	40	45	41	42	31	46	44	33	34	37	48	48	40	45
	4	46	44	44	L	36	44	48	22	38	46	45	43	28	35
	5	52	49	44	L	38	36	44	34	31	33	44	53	33	41
	6	47	44	50	45	35	42	49	L	41	41	55	59	39	45
	7	47	40	46	39	34	40	46	45	35	34	38	59	30	37
Cage mean		47	46	45	41	34	40	46	33	36	37	46	53	34	40

L Bottle leaked, no value available

000343

APPENDIX 3

(Water consumption - continued)

Week 79

Group	Day	Cage number													
		57	58	59	60	61	62	63	64	65	66	67	68	69	70
1♀	1	44	52	36	33	42	35	26	46	27	26	35	33	33	49
	2	43	34	41	35	35	33	42	46	30	27	38	37	44	58
	3	45	41	37	34	32	39	37	46	32	26	39	38	48	58
	4	47	41	36	35	27	38	39	41	34	24	42	38	47	58
	5	37	L	41	30	35	31	43	44	30	20	30	57	42	52
	6	47	43	42	36	36	37	42	45	35	22	39	35	43	62
	7	33	38	32	33	33	33	36	38	30	25	30	42	38	56
Cage mean		42	42	38	34	34	35	38	44	31	24	36	40	42	56

Group	Day	Cage number													
		71	72	73	74	75	76	77	78	79	80	81	82	83	84
2♀	1	44	33	37	31	32	45	33	36	35	34	30	30	35	27
	2	49	35	36	32	28	42	34	37	35	32	31	34	38	27
	3	46	32	35	33	28	48	32	35	36	36	34	35	36	31
	4	45	32	L	32	32	49	39	41	37	39	40	36	39	24
	5	41	32	35	33	31	53	36	40	39	34	41	32	39	27
	6	44	32	37	31	35	63	36	36	L	35	40	32	37	26
	7	38	26	31	27	27	48	30	32	34	31	34	29	36	26
Cage mean		44	32	35	31	30	50	34	37	36	34	36	33	37	27

L Bottle leaked, no value available

000344

APPENDIX 3

(Water consumption - continued)

Week 79

Group	Day	Cage number													
		85	86	87	88	89	90	91	92	93	94	95	96	97	98
3♀	1	25	42	24	33	45	27	28	52	32	34	33	33	50	35
	2	31	48	34	40	44	32	44	54	37	37	26	29	48	42
	3	29	46	30	38	47	34	35	53	36	40	30	35	43	44
	4	28	40	32	37	44	32	39	52	37	39	35	37	53	44
	5	29	47	28	35	46	28	40	50	40	35	37	36	51	46
	6	47	48	57	34	47	33	59	61	37	39	36	39	59	44
	7	24	39	30	30	42	25	34	47	35	32	33	33	57	37
Cage mean		30	44	34	35	45	30	40	53	36	37	33	35	52	42

Group	Day	Cage number													
		99	100	101	102	103	104	105	106	107	108	109	110	111	112
4♀	1	32	29	42	43	28	36	41	31	32	32	43	37	33	28
	2	41	30	38	42	31	47	40	32	29	37	39	49	37	30
	3	37	30	36	L	27	21	L	31	32	39	48	39	38	35
	4	39	30	45	50	30	42	L	30	34	39	42	42	38	31
	5	33	35	59	41	28	33	41	22	28	33	39	33	37	28
	6	42	37	42	47	29	40	43	40	35	37	41	45	42	36
	7	30	31	36	37	25	34	38	31	32	L	36	36	24	26
Cage mean		36	32	43	43	28	36	41	31	32	36	41	40	36	31

L Bottle leaked, no values available

000345

000346

APPENDIX 4

Haematology - individual values and observations

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0 (Control)	1000	3000	10000

Week 26

Group	Rat No.	PCV %	Hb g%	RBC mill. /cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Platelets 1000/cmm	Thrombotest secs.	Comment on film
1♂	51	51	13.8	6.9	27	74	20.0	10.4	1.6	8.6	0.1	0.0	0.1	730	28	NAD
	52	50	13.4	7.6	27	66	17.6	16.2	2.4	13.6	0.2	0.0	0.0	930	30	NAD
	53	55	14.4	7.5	26	73	19.2	10.0	0.4	9.3	0.3	0.0	0.0	960	28	NAD
	54	54	13.7	7.4	25	73	18.5	16.1	1.1	14.8	0.2	0.0	0.0	900	25	NAD
	55	54	14.6	7.3	27	74	20.0	11.1	0.6	10.4	0.1	0.0	0.0	870	27	NAD
	56	52	14.2	7.0	27	74	20.3	14.3	1.4	12.7	0.1	0.0	0.0	930	25	NAD
	57	51	13.8	6.8	27	75	20.3	9.7	1.7	7.7	0.3	0.0	0.0	820	26	NAD
	58	49	12.1	5.9	25	83	20.5	17.0	1.9	15.1	0.0	0.0	0.0	820	22	NAD
	59	49	14.1	6.8	29	72	20.7	18.1	0.9	17.2	0.0	0.0	0.0	880	25	NAD
	60	50	13.9	7.0	28	71	19.9	17.0	2.4	14.1	0.3	0.0	0.2	800	26	NAD
Mean		52	13.8	7.0	27	74	19.7	14.0	1.4	12.4	0.2	0.0	0.0	864	26	NAD
2♂	121	49	13.1	6.9	27	71	19.0	8.3	0.9	7.2	0.2	0.0	0.0	750	28	NAD
	122	49	13.1	6.4	27	77	20.5	15.5	2.6	12.9	0.0	0.0	0.0	930	26	NAD
	123	53	13.4	6.8	25	78	19.7	19.6	2.0	17.6	0.0	0.0	0.0	770	30	NAD
	124	49	13.5	6.9	28	71	19.6	14.6	1.9	12.6	0.1	0.0	0.0	870	25	NAD
	125	48	12.5	6.4	26	75	19.5	17.5	3.5	13.7	0.2	0.0	0.2	800	24	NAD
	127	51	13.9	6.9	27	74	20.1	13.8	1.9	11.7	0.0	0.0	0.1	870	30	NAD
	128	48	13.0	6.5	27	74	20.0	11.0	0.8	10.1	0.1	0.0	0.0	1010	21	NAD
	129	50	13.2	7.1	26	70	18.6	14.3	3.0	11.3	0.0	0.0	0.0	800	28	NAD
	130	51	14.6	7.4	29	69	19.7	15.4	1.8	13.6	0.0	0.0	0.0	960	27	NAD
Mean		50	13.4	6.8	27	73	19.6	14.4	2.1	12.3	0.1	0.0	0.0	862	27	NAD

NAD No abnormalities detected
Rat no. 126, group 2♂, died during week 26

APPENDIX 4

(Haematology - continued)

Week 26

Group	Rat No.	PCV %	Hb g%	RBC mill. /cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm						Plate-lets 1000/cmm	Throm-botest secs.	Comment on film
								Total	N	L	E	B	M			
3♂	191	48	13.4	7.0	28	69	19.1	13.0	1.2	11.8	0.0	0.0	0.0	780	27	NAD
	192	52	13.3	7.0	26	74	19.0	18.6	2.8	15.6	0.2	0.0	0.0	840	26	NAD
	193	51	14.2	6.7	28	76	21.2	12.0	0.7	11.2	0.1	0.0	0.0	830	26	NAD
	194	53	13.7	6.6	26	80	20.8	14.6	0.9	13.6	0.1	0.0	0.0	520	24	NAD
	195	50	13.8	7.4	28	68	18.6	13.0	1.0	11.8	0.0	0.0	0.1	740	24	NAD
	196	55	13.9	7.0	25	79	19.9	13.0	1.4	11.6	0.0	0.0	0.0	880	29	NAD
	197	50	12.9	7.3	26	68	17.7	14.3	4.9	9.0	0.4	0.0	0.0	1070	26	NAD
	198	53	14.1	6.9	27	77	20.4	22.1	1.5	20.6	0.0	0.0	0.0	820	22	NAD
	199	54	14.9	7.4	28	73	20.1	15.0	1.2	13.5	0.3	0.0	0.0	860	26	NAD
	200	52	14.5	7.7	28	68	18.8	18.4	1.3	16.9	0.2	0.0	0.0	820	28	NAD
Mean		52	13.9	7.1	27	73	19.6	15.4	1.7	13.6	0.1	0.0	0.0	816	26	NAD
4♂	261	51	13.7	6.9	27	74	19.9	11.5	1.3	10.2	0.0	0.0	0.0	700	31	NAD
	262	53	14.1	7.0	27	76	20.1	16.4	1.1	15.1	0.2	0.0	0.0	910	28	NAD
	263	52	14.5	7.3	28	71	19.9	14.3	1.6	12.6	0.1	0.0	0.0	850	26	NAD
	264	51	14.5	7.2	28	71	20.1	15.3	1.2	13.8	0.3	0.0	0.0	780	24	NAD
	265	50	12.9	6.6	26	76	19.5	13.3	2.5	10.8	0.0	0.0	0.0	600	26	NAD
	266	52	14.1	7.2	27	72	19.6	13.8	1.1	12.6	0.1	0.0	0.0	860	24	NAD
	267	51	13.8	6.8	27	75	20.3	11.4	0.6	10.8	0.0	0.0	0.0	710	28	NAD
	268	49	13.7	7.0	28	70	19.6	19.8	2.4	17.2	0.2	0.0	0.0	880	26	NAD
	269	49	13.6	7.3	28	67	18.6	10.9	0.7	10.2	0.0	0.0	0.0	870	34	NAD
	270	47	13.0	6.7	28	70	19.4	17.2	2.1	15.1	0.0	0.0	0.0	950	28	NAD
Mean		51	13.8	7.0	27	72	19.7	14.4	1.5	12.8	0.1	0.0	0.0	811	28	NAD

NAD No abnormalities detected

000347

000348

APPENDIX 4

(Haematology - continued)

Week 26

Group	Rat No.	PCV %	Hb g%	RBC mill. /cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Plate-lets 1000/ cmm	Throm-botest secs.	Comment on film
1♀	331	47	13.0	6.1	28	77	21.3	13.3	1.5	11.4	0.4	0.0	0.0	750	20	NAD
	332	49	13.6	6.9	28	71	19.7	8.2	0.7	7.5	0.0	0.0	0.0	760	22	NAD
	333	47	13.5	6.4	29	73	21.1	12.0	1.9	10.0	0.1	0.0	0.0	800	22	NAD
	334	49	13.3	6.4	27	77	20.8	10.3	1.2	9.0	0.1	0.0	0.0	740	19	NAD
	335	47	13.5	6.2	29	76	21.8	11.9	1.0	10.9	0.0	0.0	0.0	890	19	NAD
	336	48	13.5	6.4	28	75	21.1	9.1	1.1	8.0	0.0	0.0	0.0	730	24	NAD
	337	50	14.3	6.8	29	74	21.0	9.1	0.7	8.4	0.0	0.0	0.0	530		NAD
	338	49	13.1	6.2	27	79	21.1	9.9	1.3	8.5	0.0	0.0	0.1	770	21	NAD
	339	48	14.3	6.4	30	75	22.3	10.7	0.4	10.0	0.3	0.0	0.0	830	19	NAD
	340	47	13.8	6.3	29	75	21.9	11.3	1.0	10.3	0.0	0.0	0.0	790	24	NAD
	Mean	48	13.6	6.4	28	75	21.2	10.6	1.1	9.4	0.1	0.0	0.0	759	21	NAD
2♀	401	47	13.0	6.0	28	78	21.7	6.1	0.9	5.2	0.0	0.0	0.0	770	24	NAD
	402	49	14.3	6.3	29	78	22.7	12.8	1.9	10.6	0.3	0.0	0.0	840	20	NAD
	403	43	13.3	5.9	31	73	22.5	9.7	0.6	8.8	0.3	0.0	0.0	770	19	NAD
	404	44	12.3	5.6	28	79	22.0	20.5	1.4	18.5	0.6	0.0	0.0	910	19	NAD
	405	48	14.0	6.4	29	75	21.9	11.1	1.0	10.1	0.0	0.0	0.0	740	20	NAD
	406	49	14.1	6.4	29	77	22.0	8.9	1.5	7.4	0.0	0.0	0.0	760	21	NAD
	407	46	13.6	6.6	30	70	20.6	12.5	0.8	11.5	0.3	0.0	0.0	990	21	NAD
	408	46	13.5	6.3	29	73	21.4	9.8	0.7	9.1	0.0	0.0	0.0	800	21	NAD
	409	48	14.0	6.6	29	73	21.2	12.0	1.0	10.9	0.1	0.0	0.0	810		NAD
	410	47	14.0	6.2	30	76	22.6	10.6	0.5	10.1	0.0	0.0	0.0	700	21	NAD
	Mean	47	13.6	6.2	29	75	21.9	11.4	1.0	10.2	0.2	0.0	0.0	809	21	NAD

NAD No abnormalities detected
Original samples from rat Nos. 337 and 409 clotted prior to the thrombotest

APPENDIX 4

(Haematology - continued)

Week 26

Group	Rat No.	PCV %	Hb g%	RBC mill. /cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Plate-lets 1000/cmm	Throm-botest secs.	Comment on film
3♀	471	45	13.7	6.2	30	73	22.1	9.3	0.4	8.7	0.2	0.0	0.0	760	19	NAD
	472	47	13.4	6.2	29	76	21.6	11.7	1.1	10.6	0.0	0.0	0.0	810	19	NAD
	473	48	13.6	5.9	28	81	23.1	9.9	0.9	9.0	0.0	0.0	0.0	740	21	NAD
	474	51	14.5	6.7	28	76	21.6	9.4	0.5	8.9	0.0	0.0	0.0	760	20	NAD
	475	50	13.6	6.9	27	72	19.7	16.5	3.8	12.7	0.0	0.0	0.0	980	26	NAD
	476	49	13.5	6.5	28	75	20.8	7.8	0.2	7.5	0.2	0.0	0.0	780	21	NAD
	477	43	13.3	6.1	31	70	21.8	9.3	0.5	8.8	0.0	0.0	0.0	790	20	NAD
	478	46	12.9	6.1	28	75	21.1	9.1	0.8	8.3	0.0	0.0	0.0	810		NAD
	479	46	13.4	6.1	29	75	22.0	7.0	0.4	6.4	0.2	0.0	0.0	850		NAD
	480	46	13.2	6.2	29	74	21.3	11.2	1.1	9.9	0.2	0.0	0.0	790	20	NAD
	Mean	47	13.5	6.3	29	75	21.5	10.1	0.9	9.1	0.1	0.0	0.0	807	21	NAD
4♀	541	49	14.1	6.5	29	75	21.7	9.9	0.5	9.4	0.0	0.0	0.0	800	20	NAD
	542	49	13.2	5.9	27	83	22.4	11.4	1.9	9.5	0.0	0.0	0.0	800	24	NAD
	543	52	14.0	6.4	27	81	21.9	13.1	0.7	12.3	0.1	0.0	0.0	790	21	NAD
	544	49	13.8	6.3	28	78	21.9	9.9	0.7	9.0	0.2	0.0	0.0	840	24	NAD
	545	48	13.6	6.5	28	74	20.9	10.3	0.4	9.9	0.0	0.0	0.0	790	18	NAD
	546	46	13.4	6.3	29	73	21.3	8.2	1.8	6.3	0.1	0.0	0.0	970	21	NAD
	547	48	14.1	6.4	29	75	22.0	10.7	0.6	9.6	0.4	0.0	0.0	760	19	NAD
	548	48	12.7	5.6	26	86	22.7	9.7	1.1	8.5	0.1	0.0	0.0	880	20	NAD
	549	44	12.8	5.6	29	79	22.9	14.0	1.4	12.3	0.1	0.0	0.1	840		NAD
	550	48	13.9	6.4	29	75	21.7	10.4	0.7	9.6	0.0	0.0	0.1	780	20	NAD
	Mean	48	13.6	6.2	28	78	21.9	10.8	1.0	9.6	0.1	0.0	0.0	825	21	NAD

NAD No abnormalities detected
Original samples from rat Nos. 478, 479 and 549 clotted prior to the thrombotest

000349

000350

APPENDIX 4

(Haematology - continued)

Week 52

Group	Rat No.	PCV %	Hb g%	RBC mill. /cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Plate-lets 1000/ cmm	Throm-botest secs.	Comment on film
1♂	51	57	15.9	7.8	28	73	20.4	11.1	1.4	9.3	0.3	0.0	0.0	770	32	NAD
	52	58	16.1	8.3	28	70	19.4	26.9	4.8	22.1	0.0	0.0	0.0	900		NAD
	53	61	17.4	8.8	29	69	19.8	13.5	3.2	10.1	0.1	0.0	0.0	920	28	NAD
	54	54	15.4	7.9	29	68	19.5	12.5	2.0	10.0	0.4	0.0	0.1	900	35	NAD
	55	57	16.7	8.4	30	67	19.9	25.0	2.5	22.3	0.3	0.0	0.0	740	26	NAD
	56	52	14.8	6.8	28	77	21.8	16.8	2.7	13.8	0.3	0.0	0.0	950	24	NAD
	57	54	15.3	7.2	29	74	21.3	11.1	1.8	9.1	0.2	0.0	0.0	890	35	NAD
	58	47	13.1	6.1	28	78	21.5	21.8	3.9	17.2	0.7	0.0	0.0	960	31	NAD
	59	55	15.1	7.3	27	76	20.7	15.6	1.3	14.2	0.2	0.0	0.0	770	30	NAD
	60	54	15.0	7.5	28	72	20.0	13.7	1.4	12.2	0.1	0.0	0.0	840	28	NAD
Mean		55	15.5	7.6	28	72	20.4	16.8	2.5	14.0	0.3	0.0	0.0	864	30	NAD
2♂	121	56	15.6	7.9	28	71	19.7	14.1	2.5	11.4	0.1	0.0	0.0	790	26	NAD
	122	48	14.1	6.9	29	70	20.4	11.9	2.7	9.0	0.0	0.0	0.1	970	26	NAD
	123	55	15.3	7.7	28	72	19.9	13.7	1.1	12.6	0.0	0.0	0.0	910	31	NAD
	124	55	15.8	8.0	29	69	19.8	16.9	6.1	10.5	0.3	0.0	0.0	830	29	NAD
	125	51	14.5	7.2	28	71	20.1	11.2	1.8	9.3	0.1	0.0	0.0	900	28	NAD
	127	61	16.0	7.8	26	78	20.5	11.1	3.1	7.9	0.1	0.0	0.0	840	27	NAD
	128	49	13.6	6.5	28	76	20.9	11.8	1.3	10.4	0.1	0.0	0.0	1000	25	NAD
	129	56	15.3	8.0	27	70	19.1	13.4	1.6	11.4	0.3	0.0	0.1	830	27	NAD
	130	54	14.9	7.3	28	73	20.4	12.2	2.7	9.4	0.1	0.0	0.0	930	26	NAD
Mean		54	15.0	7.5	28	72	20.1	12.9	2.6	10.2	0.1	0.0	0.0	889	27	NAD

Original sample from rat No. 52 clotted prior to the thrombotest
NAD No abnormalities detected

APPENDIX 4

(Haematology - continued)

Week 52

Group	Rat No.	PCV %	Hb g%	RBC mill. /cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Plate-lets 1000/cmm	Throm-botest secs.	Comment on film
3♂	191	54	15.0	7.6	28	71	19.7	14.7	2.7	11.9	0.2	0.0	0.0	770	27	NAD
	192	52	14.1	7.3	27	72	19.3	26.4	11.6	14.8	0.0	0.0	0.0	950	27	NAD
	193	56	15.9	7.6	28	74	20.9	13.1	1.3	11.5	0.1	0.0	0.1	820	28	NAD
	194	57	15.6	7.3	27	78	21.4	17.8	2.0	15.0	0.7	0.0	0.2	830	28	NAD
	195	53	14.8	7.4	28	72	20.0	11.3	1.8	9.5	0.0	0.0	0.0	730	27	NAD
	196	59	15.8	8.2	27	72	19.3	10.8	1.4	9.3	0.1	0.0	0.0	890	29	NAD
	197	55	15.4	8.1	28	68	19.0	16.9	4.7	11.8	0.3	0.0	0.0	890	27	NAD
	198	56	15.4	7.2	28	78	21.4	19.3	2.7	16.4	0.2	0.0	0.0	860	25	NAD
	199	61	16.2	7.8	27	78	20.8	17.7	2.0	15.6	0.2	0.0	0.0	890	26	NAD
	200	56	15.2	8.0	27	70	19.0	17.7	3.4	14.2	0.2	0.0	0.0	880	27	NAD
Mean		56	15.3	7.7	27	73	20.1	16.6	3.3	13.0	0.2	0.0	0.0	851	27	NAD
4♂	261	57	15.4	7.6	27	75	20.3	13.7	2.3	11.4	0.0	0.0	0.0	700	25	NAD
	262	55	15.5	7.0	28	79	22.1	10.2	1.2	8.9	0.0	0.0	0.1	920	29	NAD
	263	62	15.9	7.8	26	80	20.4	13.5	1.6	11.8	0.1	0.0	0.0	870	28	NAD
	264	59	16.1	7.9	28	74	20.4	11.9	3.1	8.7	0.1	0.0	0.0	820	25	NAD
	265	54	14.9	7.3	28	74	20.4	14.4	3.2	11.1	0.1	0.0	0.0	750	24	NAD
	266	54	14.4	7.0	27	78	20.6	16.8	1.5	15.0	0.3	0.0	0.0	900	26	NAD
	267	56	14.8	7.2	27	77	20.6	11.8	2.4	9.4	0.0	0.0	0.0	740	25	NAD
	268	55	14.5	6.6	27	83	22.0	56.1	6.2	47.7	0.6	0.0	1.7	850	23	NAD
	269	54	14.3	6.9	27	78	20.7	11.6	2.6	9.1	0.0	0.0	0.0	810	26	NAD
	270	54	14.5	6.9	27	79	21.0	12.1	2.8	9.2	0.1	0.0	0.0	820	26	NAD
Mean		56	15.0	7.2	27	78	20.9	17.2	2.7	14.2	0.1	0.0	0.2	818	26	NAD

NAD No abnormalities detected

0003351

0003552

APPENDIX 4

(Haematology - continued)

Week 52

Group	Rat No.	PCV %	Hb g%	RBC mill. /cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Plate-lets 1000/ cmm	Throm-botest secs.	Comment on film
1♀	331	52	14.9	6.6	29	78	22.6	8.1	1.8	6.3	0.0	0.0	0.0	690	22	NAD
	332	57	14.8	6.9	26	83	21.4	5.8	0.8	5.0	0.1	0.0	0.0	690	23	NAD
	333	52	14.2	6.3	27	83	22.5	7.5	2.0	5.6	0.0	0.0	0.0	700	20	NAD
	334	51	14.7	6.5	29	78	22.6	5.7	0.6	5.1	0.0	0.0	0.0	590	22	NAD
	335	51	14.2	6.1	28	83	23.3	8.9	1.3	7.2	0.4	0.0	0.0	790	21	NAD
	336	53	14.8	6.5	28	82	22.8	9.9	1.4	8.5	0.0	0.0	0.0	580	23	NAD
	337	53	14.2	6.2	27	86	22.9	6.6	0.8	5.8	0.0	0.0	0.0	740	20	NAD
	338	53	14.7	6.7	28	80	21.9	5.6	0.7	4.9	0.0	0.0	0.0	670	20	NAD
	339	55	15.2	6.4	28	86	23.8	7.2	1.2	5.9	0.1	0.0	0.0	650	23	NAD
	340	51	14.4	6.1	28	83	23.6	7.5	1.4	5.9	0.2	0.0	0.1	620	25	NAD
	Mean	53	14.6	6.4	28	82	22.7	7.3	1.2	6.0	0.1	0.0	0.0	672	22	NAD
2♀	401	49	13.7	5.9	28	83	23.2	5.3	0.3	5.0	0.0	0.0	0.0	760	25	NAD
	402	54	15.4	6.7	29	80	23.0	8.8	1.1	7.6	0.1	0.0	0.0	750	22	NAD
	403	55	14.9	6.4	27	86	23.3	7.6	0.7	6.8	0.1	0.0	0.0	580		NAD
	404	50	13.7	6.1	27	82	22.5	13.9	2.8	10.6	0.6	0.0	0.0	730	22	NAD
	405	52	14.5	6.2	28	85	23.4	9.7	2.6	7.0	0.1	0.0	0.0	680	21	NAD
	406	52	14.3	5.7	28	91	25.1	5.4	0.9	4.4	0.1	0.0	0.0	700	21	NAD
	407	54	14.8	7.1	28	76	20.8	10.1	1.1	8.8	0.2	0.0	0.0	850	21	NAD
	408	49	14.4	6.6	30	74	21.8	7.7	1.0	6.6	0.0	0.0	0.1	750	22	NAD
	409	52	15.0	6.9	29	75	21.7	9.0	2.5	6.2	0.3	0.0	0.0	790	23	NAD
	410	50	15.7	6.8	31	74	23.1	8.6	0.6	7.8	0.2	0.0	0.0	610	24	NAD
	Mean	52	14.6	6.4	28	81	22.8	8.6	1.4	7.1	0.2	0.0	0.0	720	22	NAD

Original sample from rat no. 403 clotted prior to thrombotest

NAD No abnormalities detected

APPENDIX 4

(Haematology - continued)

Week 52

Group	Rat No.	PCV %	Hb g%	RBC mill. /cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Plate-lets 1000/cmm	Throm-botest secs.	Comment on film
3♀	471	51	14.9	6.7	30	75	22.2	5.3	0.6	4.7	0.1	0.0	0.0	670	20	NAD
	472	54	14.8	6.7	28	80	22.1	10.8	1.2	9.5	0.1	0.0	0.0	570	21	NAD
	473	50	14.4	5.8	29	86	24.8	7.6	0.8	6.7	0.2	0.0	0.0	730	21	NAD
	474	56	15.9	7.2	29	78	22.1	8.3	0.7	7.6	0.0	0.0	0.0	630	22	NAD
	475	51	14.3	7.1	28	71	20.1	18.6	7.1	10.4	1.1	0.0	0.0	920	21	NAD
	476	48	14.1	6.7	29	72	21.0	8.0	1.5	6.3	0.2	0.0	0.0	690	20	NAD
	477	47	14.5	6.6	31	72	22.0	7.7	0.7	7.0	0.0	0.0	0.0	630	21	NAD
	478	52	14.8	7.2	29	72	20.6	7.5	0.4	7.1	0.0	0.0	0.0	720	22	NAD
	479	51	14.6	6.5	29	78	22.5	6.4	0.8	5.6	0.0	0.0	0.0	750	22	NAD
	480	50	14.2	6.3	29	79	22.5	10.6	2.1	8.5	0.0	0.0	0.0	690	20	NAD
	Mean	51	14.7	6.7	29	76	22.0	9.1	1.6	7.3	0.2	0.0	0.0	700	21	NAD
4♀	541	54	14.9	6.6	27	82	22.6	6.2	0.4	5.8	0.0	0.0	0.0	640	22	NAD
	542	52	14.1	6.1	27	86	23.1	9.0	1.0	7.7	0.3	0.0	0.0	650	19	NAD
	543	57	14.9	6.6	26	86	22.6	11.0	1.4	9.5	0.1	0.0	0.0	590	20	NAD
	544	53	14.8	6.8	28	77	21.8	10.3	0.4	9.7	0.2	0.0	0.0	680	22	NAD
	545	51	13.6	5.8	27	88	23.4	10.0	1.0	7.7	1.3	0.0	0.0	730	21	NAD
	547	51	14.7	6.4	29	80	23.0	7.4	2.3	5.0	0.1	0.0	0.0	730	22	NAD
	548	57	15.6	6.8	28	83	22.9	9.5	1.9	7.5	0.1	0.0	0.0	730	21	NAD
	549	53	15.1	6.6	28	81	22.9	11.0	2.5	8.4	0.1	0.0	0.0	690	20	NAD
	Mean	54	14.7	6.5	28	83	22.8	9.3	1.4	7.7	0.3	0.0	0.0	680	21	NAD

NAD No abnormalities detected
Rat Nos. 546 and 550, group 4♀, died during weeks 43 and 49 respectively

000353

000354

APPENDIX 4

(Haematology - continued)

Week 78

Group	Rat No.	PCV %	Hb g%	RBC mill. /cmm	MCHC %	MCV c	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Plate-lets 1000/ cmm	Throm-botest secs.	Comment on film
1♂	51	50	16.6	8.9	33	56	18.7	11.3	3.4	7.8	0.1	0.0	0.0	760	29	NAD
	52	47	15.4	8.0	33	59	19.3	10.6	3.8	6.4	0.4	0.0	0.0	770	25	Sl.Pc&An
	53	46	15.1	7.7	33	59	19.6	9.2	2.4	6.5	0.3	0.0	0.0	950	24	Sl.An
	54	50	16.4	9.1	33	54	18.0	12.5	3.0	9.3	0.3	0.0	0.0	910	28	NAD
	55	50	16.4	8.7	33	57	18.9	8.3	1.2	7.1	0.0	0.0	0.0	730	30	NAD
	56	47	15.1	7.6	32	62	19.9	14.7	0.9	13.5	0.2	0.0	0.2	750		Sl.An
	57	45	14.7	8.0	33	56	18.4	13.0	2.3	10.4	0.3	0.0	0.0	910	28	NAD
	59	46	15.5	7.6	33	61	20.4	12.1	2.7	9.2	0.1	0.0	0.1	740		NAD
	60	45	14.7	7.6	33	59	19.3	13.0	7.2	5.7	0.1	0.0	0.0	970	29	Sl.Ho
Mean		47	15.5	8.1	33	58	19.2	11.6	3.0	8.4	0.2	0.0	0.0	832	28	NAD
2♂	122	44	14.2	7.1	33	61	20.0	11.3	3.1	8.3	0.0	0.0	0.0	940	26	Sl.Ho
	124	44	14.6	7.8	33	57	18.7	14.1	4.2	9.7	0.1	0.0	0.0	890	23	Sl.An
	125	49	16.9	8.7	34	57	19.4	11.3	2.3	8.8	0.2	0.0	0.0	870	26	NAD
	127	42	13.4	6.6	32	63	20.3	12.7	1.8	10.5	0.3	0.0	0.1	1090	25	NAD
	128	49	16.7	9.2	34	54	18.2	9.1	1.7	7.3	0.1	0.0	0.0	790	33	NAD
	129	47	15.8	7.9	34	59	20.0	10.6	1.0	9.7	0.0	0.0	0.0	880	30	NAD
	130	48	17.0	8.5	35	57	20.0	14.4	3.0	10.9	0.4	0.0	0.0	800	32	NAD
Mean		46	15.5	8.0	34	58	19.5	11.9	2.4	9.3	0.2	0.0	0.0	894	28	NAD

NAD No abnormalities detected Sl. Slight Pc. Polychromasia
An. Anisocytosis Ho. Hypochromasia
Rat Nos. 58, group 1♂, and 121 and 123, group 2♂, died during weeks 57, 55 and 58 respectively
The original samples from rat Nos. 56 and 59 clotted prior to thrombotest

APPENDIX 4

(Haematology - continued)

Week 78

Group	Rat No.	PCV %	Hb g%	RBC mill. /cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Plate-lets 1000/cmm	Throm-botest secs.	Comment on film
3♂	191	42	14.0	7.3	33	58	19.2	13.5	3.9	9.2	0.1	0.0	0.3	920	21	NAD.
	192	45	15.2	7.5	34	60	20.3	18.3	6.4	11.5	0.2	0.0	0.2	850	29	Sl.Pc&An
	193	48	16.7	8.7	35	55	19.2	8.9	1.8	6.9	0.1	0.0	0.1	620	26	NAD
	194	50	17.3	8.7	35	57	19.9	8.0	0.9	7.0	0.2	0.0	0.0	730	30	NAD
	195	51	16.5	8.7	32	59	19.0	12.6	3.7	9.0	0.0	0.0	0.0	700	32	NAD
	196	50	18.1	9.3	36	54	19.5	15.7	1.1	13.8	0.6	0.0	0.2	810	27	NAD
	197	46	16.5	8.1	36	57	20.4	18.1	2.0	15.8	0.2	0.0	0.2	730	27	NAD
	198	48	16.9	9.9	35	48	17.1	14.3	2.9	11.2	0.3	0.0	0.0	830	28	NAD
	199	52	17.8	9.7	34	53	18.4	10.8	1.6	9.0	0.2	0.0	0.0	690	28	NAD
	200	49	16.7	10.1	34	49	16.5	13.7	4.4	8.8	0.4	0.0	0.1	950	29	NAD
Mean		48	16.6	8.8	35	55	19.0	13.4	2.9	10.2	0.2	0.0	0.1	783	28	NAD
4♂	261	51	17.5	9.2	35	55	19.0	9.6	2.4	7.0	0.2	0.0	0.0	680	28	NAD
	264	48	17.0	8.6	35	56	19.8	11.2	2.9	8.2	0.1	0.0	0.0	710	27	NAD
	266	49	17.0	8.6	35	57	19.8	13.9	2.9	11.0	0.0	0.0	0.0	870	33	NAD
	267	43	14.8	7.2	34	60	20.6	18.7	2.6	15.7	0.4	0.0	0.0	1020	26	NAD
	269	41	14.9	7.4	36	56	20.1	12.4	3.0	9.1	0.3	0.0	0.1	850	27	Sl.Ro.
	270	47	17.5	8.4	37	56	20.8	9.6	2.9	6.5	0.2	0.0	0.0	540	30	NAD
Mean		47	16.5	8.2	35	57	20.0	12.6	2.8	9.6	0.2	0.0	0.0	778	29	NAD

NAD No abnormalities detected Sl. Slight Pc. Polychromasia
An. Anisocytosis Ro. Rouleaux
Rat Nos. 262, 263, 265 and 268, group 4♂, died during weeks 76, 56, 71 and 61 respectively

000355

000356

APPENDIX 4

(Haematology - continued)

Week 78

Group	Rat No.	PCV %	Hb g%	RBC mill. /cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Platelets 1000/cmm	Thrombotest secs.	Comment on film
1♀	331	45	16.3	7.6	37	59	21.4	9.8	3.2	6.2	0.3	0.0	0.1	760	21	NAD
	332	47	17.3	8.7	37	54	19.9	6.4	1.3	5.1	0.1	0.0	0.0	770	25	NAD
	333	44	16.5	7.7	37	58	21.4	5.8	1.7	4.1	0.0	0.0	0.0	720	22	NAD
	334	42	14.5	6.7	34	63	21.6	12.7	6.0	6.4	0.1	0.0	0.3	970	23	Sl. Ro.
	336	49	17.4	8.7	36	56	20.0	4.3	1.3	3.0	0.0	0.0	0.0	480	23	NAD
	337	46	17.0	7.9	37	58	21.5	8.4	1.8	6.5	0.2	0.0	0.0	700	26	NAD
	338	44	16.0	7.6	36	58	21.1	7.7	2.0	5.5	0.2	0.0	0.1	810	27	NAD
	340	45	16.1	7.8	36	58	20.6	9.2	2.9	6.2	0.2	0.0	0.0	840	23	NAD
	Mean	45	16.4	7.8	36	58	20.9	8.0	2.5	5.3	0.1	0.0	0.1	756	24	NAD
2♀	401	48	17.2	8.0	36	60	21.5	7.7	1.5	6.1	0.1	0.0	0.0	760	22	NAD
	402	45	16.7	8.0	37	57	20.9	6.7	0.8	5.6	0.3	0.0	0.0	660	23	NAD
	403	45	16.1	7.4	36	61	21.8	5.9	1.9	3.9	0.1	0.0	0.0	870	20	NAD
	404	45	16.6	7.9	37	57	21.0	8.8	2.7	6.1	0.0	0.0	0.0	730	24	NAD
	405	45	16.8	7.7	38	58	21.8	5.8	1.3	4.4	0.1	0.0	0.0	720	22	NAD
	406	44	16.5	7.1	38	62	23.2	10.1	4.2	5.9	0.0	0.0	0.0	670	27	NAD
	407	41	15.3	6.8	37	61	22.5	8.1	1.6	6.3	0.1	0.0	0.1	770	24	Sl. Ho. & Ro.
	408	45	16.2	7.9	36	57	20.5	10.2	2.1	7.6	0.5	0.0	0.0	820	26	NAD
	409	46	17.2	7.6	37	61	22.6	11.0	4.2	6.7	0.1	0.0	0.0	780	24	NAD
	410	46	16.9	8.0	37	57	21.1	9.3	3.3	6.0	0.1	0.0	0.0	800	28	NAD
	Mean	45	16.6	7.6	37	59	21.7	8.4	2.4	5.8	0.1	0.0	0.0	758	24	NAD

NAD No abnormalities detected
Ho. Hypochromasia
Sl. Slight
Ro. Rouleaux

Rat Nos. 335 and 339, group 1♀, died during weeks 75 and 76 respectively

APPENDIX 4

(Haematology - continued)

Week 78

Group	Rat No.	PCV %	Hb g%	RBC mill. /cmm	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Plate-lets 1000/cmm	Throm-botest secs.	Comment on film
3♀	471	45	15.8	7.2	35	63	21.9	13.2	6.2	6.6	0.3	0.0	0.1	830	24	NAD
	473	41	13.9	7.4	34	56	18.8	15.5	4.2	10.2	0.9	0.0	0.2	1080	23	NAD
	474	47	17.1	8.2	37	57	20.9	7.4	1.4	6.0	0.0	0.0	0.0	660	25	NAD
	475	45	17.3	8.0	38	57	21.6	8.1	2.6	5.3	0.2	0.0	0.0	800	25	NAD
	477	42	16.3	7.5	39	56	21.7	6.2	0.9	5.3	0.0	0.0	0.0	600	23	NAD
	478	43	16.2	7.1	38	60	22.8	7.7	2.1	5.5	0.2	0.0	0.0	730	20	NAD
	479	46	16.5	8.3	36	55	19.9	6.1	1.1	4.7	0.3	0.0	0.0	720	22	NAD
	480	46	17.1	7.8	38	58	21.9	5.8	0.9	4.9	0.0	0.0	0.0	760	23	NAD
Mean		44	16.3	7.7	37	58	21.2	8.8	2.4	6.1	0.2	0.0	0.0	773	23	NAD
4♀	541	49	17.7	8.0	36	61	22.1	7.5	2.3	5.1	0.2	0.0	0.0	360	18	NAD
	542	48	17.5	7.9	37	60	22.2	7.4	1.5	5.9	0.1	0.0	0.0	720	26	NAD
	543	41	16.1	7.1	39	58	22.7	7.8	2.3	5.2	0.2	0.0	0.0	680	25	NAD
	547	44	16.6	7.1	38	62	23.4	8.7	3.4	5.1	0.2	0.0	0.1	720	22	NAD
	549	45	17.2	7.8	38	58	22.1	9.1	3.2	5.6	0.4	0.0	0.0	460	22	NAD
Mean		45	17.0	7.6	38	60	22.5	8.1	2.5	5.4	0.2	0.0	0.0	588	23	NAD

NAD No abnormalities detected

Rat Nos. 472 and 476, group 3♀, and 544, 545 and 548, group 4♀, died during weeks 74, 62, 71, 62 and 75 respectively

000357

000358

APPENDIX 4

(Haematology - continued)

Week 104

Group	Rat No.	PCV %	Hb g%	RBC mill. /cmm	Ret-ics %	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Plate-lets 1000/cmm	Throm-botest secs.	Comment on film
1♂	51	51	15.1	7.3	<2.0	30	69	20.7	12.7	3.9	7.5	0.8	0.0	0.5	850	29	NAD
	52	34	8.4	3.4	46.0	24	101	24.7	21.3	14.1	6.6	0.2	0.0	0.4	1200	24	Mod.Pc&An,Sl.Ho.
	54	54	16.0	7.6	3.0	30	71	21.1	13.1	3.3	9.3	0.1	0.0	0.4	920	27	NAD
	55	51	15.4	7.4	4.0	30	69	20.8	9.6	2.1	7.4	0.0	0.0	0.1	760	27	NAD
	60	42	11.5	5.3	5.0	28	79	21.7	18.9	9.1	9.3	0.0	0.0	0.6	1070	25	Sl.Pc.&Mod.An.& Spher
	61	52	15.6	7.8	<2.0	30	67	20.0	11.3	4.4	6.3	0.1	0.0	0.5	820	25	NAD
	63	30	6.8	3.7	33.0	22	82	18.4	44.2	26.5	15.9	0.0	0.0	1.8	1200	26	Sev.Pc.,Sl.Ho. &Mod.An++
	67	23	6.3	2.5	25.0	28	92	25.2	13.3	11.0	2.1	0.0	0.0	0.1	620		Mod.Pc.&An.& Sl.Ho+
Mean		42	11.9	5.6	<15.0	28	79	21.6	18.1	9.3	8.1	0.2	0.0	0.5	930	26	Sl.Pc.&An
2♂	127	46	12.9	5.6	6.0	28	83	23.0	11.2	3.3	7.2	0.5	0.0	0.3	820	25	Sl.Pc&An.
	129	52	15.2	7.7	<2.0	29	67	19.7	11.1	6.2	4.8	0.0	0.0	0.1	900	25	Sl.An.
	131	46	13.1	6.3	3.0	28	73	20.8	27.2	16.1	10.1	0.5	0.0	0.5	1120	27	Sl.Pc&Mod.An
	132	52	15.5	7.2	<2.0	30	72	21.5	12.5	3.5	8.3	0.4	0.0	0.4	900	26	Sl.Pc&Mod.An& Spher
	134	37	9.5	4.8	17.0	26	77	19.8	11.8	6.0	5.3	0.4	0.0	0.1	1190	26	Mod.Pc&Sl.Ho.&An
	135	35	9.3	3.9	24.0	27	89	23.8	16.8	8.1	8.2	0.3	0.0	0.2	1140		ModPc.&An
	140	48	13.5	6.7	8.0	28	72	20.1	17.8	10.2	6.6	0.0	0.0	1.1	990	27	Sl.Pc.&Mod.An& Spher
Mean		45	12.7	6.0	<8.9	28	76	21.2	15.5	7.6	7.2	0.3	0.0	0.4	1009	26	Sl.Pc.&An

Sl. Slight Pc. Polychromasia Mod. Moderate An. Anisocytosis
Sev. Severe Ho. Hypochromasia NAD No abnormalities detected Spher Spherocytosis

\+ The blood film from rat No. 67 also showed evidence of hypersegmented neutrophils, moderate spherocytosis and many late normoblasts

++ Target cells were also noted in the blood film of rat No. 63

The blood samples from rat Nos. 67 and 135 clotted prior to the thrombotest

APPENDIX 4

(Haematology - continued)

Week 104

Group	Rat No.	PCV %	Hb g%	RBC mill. /cmm	Ret-ics %	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Plate-lets 1000/cmm	Throm-botest secs.	Comment on film
3♂	194	39	10.7	4.3	30.0	28	90	24.9	16.0	7.5	6.7	0.2	0.0	1.6	1060	22	Mod.Pc&An,Sl.Ho
	196	47	14.1	6.6	<2.0	30	71	21.4	13.1	4.7	6.6	0.0	0.0	1.8	860	26	Sl.An.
	199	54	15.9	7.0	<2.0	30	77	22.7	13.1	4.5	8.3	0.1	0.0	0.3	940	23	Sl.An.
	201	51	15.0	7.0	<2.0	29	73	21.4	19.8	8.1	11.1	0.4	0.0	0.2	940	26	Sl.An.
	203	51	15.4	7.7	4.0	30	67	20.0	14.2	5.1	8.8	0.1	0.0	0.1	910	27	NAD
	205	52	15.7	7.7	<2.0	30	67	20.4	17.3	8.5	8.7	0.0	0.0	0.2	910	27	NAD
	208	51	14.3	7.2	4.0	28	70	19.9	13.1	3.1	9.8	0.1	0.0	0.0	880	25	NAD
	210	50	14.9	7.4	3.0	30	68	20.1	13.6	4.1	9.5	0.0	0.0	0.0	940	28	NAD
Mean		49	14.5	6.9	<6.1	29	73	21.4	15.0	5.7	8.7	0.1	0.0	0.5	930	26	Sl.An.
4♂	261	48	14.5	6.7	5.0	30	72	21.6	8.6	3.0	5.4	0.2	0.0	0.0	750	26	Sl.An.
	264	38	10.5	5.0	16.0	28	76	21.0	14.9	6.7	7.8	0.2	0.0	0.3	1150	27	Mod.Pc&An.
	273	49	15.3	7.1	<2.0	31	69	21.5	10.2	1.6	8.6	0.0	0.0	0.0	790	27	NAD
	275	38	10.2	4.9	19.0	27	78	20.8	11.9	4.5	6.2	0.0	0.0	1.2	960	22	Mod.Pc.An&Spher &Sl.Ho
	277	45	13.2	6.7	4.0	30	67	19.7	18.6	4.1	14.0	0.6	0.0	0.0	1050	30	NAD
	280	44	13.6	6.5	<2.0	31	68	20.9	14.6	5.7	6.9	0.0	0.0	2.0	860	24	Sl.Pc.&Mod.An.& Rouleaux
Mean		44	12.9	6.2	<8.0	29	72	20.9	13.1	4.3	8.1	0.1	0.0	0.6	927	26	Sl.Pc.&An

Sl. Slight
NAD No abnormalities detected
Pc. Polychromasia
Ho. Hypochromasia
Mod. Moderate
Spher Spherocytosis
An. Anisocytosis

0003359

000360

APPENDIX 4

(Haematology - continued)

Week 104

Group	Rat No.	PCV %	Hb g%	RBC mill. /cmm	Ret-ics %	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Plate-lets 1000/cmm	Throm-botest secs.	Comment on film
1♀	332	49	15.0	7.2	5.0	31	68	20.8	6.7	1.3	5.3	0.1	0.0	0.0	760	22	NAD
	334	50	16.0	7.1	<2.0	32	71	22.5	5.7	2.2	3.5	0.0	0.0	0.1	730	22	NAD
	336	51	15.7	7.2	<2.0	31	71	21.8	7.4	2.2	5.1	0.0	0.0	0.1	660	23	NAD
	342	49	15.7	6.9	<2.0	32	71	22.8	9.1	2.5	6.5	0.2	0.0	0.0	710	22	NAD
	345	51	15.5	7.3	<2.0	31	69	21.2	6.2	1.6	4.5	0.1	0.0	0.1	760	21	NAD
	348	46	13.1	5.3	<2.0	29	87	24.7	7.8	1.5	6.2	0.2	0.0	0.0	860	20	Sl.Pc&An
Mean		49	15.2	6.8	<2.5	31	73	22.3	7.2	1.9	5.2	0.1	0.0	0.0	747	22	NAD
2♀	401	46	13.8	6.2	<2.0	30	73	22.3	9.0	4.9	3.7	0.1	0.0	0.4	1010	21	Mod.Pc&Spher
	404	46	14.4	6.4	<2.0	31	72	22.5	9.6	3.7	5.5	0.3	0.0	0.1	850	20	Sl.An
	409	49	16.2	6.9	<2.0	33	71	23.5	9.7	3.6	5.5	0.3	0.0	0.3	730	21	NAD
	412	46	14.9	6.2	<2.0	32	74	24.0	11.6	3.7	7.3	0.4	0.0	0.2	780		Sl.Pc&An
	413	40	13.6	5.1	<2.0	34	77	26.7	11.2	4.7	6.3	0.1	0.0	0.1	710	21	Sl.Pc&An
	414	44	14.5	6.3	<2.0	33	70	23.0	8.3	3.2	4.2	0.3	0.0	0.7	800	20	Sl.Pc&ModAn& Spher
	415	49	16.0	6.9	<2.0	33	70	23.2	7.4	1.8	5.6	0.0	0.0	0.1	750	25	NAD
	416	26	7.0	2.8	55.0	27	94	25.0	16.2	4.9	10.9	0.0	0.0	0.5	940	31	Sev.Pc,Sl.Ho, Mod.An+
	420	50	15.7	6.9	<2.0	32	72	22.8	7.2	2.3	4.8	0.1	0.0	0.0	800	20	NAD
Mean		44	14.0	6.0	<7.9	32	75	23.7	10.0	3.6	6.0	0.2	0.0	0.3	819	22	Sl.Pc&An

Sl. Slight Pc. Polychromasia Mod. Moderate An. Anisocytosis
Sev Severe Ho. Hypochromasia NAD No abnormalities detected Spher Spherocytosis
+ Target cells were also noted in the blood film of rat No. 416
The blood sample from rat No. 412 clotted prior to the thrombotest

APPENDIX 4

(Haematology - continued)

Week 104

Group	Rat No.	PCV %	Hb g%	RBC mill. /cmm	Ret-ics %	MCHC %	MCV cμ	MCH pg	WBC 1000/cmm Total	N	L	E	B	M	Plate-lets 1000/cmm	Throm-botest secs.	Comment on film
3♀	474	38	11.3	5.1	10.0	30	74	22.2	8.4	3.4	4.6	0.3	0.0	0.2	880	23	Sl.Pc,An&Ho
	478	48	15.6	7.5	<2.0	32	65	20.8	9.6	4.3	4.8	0.1	0.0	0.4	770	24	NAD
	480	42	13.9	6.1	<2.0	33	68	22.8	16.0	8.6	7.4	0.0	0.0	0.0	650	24	Sl.Ho
	488	44	14.3	6.4	<2.0	33	69	22.3	9.8	2.5	6.9	0.1	0.0	0.4	650	26	NAD
Mean		43	13.8	6.3	<4.0	32	69	22.0	11.0	4.7	5.9	0.1	0.0	0.2	738	24	NAD
4♀	541	53	17.0	7.3	<2.0	32	73	23.3	5.3	1.9	3.3	0.1	0.0	0.1	630	26	NAD
	555	47	14.6	6.0	<2.0	31	78	24.3	8.8	2.1	6.5	0.0	0.0	0.2	670	24	Sl.Pc&Mod.Ho
	556	46	15.1	6.3	<2.0	33	73	24.0	8.9	3.4	4.8	0.2	0.0	0.5	710	23	NAD
	557	50	17.0	6.9	<2.0	34	72	24.6	11.2	5.3	5.5	0.1	0.0	0.3	790	23	NAD
Mean		49	15.9	6.6	<2.0	33	74	24.1	8.6	3.2	5.0	0.1	0.0	0.3	700	24	NAD

Sl. Slight
NAD No abnormalities detected
Pc. Polychromasia
Ho. Hypochromasia
Mod. Moderate
An. Anisocytosis

000361

0003362

APPENDIX 5

Blood chemistry - individual observations

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0 (Control)	1000	3000	10000

Week 26

Group	Rat No.	Urea nitro-gen mg%	Glu-cose mg%	Plasma protein g%	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq /l	K mEq /l	Ca mEq /l	P mEq /l	Choles-terol mg%	Creat-inine mg%
1♂	61	14	97	7.0	24	20	68	503	<0.1	141	4.0	5.2	2.8	37	0.8
	62	13	132	7.5	23	24	62	1063	0.2	140	4.4	5.5	2.7	83	0.7
	63	11	131	7.3	24	27	84	297	<0.1	143	3.3	5.4	2.5	57	0.7
	64	11	98	7.8	20	28	90	743	0.1	143	3.9	5.5	3.0	46	0.7
	65	12	115	7.7	20	34	93	1233	0.1	142	4.0	5.7	2.7	59	0.7
	66	12	127	7.3	23	29	77	317	<0.1	140	4.1	5.3	2.9	43	0.7
	67	11	114	7.4	20	31	91	265	0.1	142	3.7	5.5	3.1	32	0.8
	68	12	123	6.8	20	34	80	454	<0.1	142	3.9	5.5	3.1	62	0.7
	69	11	118	7.3	23	31	76	357	0.1	140	3.5	5.1	2.4	44	0.7
	70	11	113	7.5	24	30	79	372	0.1	141	3.7	5.2	2.9	35	0.7
	Mean	12	117	7.4	22	29	80	560	<0.1	141	3.9	5.4	2.8	50	0.7
2♂	131	13	133	7.1	24	37	82	730	0.1	141	4.5	5.4	3.0	56	0.7
	132	12	124	6.8	23	27	77	395	0.1	139	3.6	5.6	3.0	62	0.7
	133	12	135	7.1	19	28	73	345	<0.1	141	4.7	5.4	2.5	53	0.7
	134	13	133	7.1	16	22	62	1193	<0.1	143	3.9	5.5	2.8	62	0.7
	135	13	115	7.5	20	29	72	469	0.1	142	3.8	5.7	2.7	64	0.7
	136	11	141	7.4	22	30	74	372	0.1	142	4.0	5.6	2.8	57	0.6
	137	12	113	7.6	14	28	66	250	0.1	143	3.7	5.6	2.9	41	0.7
	138	12	108	7.6	20	25	75	820	<0.1	141	3.6	5.6	2.6	47	0.6
	139	12	123	7.7	24	26	69	690	<0.1	143	3.9	5.5	3.1	73	0.6
	140	13	123	7.3	16	26	73	823	<0.1	147	3.6	5.3	2.8	54	0.7
	Mean	12	125	7.3	20	28	72	609	<0.1	142	3.9	5.5	2.8	57	0.7

Due to an oversight, the plasma protein estimation performed did not include a plasma albumin estimation, in addition chloride levels were not analysed. These estimations were performed during week 28.

APPENDIX 5

(Blood chemistry - continued)

Week 26

Group	Rat No.	Urea nitro-gen mg%	Glu-cose mg%	Plasma protein g%	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq /l	K mEq /l	Ca mEq /l	P mEq /l	Choles-terol mg%	Creat-inine mg%
3♂	201	16	119	7.1	24	23	67	421	<0.1	142	3.5	5.3	2.6	44	0.8
	202	12	126	6.9	24	24	80	237	<0.1	142	4.0	5.2	2.9	34	0.7
	203	15	137	7.0	23	33	74	1161	<0.1	141	4.3	5.3	3.0	46	0.7
	204	13	131	7.7	29	30	77	1028	0.1	144	3.8	5.6	2.8	43	0.7
	205	19	117	7.3	29	34	89	660	0.1	143	4.1	5.4	3.1	41	0.7
	206	13	130	7.1	19	27	69	360	0.1	142	4.0	5.3	2.9	96	0.6
	207	13	97	7.3	23	31	89	469	<0.1	139	3.8	5.3	3.0	53	0.7
	208	12	109	7.3	20	27	86	270	0.1	143	3.3	5.4	2.8	60	0.7
	209	13	131	7.0	23	35	77	715	<0.1	140	4.0	5.3	2.7	50	0.7
	210	15	144	7.1	29	29	86	267	<0.1	142	4.1	5.5	3.0	52	0.7
	Mean	14	124	7.2	24	29	79	559	<0.1	142	3.9	5.4	2.9	52	0.7
4♂	271	13	122	7.3	24	30	96	873	0.1	142	3.8	5.7	2.8	48	0.7
	272	12	114	6.8	29	33	101	380	<0.1	142	3.6	5.5	2.9	47	0.7
	273	13	146	7.2	23	41	123	305	<0.1	142	4.1	5.5	2.6	57	0.8
	274	14	113	7.1	19	38	98	315	<0.1	142	3.6	5.3	3.0	42	0.8
	275	15	140	7.0	24	29	84	1186	<0.1	139	4.4	5.4	2.8	47	0.7
	276	12	142	7.5	23	33	86	185	<0.1	141	3.7	5.5	2.4	61	0.7
	277	14	125	7.3	35	26	74	172	<0.1	143	3.4	5.6	2.9	38	0.7
	278	13	113	7.4	29	27	74	227	<0.1	143	3.5	5.7	3.1	68	0.7
	279	13	103	7.1	20	26	67	643	0.1	140	3.7	5.6	2.9	85	0.7
	280	12	114	7.3	29	29	75	125	<0.1	140	3.8	5.6	3.0	61	0.7
	Mean	13	123	7.2	26	31	88	441	<0.1	141	3.8	5.5	2.8	55	0.7

Due to an oversight, the plasma protein estimation performed did not include a plasma albumin estimation, in addition chloride levels were not analysed. These estimations were performed during week 28.

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APPENDIX 5

(Blood chemistry - continued)

Week 26

Group	Rat No.	Urea nitrogen mg%	Glucose mg%	Plasma protein g%	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bilirubin mg%	Na mEq/l	K mEq/l	Ca mEq/l	P mEq/l	Cholesterol mg%	Creatinine mg%
1♀	341	26	124	7.7	10	33	53	663	<0.1	140	3.3	5.5	2.6	74	0.9
	342	17	153	7.0	10	31	51	185	<0.1	141	3.5	5.3	2.2	47	0.8
	343	21	125	8.5	9	46	94	1126	0.1	139	3.1	5.8	2.4	72	0.9
	344	24	112	7.3	9	30	60	858	0.1	139	3.4	5.7	3.0	50	0.8
	345	27	109	7.4	6	37	65	568	<0.1	139	3.2	5.4	2.4	65	0.8
	346	20	133	7.2	14	29	58	192	<0.1	140	3.9	5.5	3.1	58	0.8
	347	19	122	7.3	14	27	43	170	0.1	142	3.4	5.5	3.3	53	0.8
	348	15	130	7.7	10	26	49	220	0.1	140	3.4	5.7	3.0	69	0.7
	349	16	116	7.5	9	23	44	37	0.1	140	3.7	5.4	2.9	62	0.7
	350	15	118	8.1	6	37	72	535	0.1	140	3.8	5.7	3.4	72	0.8
	Mean	20	124	7.6	10	32	59	455	<0.1	140	3.5	5.6	2.8	62	0.8
2♀	411	17	119	7.7	4	50	98	335	<0.1	137	3.1	5.4	2.4	82	0.8
	412	14	116	8.1	6	35	66	177	0.1	139	3.1	5.5	2.9	81	0.7
	413	13	103	7.0	14	20	49	185	0.1	138	3.6	5.2	3.3	54	0.8
	414	14	126	7.6	6	26	52	895	0.1	136	3.7	5.3	2.9	64	0.7
	415	17	110	7.7	10	23	49	157	0.1	137	3.3	5.5	2.5	56	0.7
	416	21	110	7.1	10	27	60	127	0.2	137	3.4	5.3	2.9	58	0.8
	417	16	122	7.5	14	22	49	658	0.1	139	3.5	5.2	2.7	52	0.8
	418	16	141	8.0	6	28	57	150	0.1	138	3.2	5.3	2.2	52	0.7
	419	14	106	5.9	6	19	45	471	0.1	138	3.7	5.3	3.3	48	0.8
	420	19	104	8.0	6	29	59	175	<0.1	140	2.9	5.6	2.7	63	0.8
	Mean	16	116	7.5	8	28	58	333	<0.1	138	3.4	5.4	2.8	61	0.8

Due to an oversight, the plasma protein estimation performed did not include a plasma albumin estimation, in addition chloride levels were not analysed. These estimations were performed during week 28.

APPENDIX 5

(Blood chemistry - continued)

Week 26

Group	Rat No.	Urea nitro-gen mg%	Glu-cose mg%	Plasma protein g%	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq /l	K mEq /l	Ca mEq /l	P mEq /l	Choles-terol mg%	Creat-inine mg%
3♀	481	18	118	7.9	10	26	63	230	<0.1	139	3.3	5.4	2.6	47	0.8
	482	22	128	8.0	6	31	51	788	<0.1	141	3.4	5.7	2.8	85	0.8
	483	15	133	8.1	6	27	59	395	<0.1	142	3.2	5.6	2.8	101	0.7
	484	13	126	7.7	13	23	51	187	<0.1	138	3.3	5.5	2.5	65	0.7
	485	17	113	7.7	10	23	59	225	0.1	139	3.1	5.7	2.6	60	0.8
	486	15	116	7.3	4	26	55	247	<0.1	136	3.0	5.2	2.5	45	0.7
	487	18	120	8.6	6	31	65	265	0.1	140	3.1	5.9	2.6	69	0.7
	488	14	116	7.9	10	27	68	200	0.1	140	3.2	5.6	2.7	58	0.9
	489	15	117	7.4	10	22	60	287	<0.1	139	3.2	5.4	2.7	53	0.8
	490	16	130	8.3	9	26	55	377	0.1	141	3.1	5.7	2.6	57	0.8
Mean		16	122	7.9	8	26	59	320	<0.1	140	3.2	5.6	2.6	64	0.8
4♀	551	22	100	7.6	16	22	60	312	0.1	141	3.3	5.5	2.7	67	0.9
	552	15	139	8.1	10	20	51	553	0.1	140	3.5	5.8	2.3	64	0.8
	553	22	113	8.1	9	30	62	1068	<0.1	140	3.3	5.6	2.2	78	0.9
	554	25	103	7.0	14	37	88	250	<0.1	139	3.0	5.2	2.7	54	0.9
	555	24	120	8.3	6	44	92	307	0.1	143	3.4	5.9	2.7	78	0.8
	556	16	112	8.0	10	18	50	50	0.1	142	4.0	5.8	2.9	58	0.8
	557	14	142	7.4	10	20	58	175	0.1	141	3.2	5.5	2.8	66	0.7
	558	13	124	7.8	9	23	55	242	0.1	143	3.4	5.5	2.9	63	0.8
	559	13	139	8.3	4	30	57	167	<0.1	142	2.9	5.7	2.5	64	0.7
	560	15	127	7.3	9	19	56	210	<0.1	140	3.5	5.5	2.7	61	0.8
Mean		18	122	7.8	10	26	63	333	<0.1	141	3.4	5.6	2.6	65	0.8

Due to an oversight, the plasma protein estimation performed did not include a plasma albumin estimation, in addition chloride levels were not analysed. These estimations were performed during week 28.

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000366

APPENDIX 5

(Blood chemistry - continued)

Week 28

Group	Rat No.	Plasma protein g%		A/G ratio	Cl mEq /l
		Total	Alb.		
1♂	61	6.9	3.9	1.30	102
	62	6.9	3.8	1.23	103
	63	7.5	3.9	1.08	99
	64	7.6	4.1	1.17	100
	65	7.5	3.8	1.03	101
	66	6.9	3.7	1.16	103
	67	7.1	3.9	1.22	101
	68	7.0	3.8	1.19	100
	69	7.3	3.8	1.09	100
	70	7.2	4.0	1.25	100
Mean		7.2	3.9	1.17	101

APPENDIX 5

(Blood chemistry - continued)

Week 28

Group	Rat No.	Plasma protein g%		A/G ratio	Cl mEq /l
		Total	Alb.		
2♂	131	7.3	4.0	1.21	99
	132	6.8	3.8	1.27	99
	133	7.4	4.1	1.24	100
	134	7.5	4.0	1.14	99
	135	7.5	4.1	1.21	97
	136	7.2	4.0	1.25	98
	137	7.9	4.1	1.08	99
	138	7.8	4.2	1.17	99
	139	7.7	4.0	1.08	100
	140	7.5	3.9	1.08	101
	Mean	7.5	4.0	1.17	99

000367

APPENDIX 5

(Blood chemistry - continued)

Week 28

Group	Rat No.	Plasma protein g%		A/G ratio	Cl mEq /l
		Total	Alb.		
3♂	201	7.6	3.7	0.95	101
	202	7.0	3.7	1.12	101
	203	7.1	3.9	1.22	100
	204	7.8	4.2	1.17	98
	205	7.3	3.9	1.15	101
	206	7.3	3.8	1.09	99
	207	7.5	4.1	1.21	100
	208	7.5	4.1	1.21	102
	209	7.1	3.8	1.15	99
	210	7.5	4.2	1.27	99
	Mean	7.4	3.9	1.15	100

000368

APPENDIX 5

(Blood chemistry - continued)

Week 28

Group	Rat No.	Plasma protein g%		A/G ratio	Cl mEq /l
		Total	Alb.		
4♂	271	7.6	3.9	1.05	99
	272	7.6	3.9	1.05	99
	273	7.8	4.1	1.11	99
	274	7.7	4.1	1.14	100
	275	7.6	4.3	1.30	99
	276	7.7	4.1	1.14	99
	277	7.7	4.2	1.20	102
	278	7.8	4.1	1.11	97
	279	7.9	4.1	1.08	98
	280	7.7	4.1	1.14	100
	Mean	7.7	4.1	1.13	99

0003369

000370

APPENDIX 5

(Blood chemistry - continued)

Week 28

Group	Rat No.	Plasma protein g%		A/G ratio	Cl mEq /l
		Total	Alb.		
1♀	341	8.1	4.3	1.13	102
	342	7.4	4.2	1.31	103
	343	8.9	5.0	1.28	100
	344	7.8	4.3	1.23	101
	345	7.8	4.3	1.23	105
	346	7.6	4.4	1.38	102
	347	7.6	4.3	1.30	99
	348	8.0	4.6	1.35	101
	349	7.8	4.4	1.29	103
	350	8.4	4.8	1.33	102
	Mean	7.9	4.5	1.28	102

APPENDIX 5

(Blood chemistry - continued)

Week 28

Group	Rat No.	Plasma protein g%		A/G ratio	Cl mEq /l
		Total	Alb.		
2♀	411	8.1	4.5	1.25	99
	412	8.7	5.1	1.42	98
	413	7.9	4.5	1.32	102
	414	8.2	4.4	1.16	101
	415	8.0	4.1	1.05	99
	416	7.5	4.3	1.34	100
	417	7.2	3.9	1.18	103
	418	8.3	4.7	1.31	101
	419	8.1	4.8	1.45	98
	420	8.2	4.6	1.28	98
	Mean	8.0	4.5	1.28	100

000371

APPENDIX 5

(Blood chemistry - continued)

Week 28

Group	Rat No.	Plasma protein g%		A/G ratio	Cl mEq /l
		Total	Alb.		
3♀	481	7.8	4.8	1.60	97
	482	8.1	4.6	1.31	96
	483	8.6	5.1	1.46	98
	484	8.2	4.7	1.34	99
	485	7.9	4.4	1.26	98
	486	7.1	4.1	1.37	100
	487	8.1	4.8	1.45	99
	488	7.8	4.3	1.23	98
	489	7.6	4.2	1.24	101
	490	8.9	5.1	1.34	100
	Mean	8.0	4.6	1.36	99

000372

APPENDIX 5

(Blood chemistry - continued)

Week 28

Group	Rat No.	Plasma protein g%		A/G ratio	Cl mEq /l
		Total	Alb.		
4♀	551	7.6	4.5	1.45	99
	552	8.2	5.1	1.65	101
	553	7.9	4.5	1.32	102
	554	7.0	4.0	1.33	104
	555	8.2	5.1	1.65	99
	556	7.8	4.4	1.29	101
	557	7.3	4.3	1.43	104
	558	7.7	4.6	1.48	102
	559	8.0	4.7	1.42	101
	560	7.1	4.2	1.45	104
	Mean	7.7	4.5	1.45	102

0003373

000374

APPENDIX 5

(Blood chemistry - continued)

Week 52

Group	Rat No.	Urea nitro-gen mg%	Glu-cose mg%	Plasma protein g% Total	Plasma protein g% Alb.	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq/l	K mEq/l	Ca mEq/l	Cl mEq/l	P mEq/l	Choles-terol mg%	Creat-inine mg%
1♂	51	13	121	6.9	3.6	1.08	29	106	29		0.2	143	3.9	5.4	100	2.9	55	0.6
	52	11	140	7.3	3.8	1.05	18	43	107	987	<0.1	144	3.6	5.8	103	3.0	64	0.7
	53	12	164	7.0	4.0	1.32	9	28	84	1233	0.2	144	3.9	5.8	101	2.7	74	0.5
	54	13	128	7.5	3.9	1.11	15	25	83	1226	0.2	145	3.9	5.7	100	2.8	86	0.4
	55	11	161	7.2	3.6	1.01	9	34	89	1453	0.2	142	4.2	5.4	103	2.6	56	0.5
	56	14	117	7.2	3.3	0.85	9	24	60			144	4.1	5.6	102	2.4	92	0.6
	57	11	123	7.6	3.7	0.94	15	21	66	884	0.2	144	4.1	5.6	101	2.6	63	0.6
	58	47	127	6.8	3.1	0.81	12	37	76	792	0.2	143	4.3	5.8	98	3.5	177	1.3
	59	16	117	7.2	3.7	1.04	15	21	75	561	0.2	143	4.0	5.7	103	2.9	89	0.7
	60	12	134	7.6	3.8	1.03	16	26	78	1015	<0.1	142	4.1	5.7	102	2.6	79	0.6
	Mean	16	133	7.2	3.7	1.02	15	37	75	1019	<0.2	143	4.0	5.7	101	2.8	84	0.7
2♂	121	12	101	7.4	3.7	0.99	9	25	78	709	<0.1	145	3.9	5.6	104	3.0	68	0.7
	122	13	144	7.2	3.3	0.83	12	32	89	1069	0.2	145	3.8	5.7	102	2.7	76	0.6
	123	12	137	7.7	3.5	0.82	15	40	104	959	<0.1	145	3.6	5.7	102	2.8	60	0.6
	124	10	142	7.6	3.7	0.92	9	58				143	3.9	5.6	103	2.7	53	0.5
	125	10	146	7.4	3.5	0.86	5	28	60	1342		143	3.7	5.5	102	2.6	57	0.5
	127	13	121	7.1	3.6	1.01	16	34	84	1279	0.2	143	4.1	5.5	103	2.8	50	0.5
	128	12	135	8.0	3.5	0.80	11	39	94	1476	0.4	142	3.8	5.9	99	2.8	128	0.6
	129	13	107	7.5	3.5	0.90	13	34	108	1425	<0.1	141	4.0	5.6	103	2.8	68	0.4
	130	11	133	7.3	3.7	1.05	19	18	84	758		140	3.9	5.6	101	2.5	48	0.5
	Mean	12	130	7.5	3.6	0.91	12	34	88	1127	<0.2	143	3.9	5.6	102	2.7	68	0.5

Original samples from rat nos. 51, 56, 124 and 130 were of insufficient volume for several investigations
Rat No. 126, group 2♂, died during week 25

APPENDIX 5

(Blood chemistry - continued)

Week 52

Group	Rat No.	Urea nitro-gen mg%	Glu-cose mg%	Plamsa protein g% Total	Alb.	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq /l	K mEq /l	Ca mEq /l	Cl mEq /l	P mEq /l	Choles-terol mg%	Creat-inine mg%
3♂	191	9	119	7.8	3.7	0.91	19	34	79	1208	0.5	143	4.3	5.7	101	3.7	67	0.7
	192	14	124	7.2	3.4	0.89	11	42	79	1127	0.2	142	4.1	5.6	103	2.9	79	0.5
	193	11	141	7.5	3.8	1.02						141	3.8	5.7	101	2.8	65	0.4
	194	12	140	7.7	3.6	0.86	9	34	77	1360	0.2	141	3.8	5.4	101	2.5	70	0.5
	195		168				15	34	65	684	0.2							
	196	12	107	7.1	3.8	1.12	9	39	80	1135	<0.1	142	3.6	5.4	101	2.7	47	0.5
	197	12	123	7.4	3.8	1.03	9	56	90	1134	<0.1	141	4.1	5.6	100	2.8	73	0.5
	198	11	143	7.2	3.4	0.91	5	37	67	598	<0.1	142	3.9	5.6	102	2.9	96	0.6
	199	9	118	8.0	3.9	0.97	13	37	65	742	<0.1	145	3.8	5.7	103	3.1	50	0.7
	200	12	132	7.4	3.7	1.01	11	26	42			141	3.9	5.4	101	2.4	56	0.7
	Mean	11	132	7.5	3.7	0.97	11	38	72	999	<0.2	142	3.9	5.6	101	2.9	67	0.6
4♂	261	9	122	7.3	3.5	0.93	25	55	67	457	<0.1	145	3.5	5.6	103	2.9	82	0.6
	262	8	112	7.1	3.2	0.82	15	28	64	823	<0.1	139	3.5	5.2	96	2.8	64	0.6
	263	13	110	7.4	3.6	0.94	5	56	70	975	<0.1	143	3.8	5.6	102	2.7	90	0.7
	264		121				9	31	59	967	<0.1							
	265	10	121	7.4	3.9	1.10	19	45	66	946	<0.1	145	4.1	5.6	102	2.8	57	0.6
	266	14	131	7.7	3.6	0.87	5		59	827	<0.1	147	4.2	5.9	101	3.9	86	0.9
	267	12	154	7.3	3.5	0.93	16	28	43	461	<0.1	145	3.9	5.5	104	3.4	52	0.7
	268	14	176	8.0	3.6	0.83	16	24	53	712	<0.1	148	3.6	5.7	102	3.2	94	0.8
	269	13	134	7.9	3.7	0.89	15	31	51	783	<0.1	143	3.4	5.8	101	2.4	125	0.6
	270	13	129	7.9	3.8	0.93	11	34	59	1141	<0.1	143	4.2	5.5	101	2.5	63	0.6
	Mean	12	131	7.6	3.6	0.92	14	37	59	809	<0.1	144	3.8	5.6	101	3.0	79	0.7

Original samples from rat Nos. 193, 195, 200, 264 and 266 were of insufficient volume for several investigations

0003375

000376

APPENDIX 5

(Blood chemistry - continued)

Week 52

Group	Rat No.	Urea nitro-gen mg%	Glu-cose mg%	Plasma protein g% Total	Plasma protein g% Alb.	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq /l	K mEq /l	Ca mEq /l	Cl mEq /l	P mEq /l	Choles-terol mg%	Creat-inine mg%
1♀	331	15	97	8.2	4.6	1.28	5	34	75	808	<0.1	144	3.4	5.7	102	2.7	79	0.6
	332	14	97	7.9	4.2	1.13	5	32	83	645	<0.1	143	3.8	5.7	104	2.6	76	0.7
	333	11	103	8.5	4.0	0.88	5	28	66	592	<0.1	143	3.8	5.9	101	2.5	132	0.7
	334	14	132	8.4	4.4	1.09		24	59	433	<0.1	144	3.4	5.6	101	2.4	107	0.6
	335	11	127	8.4	3.8	0.82		52	59	323	<0.1	140	3.5	5.7	99	2.0	162	0.6
	336	12	115	7.8	4.1	1.09	11	21	53	316	<0.1	142	3.6	5.5	104	1.8	40	0.6
	337	12	122	7.5	4.3	1.33	6	29	48	691	<0.1	144	3.5	5.8	103	2.6	87	0.6
	338	13	120	8.3	4.6	1.25						143	3.3	5.9	100	2.3	95	0.6
	339	11	143	8.0	4.1	1.06	9	21				142	3.3	5.6	101	2.2	63	0.6
	340	14	95	7.4	4.0	1.18	5	28				143	2.6	5.4	104	1.9	54	0.7
	Mean	13	115	8.0	4.2	1.11	7	30	63	544	<0.1	143	3.4	5.7	102	2.3	90	0.6
2♀	401	15	120	7.7	4.2	1.20	10	34	81	967	<0.1	144	2.9	5.7	101	2.5	113	0.7
	402	19	117	8.2	4.8	1.41	4	43	161		<0.1	144	3.0	5.8	101	2.8	77	0.8
	403	17	131	7.6	4.4	1.38	10	33	88	781	<0.1	143	3.9	5.5	103	2.7	68	0.7
	404	19	105	8.3	4.7	1.32	4	47	104	1066	<0.1	142	3.4	5.8	101	2.8	81	0.7
	405	16	104	7.7	4.6	1.51	7	38	93	904	<0.1	142	2.7	5.7	100	2.5	66	0.6
	406	15	112	7.9	4.5	1.35	5	27	91	528		144	2.9	5.8	102	2.5	78	0.6
	407	15	104	8.0	4.5	1.25	10	31	77	744	<0.1	142	3.5	5.8	102	2.5	58	0.6
	408	12	106	8.2	4.6	1.25	4	33	73	944	0.2	141	3.3	5.6	99	2.3	73	0.5
	409	18	93	7.8	4.4	1.27	3					142	3.6	5.4	103	2.5	64	0.8
	410	12	105	7.3	4.2	1.33	6	34	51	220	<0.1	142	3.7	5.3	103	2.5	66	0.5
	Mean	16	110	7.9	4.5	1.33	6	36	91	769	<0.1	143	3.3	5.6	102	2.6	74	0.7

Original samples from rat Nos. 334, 335, 338, 339, 340, 402, 406 and 409 were of insufficient volume for several investigations

APPENDIX 5

(Blood chemistry - continued)

Week 52

Group	Rat No.	Urea nitro-gen mg%	Glu-cose mg%	Plasma protein g% Total	Plasma protein g% Alb.	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq /l	K mEq /l	Ca mEq /l	Cl mEq /l	P mEq /l	Choles-terol mg%	Creat-inine mg%
3♀	471	20	101	7.8	4.0	1.04	4	25	35	424	<0.1	142	3.5	5.5	99	2.4	92	0.5
	472	15	138	7.8	4.8	1.59	12	27	45	438	<0.1	142	3.7	5.8	101	2.9	77	0.5
	473	12	111	7.7	4.5	1.39	4	31	45	696	0.3	140	3.9	5.4	97	2.5	144	0.4
	474	14	105	7.7	4.1	1.12	13	31	74	940	<0.1	143	3.9	5.6	102	2.5	66	0.6
	475	14	124	7.4	3.9	1.09	4	41	87	1315	0.4	141	3.6	5.5	104	2.1	61	0.6
	476	13	108	8.2	4.7	1.31		32	61	836	<0.1	140	3.5	5.7	98	2.3	84	0.6
	477	15	121	7.9	4.5	1.29	3	27	54	376	<0.1	139	4.1	5.6	101	2.7	61	0.6
	478	15	116	8.4	4.7	1.30		32	87	364	<0.1	141	3.5	5.6	106	2.4	82	0.6
	479	17	79	8.3	5.0	1.54	6	20	58	549	<0.1	141	3.2	5.8	101	2.5	66	0.6
	480	14	138	8.4	4.8	1.35	9	24	46		<0.1	140	2.9	5.6	98	2.4	108	0.6
	Mean	15	114	8.0	4.5	1.30	7	29	59	660	<0.2	141	3.6	5.6	101	2.5	84	0.6
4♀	541	15	113	8.5	4.7	1.24		35	64	283	<0.1	142	3.0	5.7	102	2.7	66	0.8
	542	12	142	8.1	4.4	1.19	4	31	85	1114	<0.1	140	3.2	5.5	97	2.5	78	0.8
	543	18	107	8.4	4.9	1.41		32	100	714	<0.1	142	3.3	5.5	101	2.8	75	0.8
	544	11	108	8.4	4.5	1.16	11	28	47	361	<0.1	142	2.9	5.4	103	2.6	66	0.7
	545		129				15	29	107	502								
	547	12	90	7.2	3.9	1.20	11	35	78			141	3.7	5.0	101	3.0	68	0.7
	548	12	109	8.2	4.7	1.36	11	38				142	2.7	5.6	102	2.6	65	0.9
	549	10	106	8.3	4.7	1.29	9	26	54	226	<0.1	141	2.7	5.6	99	2.3	107	0.7
	Mean	13	113	8.2	4.5	1.26	10	32	76	533	<0.1	141	3.1	5.5	101	2.6	75	0.8

Original samples from rat nos. 476, 478, 480, 541, 543, 545, 547, and 548 were of insufficient volume for several investigations

Rat Nos. 546 and 550 died during weeks 43 and 49 respectively

000377

0003378

APPENDIX 5

(Blood chemistry - continued)

Week 78

Group	Rat No.	Urea nitro-gen mg%	Glu-cose mg%	Plasma protein g% Total	Plasma protein g% Alb.	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq/l	K mEq/l	Ca mEq/l	Cl mEq/l	P mEq/l	Choles-terol mg%	Creat-inine mg%
1♂	61	10	115	7.5	3.6	0.94	17	29	69	676	0.2	147	4.4	5.4	104	2.9	39	0.9
	62	9	95	7.4	3.6	0.93	12	32	51	224	<0.1	144	3.7	5.4	104	2.6	61	0.9
	63	10	136	7.3	3.7	1.01	18	34	69	606	0.3	144	4.3	5.6	102	2.6	101	1.0
	64	12	113	7.3	3.6	0.97	13	40	84	615	0.1	145	4.0	5.5	104	2.5	64	1.1
	65	10	112	7.7	3.6	0.89	13	29	72	351	0.1	145	3.8	5.6	102	2.7	62	1.0
	66	8	72	7.3	3.7	1.01	17	37	65	901	0.2	147	4.0	5.6	105	2.6	72	0.9
	67	10	90	7.4	3.6	0.93	14	26	51	561	<0.1	146	3.8	5.6	103	2.6	91	1.1
	69	7	91	7.4	3.6	0.95	15	30	55	448	<0.1	144	4.6	5.4	104	2.3	82	1.0
	70	8	111	7.3	3.7	1.05	15	36	58	458	<0.1	148	3.5	5.6	104	2.5	47	1.1
Mean		9	104	7.4	3.6	0.96	15	33	64	538	<0.1	146	4.0	5.5	104	2.6	69	1.0
2♂	131	8	98	7.2	3.7	1.04	20	55	87	1329	0.3	147	3.9	5.6	101	2.7	68	1.1
	132	8	107	7.1	3.5	0.98	21	78	78	368	<0.1	146	3.2	5.5	102	2.6	74	1.3
	134	10	111	7.2	3.6	1.03	13	36	78	561	0.1	147	3.6	5.8	104	2.8	73	1.1
	135	8	122	7.3	3.8	1.07	14	30	53	250	0.1	147	3.4	5.7	100	2.3	82	1.0
	136	13	115	6.7	3.7	1.19	14	23	50	281	<0.1	146	3.5	5.7	101	2.8	162	1.2
	137	8	102	7.6	3.7	0.94	10	33	56	331	<0.1	145	3.5	5.5	104	2.1	56	1.0
	138	10	66	7.5	3.9	1.08	17	28	64	439	<0.1	148	3.6	5.7	104	2.5	63	0.9
	139	12	128	7.3	3.7	1.04	16	28	58	840	0.1	144	3.7	5.5	99	2.5	154	1.1
	140	12	125	7.2	3.7	1.09	14	46	83	1315	0.3	146	3.8	5.3	104	2.1	72	0.9
Mean		10	108	7.2	3.7	1.05	15	40	67	635	<0.1	146	3.6	5.6	102	2.5	89	1.1

Rat No. 68, group 1♂, died during week 55

APPENDIX 5

(Blood chemistry - continued)

Week 78

Group	Rat No.	Urea nitro-gen mg%	Glu-cose mg%	Plasma protein g% Total	Plasma protein g% Alb.	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq /l	K mEq /l	Ca mEq /l	Cl mEq /l	P mEq /l	Choles-terol mg%	Creat-inine mg%
3♂	201	9	98	7.0	3.8	1.17	15	37	69	742	0.2	147	3.8	5.4	103	2.2	62	0.8
	203	10	117	6.9	3.7	1.12	23	53	84	481	<0.1	144	4.0	5.4	101	2.4	59	0.8
	205	12	116	7.1	4.1	1.38	18	26	52	192	0.1	147	3.7	5.5	104	2.5	55	0.9
	207	10	84	6.8	3.9	1.36	10	34	69	620	0.1	150	3.7	5.5	104	2.8	125	0.8
	208	8	130	7.1	4.0	1.31	11	34	77	461	0.1	148	3.4	5.6	102	2.2	87	0.8
	209	10	118	7.5	3.7	0.97	14	52	90	1186	0.2	144	4.0	5.5	101	2.7	114	0.8
	210	11	119	7.3	3.9	1.14	15	27	47	258	<0.1	146	3.6	5.7	101	2.6	83	0.8
Mean		10	112	7.1	3.9	1.21	15	38	70	563	<0.1	147	3.7	5.5	102	2.5	84	0.8
4♂	272	10	135	7.3	3.7	1.03	18	27	61	333	<0.1	145	3.2	5.6	97	2.5	89	0.8
	273	8	126	7.4	3.9	1.12	15	47	97	1090	0.4	145	3.5	5.6	98	2.1	78	0.8
	274	7	93	6.8	3.0	0.80	8	39	84	855	0.2	142	3.0	4.9	94	2.3	91	0.9
	275	8	116	7.2	4.0	1.27	16	31	71	816	0.2	142	3.4	5.2	99	2.2	85	0.9
	276	9	129	7.2	4.1	1.31	15	29	52	188	<0.1	144	3.6	5.6	103	2.9	79	0.8
	277	11	115	7.7	4.0	1.08	21	65	77	264	<0.1	147	3.5	5.8	103	2.8	73	0.9
	279	57	69	7.4	3.9	1.10	12	33	56	700	0.1	147	3.9	6.8	98	5.6	168	3.0
	280	11	139	7.3	3.8	1.07	24	28	60	408	<0.1	145	3.5	5.8	103	2.9	73	0.9
Mean		15	115	7.3	3.8	1.10	16	37	70	582	<0.2	145	3.5	5.7	99	2.9	92	1.1

Rat Nos. 202, 204 and 206, group 3♂, and 271 and 278, group 4♂ died during weeks 69, 64, 77, 62 and 75 respectively

0003379

APPENDIX 5

(Blood chemistry - continued)

Week 78

Group	Rat No.	Urea nitro-gen mg%	Glu-cose mg%	Plasma protein g%		A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq /l	K mEq /l	Ca mEq /l	Cl mEq /l	P mEq /l	Choles-terol mg%	Creat-inine mg%
				Total	Alb.													
1♀	341	15	88	8.0	3.9	0.93	8	29	60	400	0.1	143	3.1	5.7	101	2.6	100	0.8
	342	19	98	7.6	4.4	1.34	6	36	53	173	0.1	144	3.4	5.7	103	2.4	69	0.8
	343	18	114	5.8	3.4	1.37	21	29	67	223	0.1	144	3.3	5.3	103	2.8	74	1.0
	344	15	82	8.3	4.3	1.10	6	34	72	910	0.3	142	2.9	5.8	97	2.3	82	0.8
	345	18	103	8.4	4.2	1.01	11	42	67	540	<0.1	142	3.0	5.8	103	2.6	99	0.9
	346	19	77	7.7	3.7	0.93	11	33	56	478	<0.1	142	3.5	5.8	100	2.8	241	1.0
	348	14	119	7.4	3.8	1.06	10	54	65	558	0.1	142	3.5	5.7	101	2.8	109	0.6
Mean		17	97	7.6	4.0	1.11	10	37	63	469	<0.1	143	3.2	5.7	101	2.6	111	0.8
2♀	411	24	92	7.8	3.8	0.94	5	34	71	848	0.5	143	4.0	5.8	97	2.8	146	1.0
	412	14	110	7.8	4.4	1.27	7	26	48	321	<0.1	143	3.1	5.6	100	2.6	104	0.7
	413	22	115	8.0	4.9	1.54	12	31	73	300	0.1	141	3.4	5.6	103	2.5	112	0.8
	414	16	93	8.0	4.3	1.18	6	27	50	236	<0.1	141	3.6	5.4	101	2.5	88	0.6
	415	21	112	7.7	4.4	1.34	5	40	84	243	0.1	141	3.3	5.5	99	2.4	70	0.7
	416	15	96	7.4	4.6	1.64	5	27	70	812	0.1	142	3.6	5.7	101	2.8	69	0.5
	417	18	113	7.4	3.6	0.94	10	21	48	140	0.1	140	3.5	5.4	105	2.3	55	0.8
	419	24	93	7.7	4.5	1.38	5	32	60	161	0.1	142	3.0	5.6	99	2.6	101	0.7
	420	17	140	7.9	4.5	1.29	8	28	45	160	0.2	142	3.0	5.7	99	2.3	95	0.7
Mean		19	107	7.7	4.3	1.28	7	30	61	358	<0.2	142	3.4	5.6	100	2.5	93	0.7

Rat Nos. 347, 349 and 350, group 1♀, died during weeks 62, 67 and 66 respectively

000380

APPENDIX 5

(Blood chemistry - continued)

Week 78

Group	Rat No.	Urea nitro-gen mg%	Glu-cose mg%	Plasma protein g% Total	Plasma protein g% Alb.	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq/l	K mEq/l	Ca mEq/l	Cl mEq/l	P mEq/l	Choles-terol mg%	Creat-inine mg%
3♀	482	36	79	7.9	3.7	0.89	4	38	65	1188	0.6	142	4.2	6.1	99	2.7	224	0.9
	483	20	114	7.8	4.1	1.11	4	23	45	695	0.2	140	3.5	5.9	101	2.6	249	0.7
	484	12	119	7.3	4.3	1.42	15	22	60	157	0.1	142	3.1	5.9	100	2.3	100	0.4
	486	16	121	7.5	4.4	1.44	9	26	52	215	<0.1	140	3.4	5.5	102	2.0	55	0.5
	487	19	109	8.3	4.1	0.99	5	24	38	401	<0.1	140	3.0	6.0	96	2.3	171	0.7
	488	15	125	7.7	4.3	1.27	12	29	62	225	0.2	142	2.7	5.6	99	2.1	79	0.7
	489	11	125	8.4	4.5	1.15	6	17	68	401	0.2	141	3.3	6.2	98	3.1	94	0.6
	490	13	123	8.4	4.4	1.10	7	11	35	197	0.1	145	2.5	6.0	97	2.6	89	0.5
	Mean	18	114	7.9	4.2	1.17	8	24	53	435	<0.2	142	3.2	5.9	99	2.5	133	0.6
4♀	551	15	105	7.5	4.2	1.26	19	17	57	623	<0.1	144	3.4	5.7	98	2.9	115	0.4
	552	14	91	7.5	4.1	1.22	12	18	37	217	0.1	144	2.5	5.9	94	2.6	79	0.5
	553	17	115	8.2	4.3	1.11	8	46	87	1371	0.3	143	3.0	5.7	97	2.2	79	0.5
	554	18	109	8.3	4.6	1.23	14	44	106	510	<0.1	143	2.6	5.8	95	2.6	94	0.6
	555	19	121	8.1	4.6	1.30	6	40	73	695	<0.1	143	3.2	5.8	98	2.4	93	0.4
	556	15	97	8.2	4.0	0.97	7	15	35	200	0.1	142	3.5	5.8	101	2.5	68	0.4
	557	15	123	7.6	4.2	1.22	12	28	41	377	0.2	145	3.4	5.8	101	2.6	69	0.4
	558	13	104	8.4	4.4	1.08	8	25	27	180	0.2	142	2.9	5.7	95	2.4	77	0.5
	559	16	138	7.8	3.9	0.97	10	28	36	416	<0.1	142	3.6	5.6	99	2.4	105	0.5
	560	13	110	8.5	4.2	0.99	17	60	150	431	<0.1	141	3.1	5.7	95	2.4	76	0.4
	Mean	16	111	8.0	4.3	1.14	11	32	65	502	<0.1	143	3.1	5.8	97	2.5	86	0.5

Rat Nos. 481 and 485, group 3♀, died during weeks 58 and 56 respectively

0003381

0003382

APPENDIX 5

(Blood chemistry - continued)

Week 104

Group	Rat No.	Urea nitro-gen mg%	Glu-cose mg%	Plasma protein g% Total	Plasma protein g% Alb.	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq/l	K mEq/l	Ca mEq/l	Cl mEq/l	P mEq/l	Choles-terol mg%	Creat-inine mg%
1♂	51	34	113	6.9	3.6	1.09	21	36	55	222	0.1	145	3.6	5.3	102	2.5	81	0.6
	52	32	65	7.2	3.3	0.85	27	61	127	1348	0.1	146	3.2	5.4	103	2.6	57	0.6
	54	27	106	7.4	3.9	1.12	19	26	62	544	0.1	146	3.3	5.4	100	2.5	110	0.5
	55	25	117	7.2	3.7	1.07	16	29	60	259	0.1	146	3.5	5.4	100	2.3	65	0.5
	60	63	105	7.5	3.4	0.84	22	20	45	214	0.1	145	3.2	6.0	101	3.7	174	1.6
	61	31	131	7.1	3.6	1.01	24	31	62	370	0.3	146	3.8	5.2	104	2.8	44	0.8
	63	44	112	6.7	3.1	0.85	30	22	69	402	0.2	146	3.1	5.5	103	2.7	64	0.8
	67	482	107	5.9	2.9	0.95	62	41	70	127	0.3	157	4.0	6.7	102	7.5	69	5.3
Mean		92	107	7.0	3.4	0.97	28	33	69	436	0.2	147	3.5	5.6	102	3.3	83	1.3
2♂	127	50	100	6.6	3.2	0.93	15	42	104	1150	0.3	147	5.0	5.1	102	3.9	75	0.8
	129	32	9	6.3	3.5	1.24	25	44	112	947	0.1	154	3.5	5.4	105	2.9	92	0.6
	131	34	73	7.0	3.3	0.88	29	49	107	346	0.2	147	3.6	5.3	103	2.7	59	0.7
	132	30	106	7.0	3.7	1.09	22	34	61	230	0.1	148	3.1	5.5	101	2.5	87	0.7
	134	58	84	6.7	3.3	0.94	26	24	58	268	0.2	146	3.6	5.4	103	2.9	59	0.8
	135	73	49	6.4	2.8	0.79	44	29	54	181	0.1	145	3.2	5.3	102	3.7	47	1.0
	140	34	114	7.0	3.5	0.99	14	33	68	709	<0.1	144	3.6	5.2	104	2.9	53	0.7
Mean		44	76	6.7	3.3	0.98	25	36	81	547	<0.2	147	3.7	5.3	103	3.1	67	0.8

APPENDIX 5

(Blood chemistry - continued)

Week 104

Group	Rat No.	Urea nitro-gen mg%	Glu-cose mg%	Plasma protein g% Total	Plasma protein g% Alb.	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq /l	K mEq /l	Ca mEq /l	Cl mEq /l	P mEq /l	Choles-terol mg%	Creat-inine mg%
3♂	194	32	116	7.1	3.2	0.83	16	48	88	712	0.3	144	4.2	5.1	101	2.8	72	0.8
	196	30	106	7.4	3.7	1.00	12	84	138	988	0.2	144	3.2	5.3	100	2.4	76	0.6
	199	28	88	7.5	3.6	0.91	10	30	62	476	0.1	147	2.8	5.3	100		96	0.7
	201	30	95	7.1	3.5	0.95	17	28	54	263	0.1	146	3.7	5.5	102	2.2	57	0.6
	203	30	88	6.9	3.4	0.99	22	45	73	297	0.1	146	3.8	5.2	102	2.3	57	0.5
	205	30	83	7.1	3.7	1.10	19	23	56	188	<0.1	148	3.1	5.3	102	2.6	46	0.6
	208	25	105	7.2	3.8	1.13	13	36	73	712	0.2	147	3.5	5.5	101	2.6	98	0.6
	210	34	102	7.1	3.5	0.97	19	30	67	220	0.1	147	3.4	5.4	101	2.9	65	0.6
	Mean	30	98	7.2	3.6	0.99	16	41	76	482	<0.2	146	3.5	5.3	101	2.5	71	0.6
4♂	261	36	99	7.0	3.2	0.84	18	26	56	291	0.2	144	3.4	5.0	100	2.9	130	0.8
	264	27	122	6.5	3.2	0.98	16	32	87	1158	0.1	146	3.9	5.3	103	2.9	72	0.7
	273	27	114	7.2	3.6	1.01	18	35	78	434	<0.1	147	2.8	5.4	99	2.5	75	0.7
	275	80	84	6.2	2.8	0.82	27	20	60	277	<0.1	147	3.0	6.0	100	3.7	118	1.5
	277	46	109	7.0	3.8	1.19	23	46	93	1071	0.3	146	3.6	5.6	102	2.6	86	0.9
	280	33	89	7.7	3.7	0.93	21	22	48	337	0.2	147	3.0	5.8	98	3.2	125	0.8
	Mean	42	103	6.9	3.4	0.96	21	30	70	595	<0.2	146	3.3	5.5	100	3.0	101	0.9

The original sample from rat No. 199 was of insufficient volume for the phosphorus estimation

0003383

000384

APPENDIX 5

(Blood chemistry - continued)

Week 104

Group	Rat No.	Urea nitro-gen mg%	Glu-cose mg%	Plasma protein g% Total	Plasma protein g% Alb.	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq /l	K mEq /l	Ca mEq /l	Cl mEq /l	P mEq /l	Choles-terol mg%	Creat-inine mg%
1♀	332	28	125	7.9	4.2	1.14	14	56	104	317	0.1	143	3.0	5.6	100	2.4	103	0.7
	334	39	76	7.8	4.2	1.18	15	44	91	302	0.1	144	2.5	5.6	93	2.6	125	0.7
	336	28	117	7.5	4.1	1.21	16	26	52	230	0.1	141	2.9	5.5	99	2.9	48	0.6
	342	30	104	8.1	4.2	1.10	13	33	59	192	0.1	142	3.0	5.4	99	2.3	67	0.6
	345	24	99	7.4	4.1	1.25	17	37	69	242	<0.1	144	2.7	5.4	100	2.8	74	0.7
	348		127				11	29	66	688	0.4							
	Mean	30	108	7.7	4.2	1.18	14	38	74	329	<0.2	143	2.8	5.5	98	2.6	83	0.7
2♀	401	35	83	7.7	4.0	1.07	20	40	81	1116	0.5	141	3.0	5.8	96	2.6	157	0.7
	404	33	115	7.8	4.4	1.26	12	33	59	272	<0.1	141	3.1	5.7	98	2.7	84	0.6
	409	40	102	7.6	3.9	1.04	38	39	71	292	0.1	144	2.9	5.4	98	2.9	77	0.6
	412	27	96	8.0	4.0	0.98	14	24	55	332	0.1	144	2.9	5.6	97	2.4	105	0.7
	413	32	120	8.2	4.6	1.27	13	20	71	270	0.1	149	2.4	5.7	99	2.3	81	0.6
	414	32	75	7.1	4.2	1.45	10	35	77	1153	0.4	142	3.0	5.3	98	2.4	121	0.7
	415	32	127	7.3	4.2	1.36	9	29	63	227	0.1	145	3.0	5.4	98	2.0	66	0.6
	416	36	86	6.5	3.5	1.14	12	24	70	317	<0.1	146	3.1	5.2	99	2.4	54	0.5
	420	36	128	6.9	4.2	1.52	12	31	52	305	0.1	145	3.7	5.5	99	2.7	74	0.6
	Mean	34	104	7.5	4.1	1.23	16	31	67	476	<0.2	144	3.0	5.5	98	2.5	91	0.6

The original sample from rat No. 348 was of insufficient volume for several investigations

APPENDIX 5

(Blood chemistry - continued)

Week 104

Group	Rat No.	Urea nitro-gen mg%	Glu-cose mg%	Plasma protein g% Total	Plasma protein g% Alb.	A/G ratio	AP mU/ml	GPT mU/ml	GOT mU/ml	LDH mU/ml	Bili-rubin mg%	Na mEq/l	K mEq/l	Ca mEq/l	Cl mEq/l	P mEq/l	Choles-terol mg%	Creat-inine mg%
3♀	474	45	101	7.0	3.8	1.16	28	36	77	345	0.1	143	3.0	5.3	100	2.8	69	0.6
	478	28	121	7.6	4.4	1.36	20	40	141	434	0.1	143	4.0	5.4	104	2.5	103	0.6
	480	30	233	7.5	4.1	1.22	25	20	56	210	0.1	146	2.9	5.4	98	2.4	89	0.7
	488	36	96	7.3	3.9	1.17	24	38	66	137	0.1	146	3.7	5.6	103	2.6	79	0.8
Mean		35	138	7.4	4.1	1.23	24	34	85	282	0.1	145	3.4	5.4	101	2.6	85	0.7
4♀	541	32	95	8.2	4.3	1.12	14	65	169	337	0.1	145	3.4	5.7	97	2.6	55	0.7
	555	36	107	7.2	3.8	1.14	12	34	87	325	0.1	145	3.0	5.4	100	2.7	86	0.7
	556	30	98	7.3	3.7	1.02	14	24	52	137	0.1	143	3.4	5.4	104	2.5	64	0.7
	557	27	91	7.5	4.2	1.26	12	31	65	187	0.1	146	2.9	5.5	104	2.8	68	0.7
Mean		31	98	7.6	4.0	1.14	13	39	93	247	0.1	145	3.2	5.5	101	2.7	68	0.7

0000385

0003386

APPENDIX 6

Urinalysis - individual values and observations

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0 (Control)	1000	3000	10000

Week 24

Group	Rat No.	Volume mls	pH	SG	Protein mg%	Total red. subs.	Glucose	Ketones	Bile pigments	Urobilinogen	Haemoglobin	Microscopy E	P	M	R	O	C	A
1♂	61	1.4	6.2	1060	40	0	0	0	0	0	0	0	0	1	0	1	0	0
	62	7.2	6.6	1045	30	0	0	0	0	0	+	0	1	0	1	1	0	1sp
	63	3.0	6.7	1043	40	0	0	0	0	0	0	0	0	0	0	1	0	0
	64	4.2	6.3	1060	50	0	0	0	0	0	+	1	1	0	1	1	0	2sp
	65	4.6	6.2	1042	20	0	0	0	0	0	0	1	0	0	0	1	0	1sp
	66	3.6	6.3	1060	80	0	0	0	0	0	0	0	1	0	0	1	0	1sp
	67	8.4	6.3	1045	30	0	0	0	0	0	0	0	0	0	0	1	0	1sp
	68	4.2	6.1	1060	200	0	0	0	0	0	+	0	1	0	1	1	0	0
	69	1.0	6.1		300	0	0	0	0	0	+	0	0	0	1	1	0	0
	70	3.4	6.0	1060	30	0	0	0	0	0	0	1	1	0	0	1	0	2sp
	Mean	4.1	6.3	1053	82	0	0	0	0	0	0	0	1	0	0	1	0	1sp
2♂	131	7.6	6.2	1046	10	0	0	0	0	0	0	0	0	0	0	1	0	3sp
	132	4.0	6.2	1060	30	0	0	0	0	0	0	0	0	0	0	1	0	1sp
	133	3.0	6.3	1052	20	0	0	0	0	0	+	0	0	0	1	1	0	0
	134	4.6	6.5	1045	30	0	0	0	0	0	0	0	0	0	0	1	0	1sp
	135	5.0	7.0	1045	10	0	0	0	0	0	+	0	0	0	0	1	0	1sp
	136	6.4	6.2	1054	120	0	0	0	0	0	+	1	0	0	1	1	0	0
	137	3.0	6.0	1053	30	0	0	0	0	0	+	1	0	0	1	1	0	0
	138	6.2	6.1	1049	20	0	0	0	0	0	+	0	1	0	1	1	0	0
	139	2.0	6.1	1060	20	0	0	0	0	0	0	0	0	0	0	1	0	0
	140	3.6	6.1	1060	70	0	0	0	0	0	0	0	1	0	0	1	0	1sp
	Mean	4.5	6.3	1052	36	0	0	0	0	0	+	0	0	0	0	1	0	0

sp sperm
Original sample from rat No. 69 of insufficient volume for the specific gravity estimation

APPENDIX 6.

(Urinalysis - continued)

Week 24

Group	Rat No.	Volume mls	pH	SG	Protein mg%	Total red. subs.	Glucose	Ketones	Bile pigments	Urobilinogen	Haemoglobin	Microscopy						
												E	P	M	R	O	C	A
3♂	201	6.2	6.6	1047	30	0	0	0	0	0	0	0	0	0	0	1	0	1sp
	202	1.0	6.2	1055	30	0	0	0	0	0	+	0	0	0	0	1	0	1sp
	203	1.2	6.1	1060	10	0	0	0	0	0	+	1	1	0	1	1	0	2sp
	204	6.0	6.2	1051	30	0	0	0	0	0	+	0	0	0	1	1	0	2sp
	205	1.8	6.2	1060	20	0	0	0	0	0	0	1	0	0	0	1	0	2sp
	206	4.6	6.4	1045	300	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	207	3.6	6.5	1060	40	0	0	0	0	0	0	0	1	0	0	1	0	3sp
	208	3.4	6.6	1060	30	0	0	0	0	0	0	0	1	0	0	1	0	1sp
	209	3.2	6.3	1052	20	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	210	2.4	6.2	1060	10	0	0	0	0	0	0	1	1	0	0	1	0	1sp
	Mean	3.3	6.3	1055	52	0	0	0	0	0	+	0	0	0	0	1	0	1sp
4♂	271	5.4	6.5	1045	20	0	0	0	0	0	+	1	0	0	1	1	0	2sp
	272	5.2	6.9	1053	30	0	0	0	0	0	+	0	1	0	1	1	0	1sp
	273	8.0	6.7	1045	20	0	0	0	0	0	+	0	0	0	0	1	0	1sp
	274	7.0	6.2	1052	40	0	0	0	0	0	+	1	0	0	1	1	0	0
	275	2.6	6.4	1060	80	0	0	0	0	0	0	0	1	0	0	1	0	1sp
	276	5.2	6.2	1060	100	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	277	2.6	6.5	1051	30	0	0	0	0	0	+	0	0	0	1	1	0	0
	278	3.8	6.2	1060	200	0	0	0	0	0	+	0	0	0	0	1	0	1sp
	279	3.6	7.1	1060	300	0	0	0	0	0	0	0	0	0	0	1	0	1sp
	280	3.8	6.5	1060	40	0	0	0	0	0	0	0	0	0	0	1	0	1sp
	Mean	4.7	6.5	1055	86	0	0	0	0	0	+	0	0	0	1	1	0	1sp

sp sperm

000387

000388

APPENDIX 6

(Urinalysis - continued)

Week 24

Group	Rat No.	Volume mls	pH	SG	Protein mg%	Total red. subs.	Glucose	Ketones	Bile pigments	Urobilinogen	Haemoglobin	Microscopy						
												E	P	M	R	O	C	A
1♀	341	2.0	6.0	1059	10	0	0	0	0	0	0	0	1	0	0	1	0	0
	342	1.2	5.7	1060	0	0	0	0	0	0	0	0	1	0	0	1	0	0
	343	0.2	5.8	1060		0	0	0	0	0	0							
	344	5.6	5.7	1049	0	0	0	0	0	0	0	0	1	0	0	1	0	0
	345	2.2	6.0	1060	40	0	0	0	0	0	0	0	0	0	0	1	0	0
	346	4.2	6.3	1039	30	0	0	0	0	0	0	0	1	1	0	1	0	0
	347	1.4	5.9	1060	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	348	1.0	6.1	1051	0	0	0	0	0	0	0	1	0	0	0	1	0	0
	349	0.2	6.3	1044		0	0	0	0	0	0							
	350	3.6	6.0	1047	0	0	0	0	0	0	0	0	1	0	0	1	0	0
	Mean	2.2	6.0	1053	10	0	0	0	0	0	0	0	1	0	0	1	0	0
2♀	411	5.0	6.2	1044	0	0	0	0	0	0	0	0	0	1	0	1	0	0
	412	2.4	5.9	1060	30	0	0	0	0	0	+	1	0	0	1	1	0	0
	413	1.8	6.0	1055	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	414	2.2	6.2	1044	0	0	0	0	0	0	0	1	0	0	0	1	0	0
	415	2.2	5.9	1060	0	0	0	0	0	0	0	0	1	0	0	1	0	0
	416	1.8	5.9	1060	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	417	3.2	5.9	1043	20	0	0	0	0	0	0	1	0	0	0	1	0	0
	418	2.0	6.0	1047	0	0	0	0	0	0	+	0	0	0	0	1	0	0
	419	2.8	7.2	1030	0	0	0	0	0	0	+	1	0	0	1	1	0	0
	420	2.2	6.3	1060	20	0	0	0	0	0	0	0	0	0	0	1	0	0
	Mean	2.6	6.2	1050	7	0	0	0	0	0	0	0	0	0	0	1	0	0

Original samples from rat nos. 343 and 349 of insufficient volume for the total protein estimation and for microscopy of spun deposit.

APPENDIX 6

(Urinalysis - continued)

Week 24

Group	Rat No.	Volume mls	pH	SG	Protein mg%	Total red. subs.	Glucose	Ketones	Bile pigments	Urobilinogen	Haemoglobin	Microscopy						
												E	P	M	R	O	C	A
3♀	481	1.6	5.8	1060	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	482	3.0	5.9	1060	80	0	0	0	0	0	0	1	0	0	0	1	0	0
	483	2.8	6.0	1050	100	0	0	0	0	0	0	1	1	0	0	1	0	0
	484	3.4	6.4	1044	10	0	0	0	0	0	0	0	0	0	0	1	0	0
	485	3.0	6.1	1060	0	0	0	0	0	0	0	0	1	0	0	1	0	0
	486	4.0	6.1	1048	0	0	0	0	0	0	0	0	1	0	0	1	0	0
	487	3.2	6.4	1053	70	0	0	0	0	0	0	1	1	0	0	1	0	0
	488	3.2	6.3	1045	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	489	1.8	6.2	1060	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	490	2.6	6.1	1052	0	0	0	0	0	0	0	0	0	1	0	1	0	0
	Mean	2.9	6.1	1053	26	0	0	0	0	0	0	0	0	0	0	1	0	0
4♀	551	4.0	6.2	1043	10	0	0	0	0	0	0	0	0	0	0	1	0	0
	552	4.6	6.2	1043	10	0	0	0	0	0	0	0	0	0	0	2	0	0
	553	2.8	6.1	1051	10	0	0	0	0	0	0	1	0	0	0	1	0	0
	554	4.2	6.3	1049	10	0	0	0	0	0	0	0	0	0	0	1	0	0
	555	2.6	5.9	1053	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	556	1.8	6.2	1055	0	0	0	0	0	0	0	1	0	0	0	1	0	0
	557	1.8	6.3	1047	0	0	0	0	0	0	0	1	0	0	0	1	0	0
	558	1.6	6.1	1060	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	559	2.0	6.1	1060	30	0	0	0	0	0	0	0	1	0	0	1	0	0
	560	2.4	5.9	1060	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	Mean	2.8	6.1	1052	7	0	0	0	0	0	0	0	0	0	0	1	0	0

0003389

000390

APPENDIX 6

(Urinalysis - continued)

Week 49

Group	Rat No.	Volume mls	pH	SG	Protein mg%	Total red. subs.	Glucose	Ketones	Bile pigments	Urobilinogen	Haemoglobin	Microscopy						
												E	P	M	R	O	C	A
1♂	61	4.8	6.9	1045	10	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	62	2.2	6.7	1058	90	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	63	8.6	8.0	1040	140	0	0	0	0	0	0	0	0	0	0	1	0	0
	64	6.4	8.4	1048	180	0	0	0	0	0	+	0	0	0	2	1	0	0
	65	5.4	7.1	1056	120	0	0	0	0	0	+	1	0	0	1	2	0	2sp
	66	3.0	6.3	1058	600	0	0	0	0	0	+	1	0	0	2	1	0	2sp
	67	7.2	6.3	1055	400	0	0	0	0	0	+	1	0	0	1	1	0	0
	68	10.6	6.8	1043	1000	0	0	0	0	0	+	0	0	0	1	1	0	0
	69	2.2	6.7	1058	200	0	0	0	0	0	+	0	0	0	2	1	0	2sp
	70	1.2	6.6	1058	50	0	0	0	0	0	+	0	0	0	1	1	0	1sp
Mean		5.2	7.0	1052	279	0	0	0	0	0	+	0	0	0	1	1	0	1sp
2♂	131	6.8	6.7	1045	10	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	132	6.0	6.5	1050	180	0	0	0	0	0	+	0	0	0	1	1	0	0
	134	5.4	6.6	1055	200	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	135	5.0	6.7	1052	120	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	136	9.8	6.9	1039	300	0	0	0	0	0	+	1	0	0	1	1	0	0
	137	5.4	6.8	1049	400	0	0	0	0	0	+	0	0	0	1	1	0	0
	138	3.6	6.5	1058	300	0	0	0	0	0	0	0	0	1	0	1	0	1sp
	139	10.2	6.8	1040	500	0	0	0	0	0	+	0	0	0	1	2	0	1sp
	140	5.2	6.8	1051	200	0	0	0	0	0	+	1	0	0	1	1	0	0
Mean		6.4	6.7	1049	246	0	0	0	0	0	+	0	0	0	1	1	0	1sp

sp sperm
Rat No. 133, group 2♂, died during week 41

APPENDIX 6

(Urinalysis - continued)

Week 49

Group	Rat No.	Volume mls	pH	SG	Protein mg%	Total red. subs.	Glucose	Ketones	Bile pigments	Urobilinogen	Haemoglobin	Microscopy						
												E	P	M	R	O	C	A
3♂	201	8.0	6.8	1045	200	0	0	0	0	0	0	1	1	0	0	1	0	2sp
	202	5.6	6.7	1048	40	0	0	0	0	0	+	1	0	0	2	1	0	3sp
	203	1.8	6.3	1122	60	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	204	7.6	6.5	1045	140	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	205	5.4	6.6	1053	60	0	0	0	0	0	0	1	1	1	0	1	0	3sp
	206	4.8	6.3	1056	1000	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	207	7.4	6.6	1045	400	0	0	0	0	0	0	0	0	0	0	1	0	1sp
	208	6.8	6.9	1041	40	0	0	0	0	0	0	0	0	0	0	1	0	0
	209	4.0	6.8	1050	900	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	210	2.0	6.6	1058	50	0	0	0	0	0	+	0	0	0	1	1	0	1sp
Mean		5.3	6.6	1056	289	0	0	0	0	0	+	0	0	0	1	1	0	1sp
4♂	271	7.2	6.7	1045	20	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	272	6.6	6.9	1045	160	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	273	4.8	7.4	1045	50	0	0	0	0	0	+	1	0	0	1	1	0	0
	274	4.8	8.3	1048	200	0	0	0	0	0	0	0	0	0	0	1	0	0
	275	7.0	7.3	1045	140	0	0	0	0	0	+	1	0	0	1	1	0	0
	276	7.0	7.1	1048	140	0	0	0	0	0	0	1	0	0	0	1	0	0
	277	4.2	7.1	1044	200	0	0	0	0	0	+	1	0	0	1	1	0	0
	278	4.0	6.9	1056	800	0	0	0	0	0	+	0	0	0	1	1	0	0
	279	4.0	6.9	1055	1000	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	280	5.0	6.6	1056	60	0	0	0	0	0	+	1	0	0	3	2	0	1sp
Mean		5.5	7.1	1049	277	0	0	0	0	0	+	1	0	0	1	1	0	0

sp sperm

000391

000392

APPENDIX 6

(Urinalysis - continued)

Week 49

Group	Rat No.	Volume mls	pH	SG	Protein mg%	Total red. subs.	Glucose	Ketones	Bile pigments	Urobilinogen	Haemoglobin	Microscopy						
												E	P	M	R	O	C	A
1♀	341	2.8	6.2	1045	200	0	0	0	0	0	0	0	0	0	0	1	0	0
	342	5.0	6.6	1040	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	343	4.2	6.6	1041	200	0	0	0	0	0	0	0	0	0	0	1	0	0
	344	8.0	6.2	1039	200	0	0	0	0	0	0	0	0	0	0	2	0	0
	345	3.0	6.5	1045	200	0	0	0	0	0	0	1	0	0	0	1	0	0
	346	8.0	6.5	1042	300	0	0	0	0	0	0	1	0	0	0	1	0	0
	347	1.5	6.3	1052	100	0	0	0	0	0	+	0	0	0	1	1	0	0
	348	6.5	6.5	1039	120	0	0	0	0	0	0	0	0	0	0	1	0	0
	349	12.0	6.9	1027	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	350	6.4	6.6	1038	0	0	0	0	0	0	0	1	0	0	0	1	0	0
	Mean	5.7	6.5	1041	132	0	0	0	0	0	0	0	0	0	0	1	0	0
2♀	411	4.0	6.4	1035	30	0	0	0	0	0	0	0	0	0	0	1	0	0
	412	2.8	6.5	1055	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	413	2.0	6.4	1052	0	0	0	0	0	0	+	0	0	0	1	1	0	0
	414	8.5	6.8	1031	400	0	0	0	0	0	0	0	0	0	0	1	0	0
	415	8.0	7.0	1035	200	0	0	0	0	0	0	0	0	0	0	1	0	0
	416	0.1	6.2	1060			0	0	0	0	0							
	417	6.0	6.3	1037	20	0	0	0	0	0	0	1	0	0	0	1	0	0
	419	11.5	6.7	1025	20	0	0	0	0	0	0	0	0	0	0	1	0	0
	420	4.2	6.7	1040	100	0	0	0	0	0	0	1	0	0	0	1	0	0
	Mean	5.2	6.6	1041	96	0	0	0	0	0	0	0	0	0	0	1	0	0

The original sample from rat no. 416 was of insufficient volume for the protein and total reducing substances estimations and also for the microscopy of the spun deposit.
Rat No. 418, group 2♀, died during week 48

APPENDIX 6

(Urinalysis - continued)

Week 49

Group	Rat No.	Volume mls	pH	SG	Protein mg%	Total red. subs.	Glucose	Ketones	Bile pigments	Urobilinogen	Haemoglobin	Microscopy						
												E	P	M	R	O	C	A
3♀	481	4.0	6.5	1039	50	0	0	0	0	0	0	1	0	0	0	1	0	0
	482	8.6	6.1	1038	300	0	0	0	0	0	0	0	0	0	0	1	0	0
	483	3.4	6.2	1050	1000	0	0	0	0	0	0	0	0	0	0	1	0	0
	484	2.2	6.6	1045	500	0	0	0	0	0	+	1	0	0	1	1	0	0
	485	5.6	6.6	1038	20	0	0	0	0	0	+	0	0	0	1	1	0	0
	486	5.2	6.8	1037	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	487	7.2	7.2	1033	400	0	0	0	0	0	0	0	0	0	0	1	0	0
	488	4.0	6.7	1042	100	0	0	0	0	0	0	0	0	0	0	1	0	0
	489	4.2	6.3	1040	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	490	4.2	6.9	1038	600	0	0	0	0	0	0	0	0	0	0	1	0	0
	Mean	4.9	6.6	1040	297	0	0	0	0	0	0	0	0	0	0	1	0	0
4♀	551	7.0	6.4	1035	100	0	0	0	0	0	0	0	0	0	0	1	0	0
	552	9.0	6.5	1037	300	0	0	0	0	0	0	0	0	0	0	2	0	0
	553	4.0	6.1	1044	40	0	0	0	0	0	0	1	0	1	0	1	0	0
	554	4.8	6.4	1042	60	0	0	0	0	0	0	0	0	0	0	1	0	0
	555	4.6	6.3	1040	20	0	0	0	0	0	0	0	0	0	0	1	0	0
	556	4.0	6.5	1040	0	0	0	0	0	0	0	1	0	0	0	2	0	0
	557	7.8	7.1	1030	10	0	0	0	0	0	+	0	0	0	1	1	0	0
	558	3.0	6.5	1043	10	0	0	0	0	0	+	0	0	0	1	1	0	0
	559	8.0	6.5	1031	200	0	0	0	0	0	0	0	0	0	0	1	0	0
	560	2.8	6.4	1045	0	0	0	0	0	0	+	0	0	0	1	1	0	0
	Mean	5.5	6.5	1039	74	0	0	0	0	0	0	0	0	0	0	1	0	0

0003393

000394

APPENDIX 6

(Urinalysis - continued)

Week 77

Group	Rat No.	Volume mls	pH	SG	Protein mg%	Total red. subs.	Glucose	Ketones	Bile pigments	Urobilinogen	Haemoglobin	Microscopy						
												E	P	M	R	O	C	A
1♂	61	2.6	7.0	1048	40	0	0	0	0	0	+	1	0	0	1	1	0	0
	62	9.4	6.5	1044	200	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	63	11.0	7.3	1039	300	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	64	5.8	8.3	1044	500	0	0	0	0	0	+	0	0	0	1	0	0	1sp
	65	5.8	7.7	1041	300	0	0	0	0	0	+	0	0	0	1	1	0	0
	66	6.0	6.9	1051	600	0	0	0	0	0	+	0	0	0	1	1	0	0
	67	11.0	6.6	1035	500	0	0	0	0	0	+	0	0	0	1	1	0	0
	69	4.4	6.8	1052	700	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	70	2.4	7.0	1047	200	0	0	0	0	0	+	1	0	0	1	1	0	1sp
Mean		6.5	7.1	1045	371	0	0	0	0	0	+	1	0	0	1	1	0	1sp
2♂	131	10.2	7.2	1040	200	0	0	0	0	0	+	1	0	0	1	1	0	2sp
	132	12.0	8.0	1036	300	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	134	4.0	7.2	1037	200	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	135	5.8	6.9	1044	200	0	0	0	0	0	+	1	0	0	1	1	0	0
	136	5.4	6.7	1045	500	0	0	0	0	0	+	0	0	0	1	1	0	0
	137	8.2	6.4	1043	200	0	0	0	0	0	+	0	0	0	1	1	0	0
	138	6.2	6.7	1047	300	0	0	0	0	0	+	0	0	0	2	1	0	0
	139	13.0	6.5	1037	500	0	0	0	0	0	+	0	0	0	1	1	0	0
	140	8.4	7.0	1041	90	0	0	0	0	0	+	1	0	0	1	1	0	1sp
Mean		8.1	7.0	1041	277	0	0	0	0	0	+	0	0	0	1	1	0	0

sp sperm

Rat No. 68, group 1♂, died during week 55

APPENDIX 6

(Urinalysis - continued)

Week 77

Group	Rat No.	Volume mls	pH	SG	Protein mg%	Total red. subs.	Glucose	Ketones	Bile pigments	Urobilinogen	Haemoglobin	Microscopy						
												E	P	M	R	O	C	A
3♂	201	7.2	7.1	1042	300	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	203	4.0	6.4	1058	80	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	205	5.6	6.6	1052	300	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	207	7.2	6.4	1046	600	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	208	6.6	7.0	1032	100	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	209	17.0	6.4	1034	300	0	0	0	0	0	+	1	0	0	1	1	0	0
	210	10.2	7.0	1039	10	0	0	0	0	0	+	0	0	0	1	1	0	0
Mean		8.3	6.7	1043	241	0	0	0	0	0	+	1	0	0	1	1	0	1sp
4♂	272	17.0	6.9	1031	200	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	273	6.8	7.9	1031	90	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	274	6.6	6.4	1055	800	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	275	14.0	7.0	1040	400	0	0	0	0	0	0	1	0	0	0	1	0	0
	276	8.0	6.2	1044	300	0	0	0	0	0	0	1	0	0	0	1	0	0
	277	8.6	6.7	1049	400	0	0	0	0	0	+	1	0	0	1	0	0	0
	279	15.0	6.0	1030	600	0	0	0	0	0	+	1	0	0	1	1	0	0
	280	11.2	6.9	1047	40	0	0	0	0	0	+	1	0	0	1	1	0	0
Mean		10.9	6.8	1041	354	0	0	0	0	0	+	1	0	0	1	1	0	0

sp sperm

Rat Nos. 202, 204 and 206, group 3♂, and 271 and 278, group 4♂ died during weeks 69, 64, 77, 62 and 75 respectively

000395

0003396

APPENDIX 6

(Urinalysis - continued)

Week 77

Group	Rat No.	Volume mls	pH	SG	Protein mg%	Total red. subs.	Glucose	Ketones	Bile pigments	Urobilinogen	Haemoglobin	Microscopy						
												E	P	M	R	O	C	A
1♀	341	7.0	6.4	1044	50	0	0	0	0	0	0	1	0	0	0	1	0	0
	342	5.8	6.5	1036	30	0	0	0	0	0	0	1	0	0	0	1	0	0
	343	7.0	6.6	1030	600	0	0	0	0	0	+	1	0	0	1	2	0	0
	344	7.8	5.8	1036	300	0	0	0	0	0	0	1	0	1	0	0	0	0
	345	7.8	6.4	1035	600	0	0	0	0	0	0	1	0	0	0	1	0	0
	346	11.0	5.9	1045	600	0	0	0	0	0	+	1	0	0	1	1	0	0
	348	8.2	6.6	1042	700	0	0	0	0	0	0	1	1	1	0	1	0	0
Mean		7.8	6.3	1038	411	0	0	0	0	0	0	1	0	0	0	1	0	0
2♀	411	12.0	6.2	1040	700	0	0	0	0	0	+	0	0	0	1	1	0	0
	412	7.0	6.3	1035	400	0	0	0	0	0	+	1	0	0	2	1	0	0
	413	8.2	6.5	1036	300	0	0	0	0	0	+	0	0	0	1	1	0	0
	414	9.0	6.5	1034	200	0	0	0	0	0	+	1	0	0	1	1	0	0
	415	9.6	6.5	1030	20	0	0	0	0	0	0	1	0	0	0	1	0	0
	416	9.2	6.6	1032	100	0	0	0	0	0	0	1	1	1	0	1	0	0
	417	10.6	6.8	1030	90	0	0	0	0	0	+	1	0	0	1	1	0	0
	419	15.0	6.8	1025	80	0	0	0	0	0	0	1	1	0	0	1	0	0
	420	9.2	6.5	1030	30	0	0	0	0	0	0	0	0	1	0	1	0	0
Mean		10.0	6.5	1032	213	0	0	0	0	0	+	1	0	0	1	1	0	0

Rat Nos. 347, 349 and 350, group 1♀, died during weeks 62, 67 and 66 respectively

APPENDIX 6

(Urinalysis - continued)

Week 77

Group	Rat No.	Volume mls	pH	SG	Protein mg%	Total red. subs.	Glucose	Ketones	Bile pigments	Urobilinogen	Haemoglobin	Microscopy						
												E	P	M	R	O	C	A
3♀	482	14.0	5.7	1036	700	0	0	0	0	0	0	1	1	1	0	1	0	0
	483	13.0	6.2	1042	800	0	0	0	0	0	0	1	0	0	0	1	0	0
	484	13.0	6.6	1030	200	0	0	0	0	0	+	1	0	0	1	1	0	0
	486	8.0	6.8	1031	20	0	0	0	0	0	0	1	0	0	0	1	0	0
	487	11.0	5.9	1035	700	0	0	0	0	0	+	1	0	0	1	1	0	0
	488	13.0	6.3	1030	200	0	0	0	0	0	0	0	0	0	0	1	0	0
	489	8.2	5.1	1051	600	0	0	0	0	0	+	1	0	0	1	1	0	0
	490	9.6	6.2	1034	400	0	0	0	0	0	+	1	0	0	1	1	0	0
Mean		11.2	6.1	1036	453	0	0	0	0	0	+	1	0	0	1	1	0	0
4♀	551	14.0	6.7	1026	30	0	0	0	0	0	0	0	0	0	0	1	0	0
	552	13.0	6.1	1032	400	0	0	0	0	0	0	1	1	0	0	1	0	0
	553	5.6	6.0	1041	200	0	0	0	0	0	0	1	0	1	0	1	0	0
	554	10.0	6.3	1035	400	0	0	0	0	0	0	0	0	0	0	1	0	0
	555	6.6	6.2	1035	100	0	0	0	0	0	0	1	1	1	0	1	0	0
	556	6.2	6.9	1031	20	0	0	0	0	0	+	1	0	0	2	1	0	0
	557	14.0	6.8	1031	30	0	0	0	0	0	+	0	0	0	1	1	0	0
	558	13.0	6.6	1048	100	0	0	0	0	0	+	0	0	0	1	1	0	0
	559	7.8	6.3	1034	800	0	0	0	0	0	+	0	0	0	1	1	0	0
	560	12.0	6.5	1040	60	0	0	0	0	0	+	0	0	0	1	1	0	0
Mean		10.2	6.4	1035	214	0	0	0	0	0	+	0	0	0	0	1	0	0

Rat Nos. 481 and 485, group 3♀, died during weeks 58 and 56 respectively

000397

000398

APPENDIX 6

(Urinalysis - continued)

Week 102

Group	Rat No.	Volume mls	pH	SG	Protein mg%	Total red. subs.	Glucose	Ketones	Bile pigments	Urobilinogen	Haemoglobin	Microscopy						
												E	P	M	R	O	C	A
1♂	51	7.2	6.3	1038	400	0	0	0	0	0	+	1	0	0	1	1	0	0
	52	15.0	6.3	1029	140	0	0	0	0	0	+	0	0	0	1	1	0	0
	54	4.2	6.2	1052	400	0	0	0	0	0	+	1	0	0	1	1	0	0
	55	4.8	6.5	1048	120	0	0	0	0	0	+	1	0	0	1	1	0	0
	60	14.0	5.7	1033	600	0	0	0	0	0	+	0	0	0	1	1	0	0
	61	5.8	6.4	1055	140	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	63	12.0	6.0	1034	300	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	67	13.0	5.7	1025	800	0	0	0	0	0	+	1	0	0	1	1	0	0
	70	6.6	6.6	1040	600	0	0	0	0	0	+	1	0	0	1	1	0	0
Mean		9.2	6.2	1039	389	0	0	0	0	0	+	1	0	0	1	1	0	0
2♂	127	7.6	6.7	1040	300	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	129	9.4	6.5	1045	400	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	131	8.0	6.4	1039	400	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	132	17.0	5.9	1032	600	0	0	0	0	0	+	1	0	0	1	1	0	0
	134	14.0	6.1	1038	700	0	0	0	0	0	+	1	0	0	2	1	0	0
	135	8.6	7.1	1030	600	0	0	0	0	0	+	0	0	0	1	1	0	0
	137	7.6	5.8	1045	500	0	0	0	0	0	0	0	2	0	0	1	0	1sp
	140	3.4	6.3	1055	400	0	0	0	0	0	+	1	0	0	1	1	0	0
Mean		9.5	6.4	1041	488	0	0	0	0	0	+	1	0	0	1	1	0	1sp

sp sperm

APPENDIX 6

(Urinalysis - continued)

Week 102

Group	Rat No.	Volume mls	pH	SG	Protein mg%	Total red. subs.	Glucose	Ketones	Bile pigments	Urobilinogen	Haemoglobin	Microscopy						
												E	P	M	R	O	C	A
3♂	193	14.0	6.1	1038	300	0	0	0	0	0	+	0	0	0	1	1	0	1sp
	194	12.0	6.0	1037	100	0	0	0	0	0	+	1	0	0	1	1	0	0
	196	6.8	6.2	1049	100	0	0	0	0	0	+	1	0	0	1	1	0	0
	199	12.0	6.0	1040	500	0	0	0	0	0	+	1	0	0	1	1	0	0
	201	7.4	6.5	1045	600	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	203	8.0	6.3	1046	300	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	205	8.4	6.6	1041	400	0	0	0	0	0	+	0	0	0	1	1	0	0
	208	13.0	6.4	1036	800	0	0	0	0	0	+	1	0	0	1	1	0	0
	210	3.8	6.6	1044	100	0	0	0	0	0	+	1	0	0	1	1	0	0
Mean		9.5	6.3	1042	356	0	0	0	0	0	+	1	0	0	1	1	0	0
4♂	261	10.0	6.0	1036	600	0	0	0	0	0	+	1	0	0	1	1	0	0
	264	11.0	6.1	1046	800	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	273	10.2	6.1	1040	200	0	0	0	0	0	+	1	0	0	1	1	0	1sp
	275	17.0	5.8	1029	600	0	0	0	0	0	+	0	0	0	1	1	0	0
	277	17.0	5.9	1034	700	0	0	0	0	0	+	0	0	0	1	1	0	0
	280	15.0	5.8	1041	900	0	0	0	0	0	+	0	0	0	1	1	0	1sp
Mean		13.4	6.0	1038	633	0	0	0	0	0	+	1	0	0	1	1	0	1sp

sp sperm

0003399

000400

APPENDIX 6

(Urinalysis - continued)

Week 102

Group	Rat No.	Volume mls	pH	SG	Protein mg%	Total red. subs.	Glucose	Ketones	Bile pigments	Urobilinogen	Haemoglobin	Microscopy						
												E	P	M	R	O	C	A
1♀	332	7.2	6.4	1034	200	0	0	0	0	0	+	1	0	0	1	1	0	0
	334	12.0	6.0	1024	100	0	0	0	0	0	0	1	0	0	0	1	0	0
	336	13.0	6.4	1025	30	0	0	0	0	0	0	0	0	0	0	1	0	0
	338	7.4	5.7	1033	100	0	0	0	0	0	+	0	0	0	2	1	0	0
	342	14.0	6.5	1030	100	0	0	0	0	0	+	0	0	0	1	1	0	0
	345	10.0	6.3	1037	300	0	0	0	0	0	0	1	0	0	0	1	0	0
	348	14.0	6.0	1047	4000	0	0	0	0	0	0	1	0	0	0	1	0	0
	Mean	11.1	6.2	1033	690	0	0	0	0	0	0	1	0	0	0	1	0	0
2♀	401	6.8	6.0	1037	900	0	0	0	0	0	0	1	0	0	0	1	0	0
	404	9.8	6.8	1035	300	0	0	0	0	0	+	0	0	0	2	1	0	0
	405	6.8	6.6	1024	70	0	0	0	0	0	+	0	1	0	1	1	0	0
	409	6.2	5.8	1040	300	0	0	0	0	0	+	1	0	0	1	1	0	0
	412	13.0	5.7	1037	700	0	0	0	0	0	+	0	0	0	1	1	0	0
	413	7.8	5.7	1034	400	0	0	0	0	0	+	0	1	0	1	1	0	0
	414	14.0	5.8	1036	900	0	0	0	0	0	0	0	1	0	0	1	0	0
	415	13.0	6.5	1032	100	0	0	0	0	0	0	0	0	0	0	1	0	0
	416	14.0	6.4	1037	90	0	0	0	0	0	+	0	1	0	1	1	0	0
	420	11.0	6.3	1032	100	0	0	0	0	0	0	1	1	0	0	1	0	0
	Mean	10.2	6.2	1034	386	0	0	0	0	0	+	0	1	0	1	1	0	0

APPENDIX 6

(Urinalysis - continued)

Week 102

Group	Rat No.	Volume mls	pH	SG	Protein mg%	Total red. subs.	Glucose	Ketones	Bile pigments	Urobilinogen	Haemoglobin	Microscopy						
												E	P	M	R	O	C	A
3♀	474	9.8	6.1	1032	100	0	0	0	0	0	+	1	0	0	1	1	0	0
	478	13.0	6.3	1035	60	0	0	0	0	0	+	0	0	0	3	1	0	0
	480	14.0	6.3	1034	300	0	0	0	0	0	0	1	0	0	0	1	0	0
	488	11.0	6.3	1026	100	0	0	0	0	0	0	0	1	0	0	1	0	0
	Mean	12.0	6.3	1032	140	0	0	0	0	0	+	1	0	0	0	1	0	0
4♀	541	8.2	6.1	1037	60	0	0	0	0	0	0	0	1	0	0	1	0	0
	543	5.8	6.5	1048	300	0	0	0	0	0	0	1	0	0	0	1	0	0
	555	12.0	6.0	1037	100	0	0	0	0	0	0	0	0	0	0	1	0	0
	556	1.2	6.6	1040	100	0	0	0	0	0	0	0	0	0	0	1	0	0
	557	1.4	6.2	1032	300	0	0	0	0	0	0	0	1	0	0	1	0	0
	Mean	5.7	6.3	1039	172	0	0	0	0	0	0	0	0	0	0	1	0	0

0004401

APPENDIX 7

Ophthalmoscopy - individual observations

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0 (Control)	1000	3000	10000

Pre-treatment

Group	Rat No.	Eye*	Observation
1♂	13	B	Hyaloid remnants.
	19	R	Large persistent hyaloid artery.
	24	R	Persistent hyaloid artery.
	29	R B	Central corneal opacities. Lack of corneal lustre. Porphyrin staining.
	33	B	Lack of corneal lustre. Bilateral discharge.
	45	B	Bilateral conjunctivitis. Lack of corneal lustre.
	41	L	Lack of corneal lustre.
	47	R B	Kerititis. Dry cornea.
	46	R	Lack of corneal lustre.
4♂	213	B	Lack of corneal lustre.
	222	L	Persistent hyaloid artery.
	228	B L	Persistent hyaloid artery. Small posterior polar opacities.
	232	R	Hyaloid artery.
	233	B	Lack of corneal lustre.
	238	R	Lack of corneal lustre.
	243	L	Diffuse keratitis.
	252	R	Lack of corneal lustre.
	247	L	Small circular corneal opacity.
1♀	289	L	Lack of corneal lustre.
	297	L	Persistent hyaloid artery.
	303	R	Lack of corneal lustre.
	315	L	Persistent hyaloid artery.
4♀	496	L	Lack of corneal lustre.
	502	L	Persistent hyaloid artery with small haemorrhage.
	516	L	Persistent hyaloid artery.
	533	B	Lack of corneal lustre.

* R Right
L Left
B Both

Animals examined but not listed above showed no ocular lesions using the method employed.

000402

APPENDIX 7

(Ophthalmoscopy - continued)

Week 26

Group	Rat No.	Eye ≠	Observation
1♂	19	R	Increased luminescence.
	30	R	Equatorial lens opacities.
	47	R	Nasal quadrant keratitis.
4♂	260	L	Nasal quadrant keratitis.
1♀			No abnormalities detected.
4♀	538	L	Increased luminescence.

≠ R Right
L Left

Animals examined but not listed above showed no ocular lesions using the method employed.

000403

(Ophthalmoscopy - continued)

Week 52

Group	Rat No.	Eye*	Observation
1♂	11	R	12 o'clock localised iritis and a streak opacity of the lens.
	19	R	Persistent hyaloid artery.
	23	R	Small nasal quadrant corneal opacity.
	30	R	Diffuse posterior subcapsular opacity.
	37	L	Small nasal quadrant corneal opacity.
	47	R	Diffuse keratitis.
	48	R	Small central superficial corneal opacity.
4♂	244	R	Nasal quadrant corneal opacity.
	256	B	Corneal opacities mainly in nasal half.
	260	L	Diffuse keratitis.
1♀	286	R	Small nasal quadrant opacity.
	330	L	Nasal quadrant opacity.
4♀			No abnormalities detected.

*R Right
L Left
B Both

Animals examined but not listed above showed no ocular lesions using the method employed.

000404

APPENDIX 7

(Ophthalmoscopy - continued)

Week 78

Group	Rat No.	Eye ≠	Observation
1♂	4	B	Conjunctivitis.
	15	R	Corneal vacuoles.
	18	R	Plaque opacity.
	21	B	Keratitis, nasal quadrant, slight.
	37	L	Keratitis, slight.
	38	R	Corneal opacity.
	44	R/L	Plaque opacity/Slight keratitis.
	45	B	Plaque opacity.
	47	R	Corneal oedema with synechia.
4♂	212	R	Plaque opacity.
	215	B	Plaque opacity, several.
	217	B	Nasal quadrant keratitis.
	228	B	Plaque opacities.
	234	R	Plaque opacities.
	236	R	Corneal scar, central.
	241	R	Plaque opacity.
	242	B	Plaque opacities.
	243	R/L	Corneal scar/Keratitis, slight.
	256	R	Plaque opacity, corneal scar.
		L	Corneal opacity, central
	260	L	Corneal oedema, entire cornea.
1♀	297	R	Plaque opacity.
	303	B	Posterior subcapsular opacities.
	309	B	Epiphora.
	321	B	Plaque opacity, single.
	322	B	Keratitis, slight.
4♀	509	B	Posterior subcapsular opacities.
	520	R	Posterior polar plaque opacity.

≠ R Right
L Left
B Both

Animals examined but not listed above showed no ocular lesions using the method employed

000405

Week 104

Group	Rat No.	Eye≠	Observation
1♂	11	R	Diffuse posterior subcapsular opacity.
	18	R	Plaque opacity - 2 mm diameter.
	20	L	Nasal quadrant corneal opacity.
	21	B	Nasal quadrant keratitis.
	22	R	Nasal quadrant corneal opacity.
	29	B	Nasal quadrant keratitis.
	38	B	Nasal quadrant keratitis.
	44	R	Diffuse posterior subcapsular opacities.
		L	Nasal quadrant keratitis.
	45	R	Nasal quadrant keratitis.
		L	Nasal quadrant corneal opacity.
		B	Plaque opacities.
	47	R	Total cataract, and mild panophthalmitis.
		L	Plaque opacity.
	48	B	Plaque opacities.
4♂	212	B	Clear suture lines, diffuse posterior subcapsular opacities.
	217	B/R	Nasal quadrant keratitis/Plaque opacity.
	221	R	Nasal quadrant keratitis.
	227	R	Small plaque opacity.
	228	B	Nasal quadrant corneal opacities and multiple plaque opacities.
	234	R/L	Two plaque opacities/One plaque opacity.
	236	R/L	Keratitis in lower half/Small plaque opacity.
	238	B	Nasal quadrant keratitis.
	239	B	Nasal quadrant keratitis.
	242	B	Multiple plaque opacities.
	257	R/L	Nasal quadrant keratitis/Nasal quadrant corneal opacity.
1♀	288	B	Fine suture lines.
4♀	503	L	Small nasal quadrant corneal opacity.

≠ R Right
L Left
B Both

Animals examined but not listed above showed no ocular lesions using the method employed

000406

APPENDIX 8

Hearing test - individual observations

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0(Control)	1000	3000	10000

Pre-treatment

Group	Rat Nos.	Reaction to 10 kHz signal/
1♂	1 - 50	+
4♂	211 - 260	+
1♀	281 - 330	+
4♀	491 - 540	+

Week 26

Group	Rat Nos.	Reaction to 10 kHz signal/
1♂	1 - 50	+
4♂	211 - 213	+
	215 - 218	+
	220 - 260	+
1♀	281 - 311	+
	312	-
	313	-
	314 - 330	+
4♀	491 - 531	+
	532	-
	533 - 540	+

/+ Reaction to 10 kHz signal
\- No reaction to 10 kHz signal
Rat Nos. 312, 313 and 532 reacted satisfactorily to the test when retested 6 days later

000407

(Hearing test - continued)

Week 52

Group	Rat Nos.	Reaction to 10 kHz signal/
1♂	1	-
	2,3,4	+
	5	-
	6	+
	7	-
	8 - 20	+
	21	-
	22,23,24	+
	26 - 30	+
	31,32	-
	33 - 46	+
	47	-
	48,49,50	+
4♂	211 - 213	+
	215,216,217	+
	218	-
	220 - 224	+
	225	-
	226,227	+
	228	-
	229,230	+
	232 - 250	+
	251	-
	252,253	+
	254	-
	255 - 260	+

/+ Reaction to 10 kHz signal
\- No reaction to 10 kHz signal

Rat Nos. 1, 5, 21, 31, 32, 47, 218, 225, 228, 251 and 254 reacted satisfactorily to the test when retested 2 days later.

000408

(Hearing test - continued)

Week 52

Group	Rat Nos.	Reaction to 10 kHz signal*
1♀	281 - 291	+
	293 - 301	+
	302,303	-
	304,305	+
	306	-
	307,308,309	+
	310,311	-
	312	+
	313	-
	314 - 325	+
	326	-
	327,328	+
	329	-
	330	+
4♀	491 - 511	+
	512	-
	513,514	+
	515,516	-
	517	+
	518	-
	519,520	+
	521	-
	522 - 526	+
	527	-
	528,529,530	+
	531	-
	532 - 540	+

\+ Reaction to 10 kHz signal
\- No reaction to 10 kHz signal
Rat Nos. 302, 303, 306, 310, 311, 313, 326, 329, 512, 515, 516, 518, 521, 527 and 531 reacted satisfactorily to the test when retested 2 days later

000409

APPENDIX 8

(Hearing test - continued)

Week 79

Group	Rat Nos.	Reaction to 10 kHz signal*
1♂	2	+
	4,5	+
	7	+
	9 - 12	+
	15	+
	17,18	+
	20 - 24	+
	26 - 29	+
	31 - 33	+
	35	+
	37 - 42	+
	44 - 49	+
4♂	212,213	+
	215	+
	217,218	+
	220 - 222	+
	224 - 230	+
	232 - 239	+
	241 - 260	+

* Reaction to 10 kHz signal

000410

APPENDIX 8

(Hearing test - continued)

Week 79

Group	Rat Nos.	Reaction to 10 kHz signal/
1♀	282, 283	+
	285 - 291	+
	293 - 301	+
	303 - 306	+
	308 - 311	+
	313 - 319	+
	321 - 326	+
	328 - 330	+
4♀	491 - 503	+
	505 - 518	+
	520 - 540	+

/+ Reaction to 10 kHz signal

000411

APPENDIX 8

(Hearing test - continued)

Week 104

Group	Rat Nos.	Reaction to 10 kHz signal/
1♂	2	+
	7	+
	9	+
	11, 12	+
	17, 18	+
	20 - 22	+
	28, 29	+
	32	+
	38, 39	+
	44, 45	+
	47 - 49	+
4♂	212, 213	+
	217	+
	220 - 222	+
	226 - 229	+
	232 - 236	+
	238, 239	+
	242	+
	245 - 248	+
	250	+
	252	+
	254	+
	257	+
	259	+

/+ Reaction to 10 kHz signal
\- No reaction to 10 kHz signal

000412

APPENDIX 8

(Hearing test - continued)

Week 104

Group	Rat Nos.	Reaction to 10 kHz signal/
1♀	285	+
	287 - 289	+
	291	+
	293	+
	296,297	+
	300	+
	310	-
	313,314	+
	319	+
	322	+
	325,326	+
4♀	491 - 494	+
	496 - 498	+
	501	+
	503	+
	505	+
	507,508	+
	510	+
	512 - 515	+
	518	+
	524,525	+
	528	+
	532	+
	534	+
	535	-
	537 - 539	+
	540	-

/+ Reaction to 10 kHz signal
\- No reaction to 10 kHz signal

Rat No. 310 failed to respond when retested one day later

Rat No. 535 reacted satisfactorily to the test when retested one day later

Rat No. 540 was sacrificed prior to the retest

000413

APPENDIX 9

Individual organ weights (g) in rats killed at termination

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	Control	1000	3000	10000

Group	Rat No.	Body Wt.	Brain	Heart	Liver	Kidney	Adrenal (mg)	Testes
1♂	2	561	2.1	3.9	29.1	10.8	119	3.1
	9	955	2.3	2.4	39.6	6.7	117	3.7
	12	882	2.1	2.1	25.2	5.4	85	4.1
	18	656	2.2	1.8	23.6	5.8	74	7.2
	21	805		2.3	25.7	6.9	64	7.3
	22	931	2.0	2.6	29.9	7.0	104	5.8
	28	938		2.9	27.7	7.8	861	4.3
	29	646	2.1	2.2	28.1	7.4	175	3.1
	32	890	2.3	2.4	32.4	6.4	93	3.2
	38	650	2.2	2.6	19.6	5.1	87	5.2
	39	677	2.2	2.8	27.5	9.8	138	3.5
	45	781	2.3	2.0	27.8	5.5	91	6.3
	48	762	2.2	2.1	34.2	6.9	56	5.4
	49	831	2.3	2.6	28.6	8.9	104	4.8
	51	732	2.3	2.1	28.4	7.6	83	5.1
	52	597	2.1	2.3	20.0	5.5	99	2.1
	54	835	2.3	2.4	29.4	6.8	72	5.5
	55	849	2.2	2.4	25.7	6.3	337	5.4
	61	649	2.2	1.8	27.4	4.9	80	4.6
	63	829	2.2	2.9	25.4	7.5	169	4.1
Mean		773	2.2	2.4	27.8	6.9	150	4.7

Rat Nos. 21 and 28: brains were not weighed at post mortem

000414

APPENDIX 9

(Individual organ weights - continued)

Group	Rat No.	Body Wt.	Brain	Heart	Liver	Kidney	Adrenal (mg)	Testes
2♂	76	819	2.3	2.4	26.3	6.9	77	5.5
	77	614	2.2	1.8	22.1	5.1	85	7.6
	78	775	2.2	2.6	33.2	7.5	111	4.3
	82	717	2.2	2.6	29.0	7.9	165	4.1
	94	662	2.2	2.0	23.4	6.2	83	5.6
	98	787	2.4	2.0	27.9	5.4	84	3.3
	105	784	2.1	2.8	20.8	5.6	110	4.6
	107	905	2.0	1.9	27.2	5.5	98	4.3
	108	818	2.5	1.9	28.2	5.9	128	5.0
	109	667		1.8	36.2	5.1	114	9.1
	118	794	2.2	2.3	26.6	7.7	103	4.3
	131	845	2.1	2.1	20.4	5.4	86	5.5
	134	673	2.2	2.3	22.9	6.4	160	4.8
	135	916	2.3	2.2	27.5	5.8	99	4.4
Mean		770	2.2	2.2	26.6	6.2	107	5.2

Rat No. 109: brain not weighed at post mortem

000415

APPENDIX 9

(Individual organ weights - continued)

Group	Rat No.	Body Wt.	Brain	Heart	Liver	Kidney	Adrenal (mg)	Testes
3♂	150	892	2.3	2.7	32.9	7.8	76	5.1
	152	1035		2.1	31.4	7.2	117	4.4
	153	998	2.1	2.6	28.3	6.8	112	5.7
	154	735	2.3	2.2	20.9	6.2	70	6.0
	155	770	2.3	2.3	30.5	6.2	99	6.5
	157	1058	2.1	2.1	24.3	6.7	201	4.9
	158	916	2.2	2.6	30.2	6.9	103	4.8
	159	764	2.3	2.2	19.4	4.9	84	5.7
	160	659	2.1	1.9	22.3	4.8	101	6.5
	161	648	2.0	1.8	24.5	6.0	90	4.7
	162	765	2.2	2.1	26.0	6.3	91	5.6
	172	861	2.2	2.6	29.0	7.4	109	3.8
	182	497	2.0	1.8	17.3	4.4	74	4.8
	190	624	2.0	2.3	23.4	6.2	124	3.3
	194	897	2.3	2.3	32.1	6.2	106	4.4
	199	908	2.2	2.5	34.8	8.5	197	4.7
	201	780	2.4	2.3	26.7	7.2	89	5.9
	203	724	2.2	2.1	22.0	6.3	78	7.2
	205	665	1.6	2.2	25.3	5.7	742	5.6
	210	897	2.4	2.1	30.5	5.4	100	5.3
Mean		805	2.2	2.2	26.6	6.4	138	5.2

Rat No. 152: brain not weighed at post mortem

000416

APPENDIX 9

(Individual organ weights - continued)

Group	Rat No.	Body Wt.	Brain	Heart	Liver	Kidney	Adrenal (mg)	Testes
4♂	212	925	2.0	2.5	23.4	5.8	82	5.0
	217	644	2.0	2.1	23.8	6.1	239	4.6
	220	810	2.2	2.2	20.5	5.5	103	4.8
	221	573	2.0	2.3	22.8	6.8	86	5.1
	226	650	2.0	1.2	24.0	4.6	100	8.6
	233	760	2.1	1.9	21.9	5.2	72	3.0
	234	726	2.5	1.9	20.0	4.7	55	3.1
	235	627	2.3	2.6	31.5	8.2	82	5.4
	236	900	2.3	2.9	36.3	6.3	98	5.2
	238	718	2.3	2.3	33.6	6.9	142	5.3
	239	627	2.4	1.4	25.0	4.9	87	5.4
	245	473	2.2	2.2	23.3	8.4	149	4.4
	246	910	2.1	2.1	28.5	5.6	90	5.3
	247	680	2.2	2.4	24.8	6.0	79	4.4
	248	706	2.0	2.0	26.9	6.8	69	4.9
	252	647	2.3	2.8	24.7	11.4	146	5.1
	254	836	2.2	2.1	29.8	5.6	65	5.7
	257	740	2.3	2.1	27.1	6.5	75	5.2
	259	428	2.0	2.1	17.7	6.4	85	3.6
	261	741	2.2	2.4	26.4	7.6	131	2.8
	264	849	2.3	2.4	27.6	6.9	140	4.6
	273	876	2.4	2.3	29.2	6.5	123	5.0
Mean		720	2.2	2.2	25.9	6.5	104	4.8

000417

APPENDIX 9

(Individual organ weights - continued)

Group	Rat No.	Body Wt.	Brain	Heart	Liver	Kidney	Adrenal (mg)	Ovaries (mg)
1♀	285	557	1.9	1.6	19.3	4.7	94	79
	287	555	2.2	1.5	19.0	3.9	138	76
	288	460	1.8	1.8	22.5	5.0	119	67
	289	468	2.0	1.3	16.2	3.0	255	55
	291	364	1.8	1.2	13.3	2.9	110	196
	293	580	2.1	1.7	22.6	4.3	86	155
	296	483	1.9	1.5	17.5	4.5	84	213
	300	381	2.0	1.7	25.5	6.7	89	38
	310	444	1.9	1.4	18.6	3.5	89	61
	313	597	1.9	1.9	22.0	4.3	104	206
	314	494	1.9	1.6	18.0	3.8	77	62
	319	655	1.9	1.8	31.5	5.5	74	82
	325	626	2.1	1.8	21.4	4.4	120	128
	326	380	1.7	1.2	14.7	2.9	81	60
	332	512	2.0	1.6	19.5	4.4	238	461
	334	373	1.9	1.5	15.6	4.0	165	39
	336	542	2.0	1.7	21.8	4.4	135	92
	342	564	2.0	1.6	21.3	3.7	574	47
	345	711	2.0	1.7	22.6	4.0	94	100
Mean		513	1.9	1.6	20.2	4.2	143	117

APPENDIX 9

(Individual organ weights - continued)

Group	Rat No.	Body Wt.	Brain	Heart	Liver	Kidney	Adrenal (mg)	Ovaries (mg)
2♀	352	505	2.1	1.9	32.9	5.3	137	98
	360	475	1.9	1.6	31.3	5.5	109	90
	366	630	2.0	1.5	23.2	3.7	99	104
	367	728	1.9	1.7	20.5	3.6	104	48
	368	554	2.0	1.5	13.8	2.3	72	53
	369	586	2.1	1.9	24.3	5.3	104	53
	370	951	2.1	1.8	23.2	4.9	117	591
	373	470	1.9	1.5	13.6	3.2	124	197
	374	530	2.0	2.1	20.6	4.8	126	78
	381	544	1.9	1.9	27.7	3.8	112	78
	382	377	1.9	1.3	15.4	4.3	94	37
	383	423	2.0	1.4	17.0	3.5	91	95
	384	531	2.0	1.7	32.0	5.7	91	41
	386	676	2.0	1.9	22.7	4.9	80	112
	390	486	2.1	1.8	18.1	4.6	255	75
	394	668	2.0	1.6	24.6	4.0	152	127
	395	502	2.1	1.8	20.7	4.5	120	118
	396	776	1.9	1.9	28.7	4.8	292	92
	397	550	1.9	1.5	20.1	3.6	83	91
	398	679	2.1	1.5	22.1	3.7	35	31
	401	470	1.8	1.8	27.3	4.7	126	53
	404	553	2.0	1.7	27.1	4.2	136	110
	409	388	1.6	1.4	15.9	3.0	96	92
	412	703	2.1	2.0	23.2	5.3	89	57
	414	563	2.1	2.0	25.0	5.6	118	78
	415	568	2.0	1.7	16.9	3.6	90	90
	416	421	2.1	1.7	16.0	4.1	154	65
	420	570	1.9	1.5	29.4	3.4	113	93
Mean		567	2.0	1.7	22.6	4.3	119	102

000419

APPENDIX 9

(Individual organ weights - continued)

Group	Rat No.	Body Wt.	Brain	Heart	Liver	Kidney	Adrenal (mg)	Ovaries (mg)
3♀	421	514	2.0	1.7	18.7	3.6	100	201
	423	398	1.8	1.5	17.5	3.5	103	47
	426	480	2.0	1.6	20.2	4.9	153	91
	427	435	2.1	1.6	24.2	5.6	119	48
	430	430	1.9	2.1	20.6	7.3	110	166
	431	500	1.7	1.6	17.7	3.6	101	38
	433	383	2.0	1.4	12.3	3.9	121	33
	434	449	1.9	1.5	16.6	4.4	65	48
	435	459	1.9	1.7	14.8	3.4	122	53
	436	585	2.0	1.6	21.6	4.4	119	532
	442	360	2.0	2.6	21.2	11.6	128	82
	446	585	1.9	1.6	14.7	3.9	69	79
	447	532	2.1	1.7	19.6	4.7	85	117
	449	585	1.9	1.6	17.1	4.0	86	50
	451	530	2.0	1.7	18.0	4.0	99	125
	457	461	2.1	1.7	15.7	3.3	107	65
	464	505	1.9	1.5	17.4	3.8	122	64
	466	526	2.0	1.6	19.2	4.1	140	71
	467	453	2.1	1.3	17.5	3.9	101	108
	474	448	2.0	1.6	15.6	3.6	87	41
	478	594	1.9	1.5	23.0	4.2	76	60
	488	564	2.1	1.4	20.4	3.6	70	18
Mean		490	2.0	1.6	18.3	4.5	104	97

000420

APPENDIX 9

(Individual organ weights - continued)

Group	Rat No.	Body Wt.	Brain	Heart	Liver	Kidney	Adrenal (mg)	Ovaries (mg)
4♀	491	756	2.0	1.9	24.8	4.7	139	184
	492	637	2.3	1.9	32.3	4.8	103	195
	493	614	2.0	1.7	24.5	3.9	126	53
	496	435	1.9	1.4	21.5	3.9	76	37
	497	382	2.0	1.1	14.4	3.5	81	26
	498	554	1.9	1.4	17.4	3.4	83	92
	501	515	1.9	1.4	18.9	3.4	109	85
	505	663	1.9	1.8	24.1	4.1	168	45
	507	666	2.1	1.6	24.0	4.2	99	80
	508	474	2.0	1.6	25.5	5.2	99	106
	512	574	2.0	1.9	25.5	4.8	127	103
	513	432	1.8	1.5	18.0	3.3	91	131
	514	538	2.0	1.8	22.2	3.9	144	133
	515	486	1.9	1.5	19.2	3.3	420	37
	518	417	1.8	1.8	21.8	4.2	139	62
	524	580	2.2	1.6	23.6	4.6	131	127
	525	441	2.0	1.4	14.9	3.9	75	65
	528	586	1.9	1.6	19.0	4.1	108	327
	532	483	2.2	1.5	24.1	4.8	66	49
	534	647	2.2	1.8	20.0	4.4	121	70
	535	515	2.0	1.6	21.3	4.5	314	51
	537	593	2.1	2.0	21.9	4.7	169	45
	538	495	2.0	1.4	22.3	3.9	86	176
	539	456	2.0	1.6	16.1	4.4	178	51
	541		2.0	1.5	15.0	3.0	112	95
	555	372	2.0	2.0	15.6	3.5	160	33
	556	536	2.2	1.3	18.6	3.7	98	105
	557	580	2.0	1.5	17.6	4.0	95	154
Mean		534	2.0	1.6	21.1	4.1	134	97

Rat No. 541 excluded from the calculation of means and statistics, the bodyweight of this individual was not recorded at the post mortem examination

000421

APPENDIX 10

Identification of rats dying throughout the treatment period

Group:	1	2	3	4
Compound:	-		TK 12 259	
Level (ppm):	0(Control)	1000	3000	10000

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
1 - 12								
13				219				
14 - 19								
20				214				
21 - 24								
25								
Total weeks 1 - 26	0	0	0	2	0	0	0	0

000422

APPENDIX 10

(Mortality distribution - continued)

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
26		126						
27 - 31								
32					292			
33 - 36								
37						354		
38 - 40								
41		133						
42								
43								546
44				231		361		
45								
46			169					
47								
48						418		
49								550
50								
51						378		
52	25							
Total weeks 1 - 52	1	2	1	3	1	4	0	2

000423

APPENDIX 10

(Mortality distribution - continued)

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
53	1	97						
54								
55	68						448	
56			151	263			485	
57	6, 58							
58		121, 123	185				481	
59	8				281			
60	3		189					
61				268				
62			166	271	347		476	545
63	36							
64	30	114	204		327		441	504
65	14, 43			240				
66			165	211	312, 350		470	
67					349			
68			164, 176					
69			202	216			429	
70	19	119	173		284			
71	13, 16	72		265		355		544
72		80				377		519
73					302		452, 444	
74	34		142, 186	223			459, 472	
75	50		168	278	335			548
76				262	339			
77			179, 206			351		
78			144, 188		307, 320		432	
Total weeks 1 - 78	16	9	18	13	13	7	12	7

000424

APPENDIX 10

(Mortality distribution - continued)

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
79	15				294,328			499,527 517,530
80		71		274		379,371		
81		96		272			484	552
82		86	163	279	309	419	489	502
83	42							
84	53	101, 103 111	170				439, 469	
85	37, 40		178			391	424	
86	59			244, 251		356	453, 475 479	520, 559
87		112, 122				376, 400	443	
88		110, 113 116	192	249	286			549
89			198	224	311,330	389		
90		73	167, 181	266, 267		359		495, 500 516, 536 547
91		124	145, 174	215, 218 269	308 373, 346	393	456, 460 462	560
92	4	92	146, 195	242, 260	290, 305		468, 482	509
93	57	74, 87, 91	191	256	295, 316	392, 403	422	
94	66	115	183, 184 200	241, 276		353	477	
95	56		148, 197		298, 299 317, 329 331	410	425, 428	551
96	33, 69	83, 85 106, 136			321, 340	399		526, 529
97	5, 64	104		253	306	363, 411	455	
98	35	88, 128 138	207	225	304, 318	380, 402 406, 407		522
99	65	95, 139	141, 143 147, 180 187	270	333	364	437, 483 486	533, 553
100	10, 26, 27, 31, 41, 62	89, 93 130	177	258	282, 324 344	372, 417		506, 521 523, 531
101	46	125	175, 209	230, 237	323, 337 341	365, 385 408	471, 473 487, 490	542, 554 558
102	70	117			303, 315	405	454	
103	23, 24	100	193	255	301, 338	358	450, 458	543
104	67	75 129, 137			283, 297	357, 375 388, 413	465, 480	511, 540
Total weeks 1 - 104	43	46	45	37	49	40	43	39

000425

APPENDIX 10

(Mortality distribution - continued)

Week	Group							
	1♂	2♂	3♂	4♂	1♀	2♀	3♀	4♀
105	47			229	348	387	438, 445 461, 463	510
106		79	149, 156 196	250, 275	322	362	440	494, 503
107	11, 7	84	171	222, 232 243				
108		90, 140						
109	17, 60	81, 102		213				
110	20, 44	99, 127 132		228				
111		120	208	227, 277				
112				280				
Total over treatment period	50	56	50	48	51	42	48	42

000426

WADC TECHNICAL REPORT 59-354

STUDIES ON THE PROTECTIVE ULTRAVIOLET ABSORBERS IN A HIGH VACUUM ENVIRONMENT

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Stamford, Connecticut

JANUARY 1960

Materials Laboratory
Contract No. AF 33(616)-5945
Project No. 7381

WRIGHT AIR DEVELOPMENT CENTER
AIR RESEARCH AND DEVELOPMENT COMMAND
UNITED STATES AIR FORCE
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

300 — February 1960 — 23-663

000008

In this study Tinuvin P is referred to as CH 3457

ABSTRACT

Compounds which are effective in protecting materials from terrestial ultraviolet radiation may, in a high vacuum environment, suffer loss both by evaporation and photochemical degradation from the shorter wavelength ultraviolet radiation. The rates of evaporation in a high vacuum of the ten commercially available protective ultraviolet absorbers have been measured as a function of temperature. Vapor pressures of the solid absorbers were calculated from the rate of evaporation data. The equilibrium vapor pressures as a function of temperature have been measured for the liquid absorbers by the direct spectrophotometric method. The rates of evaporation of three of the more non-volatile ultraviolet absorbers dispersed in cellulose acetate have been measured and compared with the pure absorbers. The volatility of the protective ultraviolet absorbers was found to be sufficiently high in a high vacuum environment to cause serious loss of the pure absorbers in a relatively short time. Absorbers containing more than one hydroxy group were considerably more stable than those containing only one hydroxy group. This high volatility could be reduced by a factor of 100,000 or more by incorporating the absorbers into plastic media such as cellulose acetate. The photochemical decomposition of three of the less volatile absorbers has been studied in air and in a vacuum in the 2000-4000 Å region using an AH-6 high pressure mercury arc to simulate sunlight above the earth's atmosphere. The three most non-volatile ultraviolet absorbers were found to be as photochemically stable under conditions which simulate sunlight above the earth's atmosphere as they are to terrestial sunlight. Radiation of wavelengths less than 3000 Angstroms was found to be more effective in causing photochemical degradation than the longer wavelengths. Oxygen and possibly other components of air were found to have a pronounced effect on the rate of photochemical decomposition, the rate being considerably lower in vacuum than in air.

PUBLICATION REVIEW

This report has been reviewed and is approved.

FOR THE COMMANDER:

S. J. Galzerano

S. J. GALZERANO, Major, USAF
Chief, Elastomers and Coatings Branch
Non-Metallic Materials Division
Materials Laboratory

TABLE V

SUMMARY OF THE RATE OF EVAPORATION AND THE LATENT HEATS OF SUBLIMATION, EVAPORATION, AND FUSION OF THE ULTRAVIOLET ABSORBERS

Absorber	M.P.	Rate of Evaporation (grams/cm^2/sec.) 0°C.	25°C.	50°C.	Ls	Le	Lf
Cyasorb UV-24	69°C	1.2×10^{-13}	6.2×10^{-10}	6.8×10^{-7}	54.5	18.1	36.4
Light Abs. DBR	126°C	1.8×10^{-13}	6.6×10^{-11}	8.2×10^{-9}	39.6	18.2	21.4
Uvinul D-50 ✡	198°C	2.7×10^{-13}	8.1×10^{-12}	1.0×10^{-10}	(α)22.4	----	----
					(β)34.3	----	----
Uvinul D-49	135°C	7.4×10^{-13}	1.7×10^{-10}	1.5×10^{-8}	35.1	18.5	16.6
Uvinul 400	145°C	8.0×10^{-12}	1.2×10^{-9}	7.6×10^{-8}	32.0	20.8	11.2
CH-3457	131°C	1.9×10^{-10}	2.0×10^{-8}	8.6×10^{-7}	29.9	18.2	21.4
Light Abs. TBS	63°C	1.6×10^{-9}	2.6×10^{-7}	1.8×10^{-5}	32.8	15.9	16.9
Cyasorb UV-9	64°C	5.4×10^{-9}	4.5×10^{-7}	1.7×10^{-5}	28.4	17.8	10.6
Light Abs. HCB	94°C	1.7×10^{-8}	5.0×10^{-7}	8.5×10^{-6}	22.0	17.5	4.5
Salol	42°C	3.2×10^{-7}	1.6×10^{-5}	----	26.1	16.7	9.4

L_s is the latent heat of sublimation in kilocalories per mole

L_e is the latent heat of evaporation in kilocalories per mole

L_f is the latent heat of fusion in kilocalories per mole

✡ Uvinul D-50 appears to be polymorphic having a transition point at a temperature of 124°C. We designate the crystalline form existing below 124°C. as the α form and that above 124°C. as the β form.

000011

TABLE XV

RATE OF EVAPORATION AND VAPOR PRESSURE DATA FOR CH-3457

Temperature (deg. Cent.)	Temperature (deg. Kelvin)	Rate of Evaporation (grams per cm^2 per sec)	Vapor Pressure (millimeters of Hg)
20	293	8.34×10^{-9}	1.63×10^{-7}
30	303	4.27×10^{-8}	8.50×10^{-7}
40	313	2.36×10^{-7}	4.78×10^{-6}
50	323	8.62×10^{-7}	1.77×10^{-5}
60	333	3.70×10^{-6}	7.72×10^{-5}

TABLE XVI

EQUATIONS OF THE RATE OF EVAPORATION CURVES OF THE ULTRAVIOLET ABSORBERS

Absorber	Equation of Rate of Evaporation Curve
Cyasorb UV-9	$\log G = -\frac{6150}{T} + 14.28$
Cyasorb UV-24	$\log G = -\frac{11,940}{T} + 30.83$
Uvinul D-49	$\log G = -\frac{7590}{T} + 15.67$
Uvinul 400	$\log G = -\frac{6980}{T} + 14.48$
Uvinul D-50 (α form)	$\log G = -\frac{4750}{T} + 4.83$
(β form)	$\log G = -\frac{7410}{T} + 11.51$
Salol	$\log G = -\frac{5655}{T} + 14.22$
Light Absorber TBS	$\log G = -\frac{7130}{T} + 17.32$
Light Absorber HCB	$\log G = -\frac{4740}{T} + 9.59$
Light Absorber DBR	$\log G = -\frac{8280}{T} + 17.60$
CH-3457	$\log G = -\frac{6500}{T} + 14.09$

G is the rate of evaporation in grams per cm^2 per sec.
T is the absolute temperature in degrees Kelvin.

TABLE XVII

EQUATIONS OF THE VAPOR PRESSURE CURVES OF THE ULTRAVIOLET ABSORBERS

Absorber	Equation of Vapor Pressure Curve for Solid Phase	Equation of Vapor Pressure Curve for Liquid Phase
Cyasorb UV-9	$\log P_{mm} = -\frac{6210}{T} + 15.78$	$\log P_{mm} = -\frac{3900}{T} + 8.95$
Cyasorb UV-24	$\log P_{mm} = -\frac{11,910}{T} + 31.99$	$\log P_{mm} = -\frac{3950}{T} + 8.70$
Uvinul D-49	$\log P_{mm} = -\frac{7675}{T} + 17.20$	$\log P_{mm} = -\frac{4045}{T} + 8.42$
Uvinul 400	$\log P_{mm} = -\frac{7000}{T} + 15.78$	$\log P_{mm} = -\frac{4550}{T} + 9.77$
Uvinul D-50 (α form)	$\log P_{mm} = -\frac{4890}{T} + 6.49$	Decomposes above melting point.
(β form)	$\log P_{mm} = -\frac{7490}{T} + 13.06$	
Salol	$\log P_{mm} = -\frac{5700}{T} + 15.68$	$\log P_{mm} = -\frac{3650}{T} + 9.10$
Light Absorber TBS	$\log P_{mm} = -\frac{7180}{T} + 18.78$	$\log P_{mm} = -\frac{3480}{T} + 8.63$
Light Absorber HCB	$\log P_{mm} = -\frac{4800}{T} + 11.09$	$\log P_{mm} = -\frac{3830}{T} + 7.50$
Light Absorber DBR	$\log P_{mm} = -\frac{8660}{T} + 19.80$	$\log P_{mm} = -\frac{3970}{T} + 8.03$
CH-341	$\log P_{mm} = -\frac{6540}{T} + 15.50$	$\log P_{mm} = -\frac{3690}{T} + 8.53$

P_{mm} is the equilibrium vapor pressure in millimeters of H_g.

T is the absolute temperature in degrees Kelvin.

000013

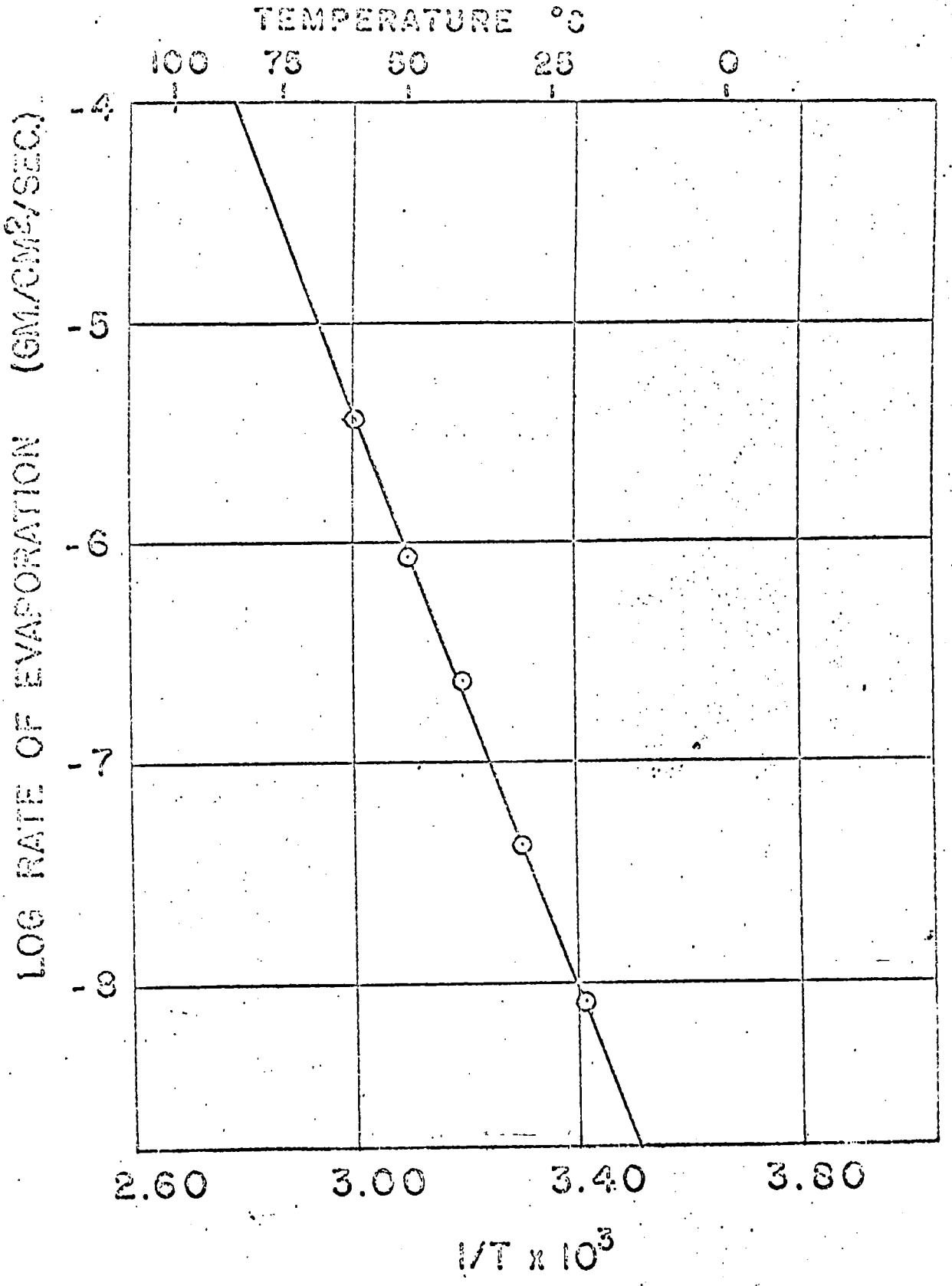


FIG. 23. RATE OF EVAPORATION OF CH3457

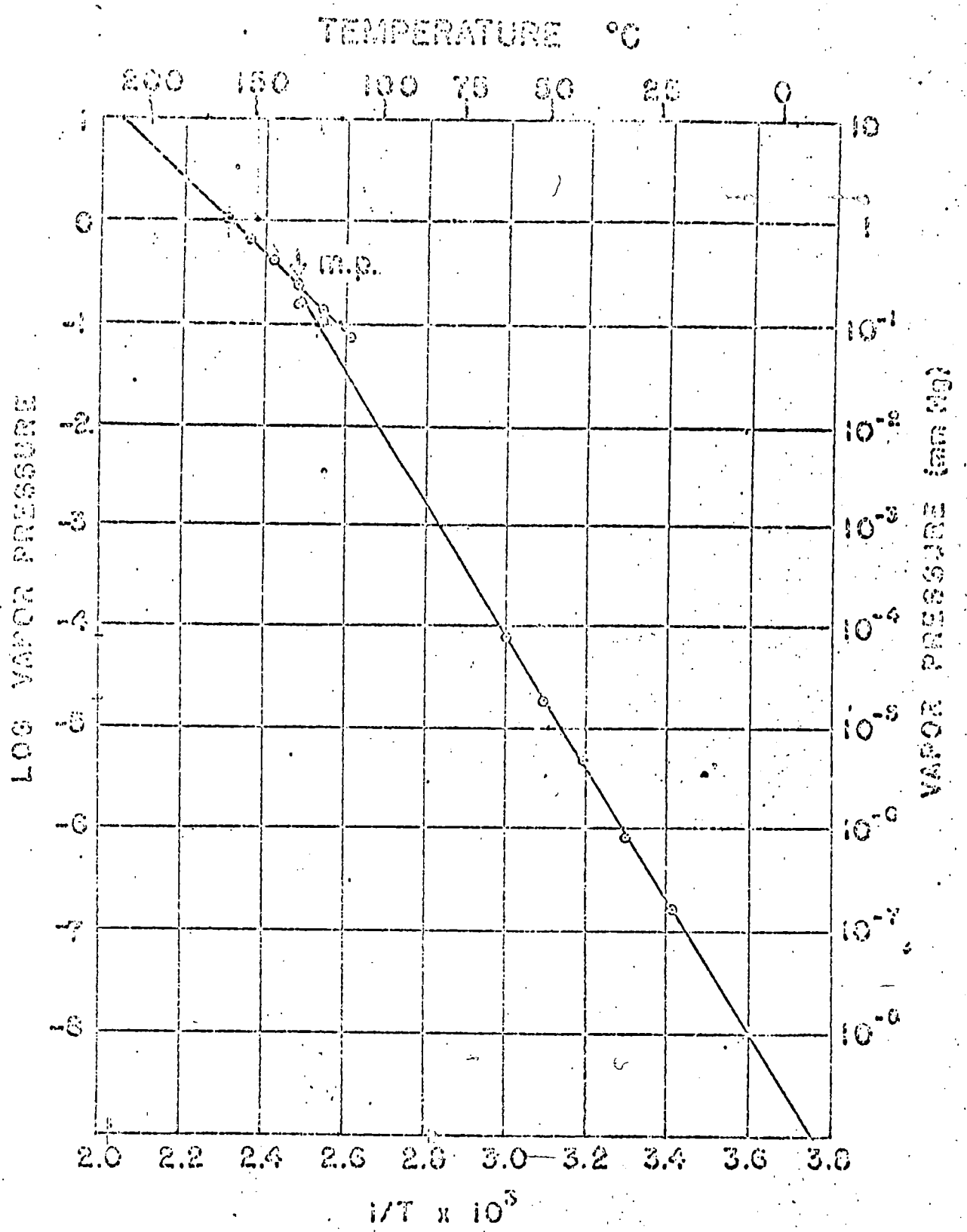


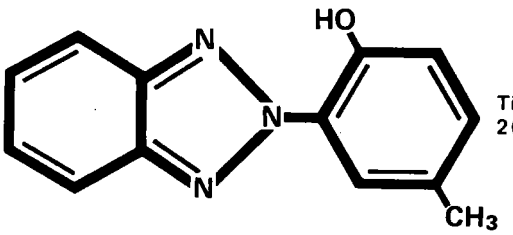
FIG. 33. VAPOR PRESSURE OF CH3457

000015

Geigy **product information bulletin**

Tinuvin® P ultraviolet absorber

Tinuvin P is one of a family of substituted benzotriazoles. Its structure is:



Tinuvin P
2(2'-hydroxy-5'-methylphenyl) benzotriazole *

Tinuvin P protects against ultraviolet radiation and, in many instances, also exhibits thermal stabilization, antioxidant, and metal chelating properties.

Molecular weight	225
Melting point	129-130°C
Appearance	off-white, crystalline
Boiling point (approx.)	225°C at 10 mm Hg
Specific gravity	1.51

Solubility at 20°C in:	
acetone	2.5 g/100 ml
dioctyl phthalate	2.5
ethanol	0.3
ethyl acetate	3.5
methyl Cellosolve	1.7
methyl ethyl ketone	3.9
methyl methacrylate	5.0
mineral spirits	1.5
styrene	7.2
toluol	6.0
water	0.0

Chemical properties. The exceptional stability of Tinuvin P is due to the powerful resonance and hydrogen bonding system involving the triazole ring and the phenolic group. The dissociation constant of the phenolic hydrogen is 11.7 (in 80% aqueous dioxane). The ionized phenate is yellow and soluble in aqueous alkali; phenate formation is promoted by alkalinity and is suppressed by acidic substances. Tinuvin P is otherwise stable to acid and alkali. The compound is unaffected by reducing agents or by oxidation agents used in polymerization or curing.

Light stability. Tinuvin P has been recovered unchanged from polyester resins after 14 months' Florida weathering, and from acrylics after 500,000 langleys' accelerated Arizona weathering (equivalent to more than two years' normal exposure). No discoloration has been observed on forced degradation of dilute Tinuvin P solutions.

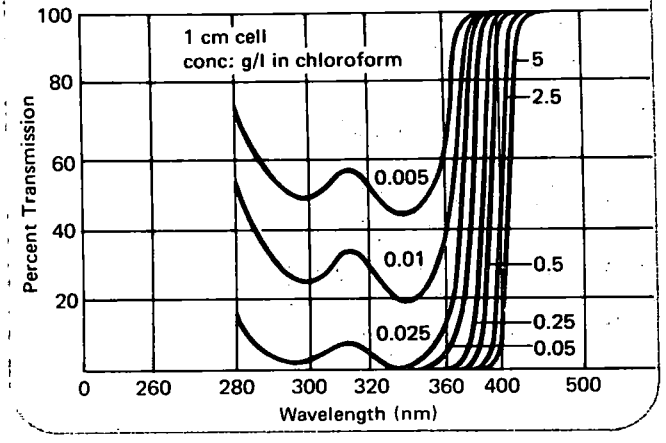
Heat stability. Tinuvin P is stable to processing temperatures as high as 600°F. Negligible deterioration occurs on heating the product in vacuum at 550°F for 24 hours.

* U. S. Patents 3,189,615 and 3,004,896

Optical properties. The effectiveness of Tinuvin P as an ultraviolet stabilizer is associated with the compound's high absorptivity below 400 nm and stability to degradation by ultraviolet radiation. The molar absorptivity of the compound at peak wavelength is about 15,300. The spectrum is distinguished by a sharply descending slope at 400 nm, signifying maximum ultraviolet filtering with minimum color contribution. The transmission characteristics of Tinuvin P at various concentrations in chloroform are noted in Figure 1. The shape of the spectrum is not significantly affected by the substrate, but the spectrum will shift slightly depending on the substrate's refractive index, association factors, etc.

Toxicity. The LD_{50} of Tinuvin P on single oral dose in mice is in excess of 5000 mg/kg. No irritation or sensitization was observed on repeated insult patch-testing of human subjects with 0.2% Tinuvin P in dimethyl phthalate.

Figure 1. Tinuvin P Transmission Characteristics.



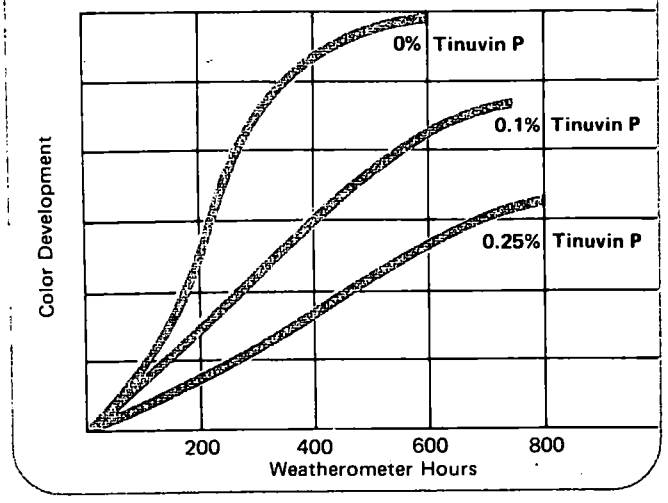
APPLICATIONS

Ultraviolet radiation is responsible for a variety of deteriorative effects including polymer breakdown, sunburn and skin aging, food spoilage, and fading of colors. Many of these effects may be controlled by shielding with Tinuvin P or by incorporating it in the photosensitive material. For maximum effectiveness, Tinuvin P should be used in the dissolved state.

Polymers

Tinuvin P is used to protect polyesters, alkyds, allyl resins, polystyrene, vinylidenes and vinyls (homo and copolymers), acrylics, cellulose esters, polyacetals, urea and melamine resins, and rubber. Some polyurethanes, epoxies, nitrocellulosics are stabilized by Tinuvin P. Concentrations as low as 0.1% are effective; levels as high as several percent may be used with justification. For clear polymers, Tinuvin P is

Figure 2. Tinuvin P in Rigid PVC.



most conveniently incorporated in the mass; but for opaques and highly colored articles, a surface coating is often the more effective treatment.

Polyvinylchloride. As little as 0.15% Tinuvin P in flexible, rigid and semi-rigid PVC provides at least a twofold improvement in light stability (Figure 2).

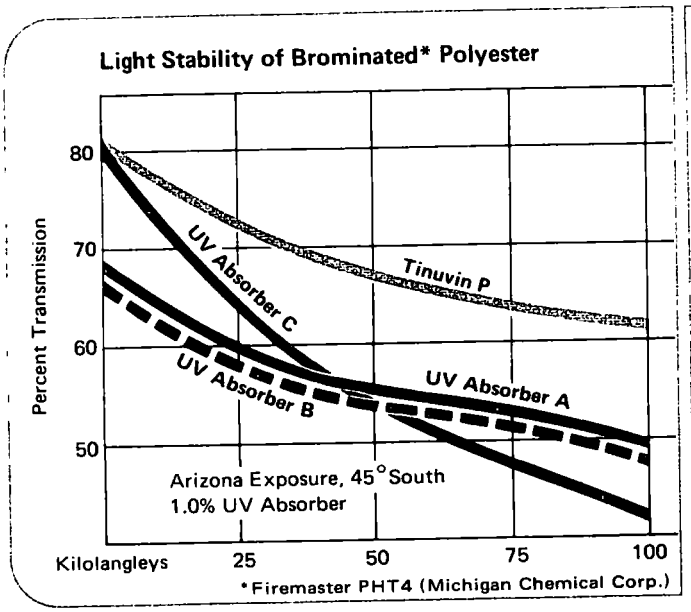
In some cases, during weathering, bleaching of vinyls containing Tinuvin P has been noted. Structuryl vinyls may contain as much as 0.8% Tinuvin P. Clarity, softening point, and initial color are unaffected by the stabilizer. Occasional yellowness due to alkaline ingredients may be corrected by addition of small amounts of stearic acid or by fluxing the resin. In some formulations using tin carboxylate heat stabilizers, Tinuvin P may occasion discoloration. In such instances, Tinuvin 327 is the preferred stabilizer.

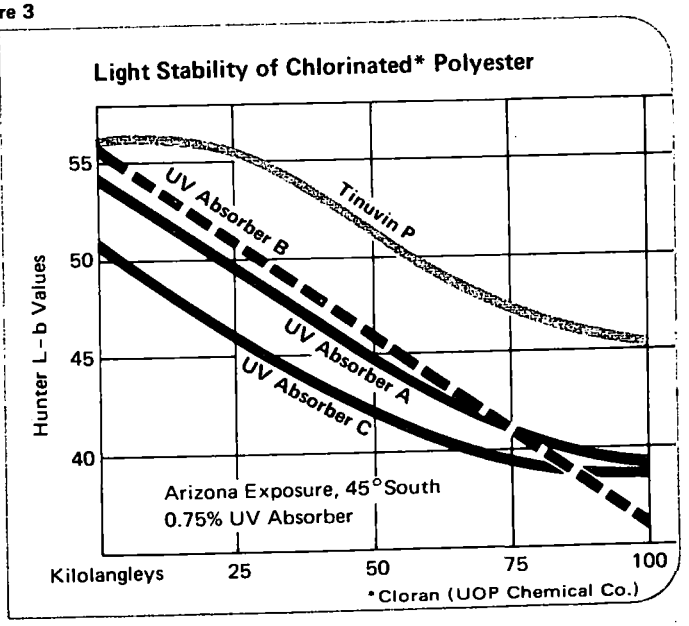
Tricresyl phosphate, chlorinated paraffin, extender oils and other light sensitive ingredients are benefited by Tinuvin P. At some levels, Tinuvin P improves the heat stability of the resin formulation, as in the case (below) of Geon 103 containing 3% Thermolite 31:

Tinuvin P	Yellowing (375°F)	Blackening (375°F)
0.0%	15 min.	45 min.
0.15	30	90
0.25	15	60
0.50	15	60

Polyesters. Tinuvin P is the UV absorber of choice in stabilizing flame retardant polyesters (see Figure 3). The Tinuvin P concentration required in this application is higher than the 0.3-0.7 levels found effective in conventional unsaturated polyesters, which are comparatively more light stable. For both types, the benefits include reduced glass fiber show, improved color and gloss retention, and excellent initial color.

Figure 3





Tinuvin P may be incorporated in the uncured resin or it may be added as a concentrate in styrene or acrylic monomer. Polyesters may also be effectively protected by a gel coat containing Tinuvin P. Where a cobalt accelerator is used, some discoloration or retardation of cure may be observed with Tinuvin P; in such cases, Tinuvin 327 should be used.

Polystyrene. Adding 0.2-0.8% Tinuvin P to polystyrene improves resistance to surface crazing and color retention on weathering and processing. High impact (rubber modified) polystyrenes require more stabilizer than general purpose polystyrene. Tinuvin P may be dissolved in styrene monomer before polymerization, frequently with improvement of resin quality.

Table 1 (next page) illustrates the effectiveness of Tinuvin P in retarding yellowness of polystyrene on exposure to fluorescent black light. These data point up the special effectiveness of Tinuvin P in stabilizing polystyrene for fluorescent light fixtures.

Polyolefins. Because of its limited compatibility with polyolefins, Tinuvin P is not the preferred ultraviolet absorber. Tinuvin 328 or Tinuvin 327 is favored for stabilizing polyolefins against UV radiation; both are substituted hydroxyphenylbenzotriazoles.

Rubber. When formulated with Tinuvin P, transparent sulfur or dicumyl peroxide-cured natural rubber vulcanizates show greatly improved light stability, especially in combination with methylene bis-alkylphenol antioxidants. Light stability of zinc dibutyldithiocarbamate (J. Appl. Polymer Sci. 4:151) and 2,5-di-*tert*-amylhydroquinone (ibid., 2:367) in these vulcanizates is also improved.

For most applications, Tinuvin 328 is preferred over Tinuvin P in coatings. It is more soluble in most solvents and is more compatible with binder solids; it also exhibits greater resistance to forming complexes with metal drier catalysts. Tinuvin P is, nevertheless, well suited in certain applications. For example, it imparts little or no color to certain coating films. Its good solubility in ketones and esters make it an excellent UV stabilizer for many lacquers.

Use levels of Tinuvin P will depend on film thickness and degree of protection desired. Films of different thicknesses will have the same absorption if the product of layer thickness times UV absorber concentration remains constant. For 1-mil films, Tinuvin P is normally used at 2%, based on solids. Several coats of such thicknesses would require proportionately lower concentrations of Tinuvin P. The table below lists concentrations required to obtain 99% absorption at 360 nm at various film thicknesses.

Dry Film Thickness	Tinuvin P Concentration
4 mils	0.5%
2	1.0
1	2.0

Clear polyurethane coatings for wood and seamless flooring applications require 1-3% Tinuvin P, based on resin solids. Dry coating thickness should be at least 1 mil for optimum light stabilization. Tinuvin P provides excellent initial color and retards yellowing, crazing, loss of gloss and clarity to these coatings after extensive exposure to light and outdoor weathering. Tinuvin 328 is generally preferred where metal driers are used and where increased solvent solubility and resin compatibility are required.

Table 1. UV Stabilization of General Purpose Polystyrene.

	Yellowness Index* after Indicated Hours of Exposure to Fluorescent Black Light						Percent Transmission at 420 nm after Indicated Hours of Exposure to Fluorescent Black Light					
	0	350	700	1050	1400	1750	0	350	700	1050	1400	1750
Control (no UVA)	0.61	4.73	9.00	10.6	15.3	22.9	88.1	80.3	72.7	69.1	59.7	49.4
Tinuvin P												
0.15%	0.73	0.86	1.71	1.75	3.38	7.09	87.4	86.0	86.3	86.8	83.6	74.1
0.25%	0.85	0.66	1.58	1.55	2.77	5.06	88.1	88.0	86.8	87.3	85.7	77.1
0.35%	0.75	0.79	1.01	1.33	2.29	5.98	86.9	86.9	86.3	86.6	84.6	78.4
2-hydroxy-4-meth-oxybenzophenone												
0.20%	1.40	0.96	2.47	2.57	4.08	9.87	85.7	85.6	83.4	83.4	80.0	69.3
0.35%	1.40	1.11	2.05	2.04	3.43	8.06	84.8	85.3	84.2	84.0	81.2	73.1
0.50%	1.51	1.32	1.97	2.08	3.12	7.84	84.3	83.8	82.9	83.2	80.5	74.2

**ASTM D-1925-63T. The higher the Yellowness Index the yellower the color.*

Colorants

Tinuvin P retards the deterioration of synthetic pearl essence agents such as bismuth oxychloride (vinyls, polyolefins) or bronze powder (vinyls) as well as pigments such as dianisidine orange, toluidine benzidine yellow, dianisidine blue (acrylics), and dyes such as Irgacet® Yellow 3GLG and Irgacet® Orange 2RNG (cellulose butyrate).

Candlewax

White candles will frequently discolor after short light exposure, depending on the degree of refinement of the paraffin and stearic acid used. This discoloration may usually be controlled by as little as 0.05% Tinuvin P. Stability of candle colors to light is also improved, as is the thermal stability of several wax-soluble dyes.

Adhesives

Tinuvin P may be used in adhesives to retard yellowing, crazing, peeling, and loss of flexibility. Though in some cases improved thermal stability has also been noted, the use of Irganox® antioxidants and/or thermal stabilizers is recommended for this purpose.

Cosmetics

Tinuvin P may be used in cosmetic and toilet goods formulations to protect light-sensitive ingredients such as dyes, perfumes, etc. The concentration of Tinuvin P usually required is 0.1% or less, generally exceeding the maximum solubility in surfactants, aqueous alcohol, or the oil phase of emulsions. A few of the degradative changes controlled are discoloration, deterioration of fragrance, and loss in viscosity.

Important Note:
The information and recommendations contained in this bulletin are based upon data collected by Geigy and believed to be correct. However, no guarantee or warranty is made with respect to the information presented, and Geigy assumes no responsibility for the results of the use of products and processes described herein. No recommendations made in this bulletin are to be construed as inducements to infringe any relevant patent, now or hereafter in existence.

Structure and Nomenclature Search System
(Version 5.04/6.3) Oct., 1985 ($85/hr)

Latest news for SANSS . . .
30 Oct 85; Graphic Structure Input To SANSS Now Possible

Complete data base selected.
Option? SSHOW~r $I{_Q^E2440224

'SR command invalid - submit another command
Option? SSHOW 2440224

Improper alphanumeric field(s) - respecify entire line
Option? SSHOW 2440224

CAS RN 2440-22-4 in file

CIS Sources Of Information

2 - CIS, EI Mass Spectrometry
32 - NIOSH/CIS, RTECS: GO6860000

11 Non-CIS References Available

C13H11N3O

```
   C++C
  *    *
 *      *
C        C++N          C
 +      *   *          *
  +    *    *          *
   C**C     *        C..C
       +    *       .    .
        +   *      .      .
         N**N*****C        C
                  .      .
                   .    .
                    C..C
                    *
                    *
                    O
```

Phenol, 2-(2H-benzotriazol-2-yl)-4-methyl- (9CI)
p-Cresol, 2-(2H-benzotriazol-2-yl)- (8CI)
Benazol P
Drometrizole (USAN)
Geigy industrial chemical
12 more names available

Option? SSHOW 25973~~~~5E{_$I

Improper alphanumeric field(s) - respecify entire line
Option? SSHOW 25973551

CAS RN 25973-55-1 in file

CIS Sources Of Information

130 - CIS, FRSS (Federal Register Search System)

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                 *   *
                *    *
               O  C**C**C
                     *
                     *
                     C
                     *
                     *
                     C
```

Phenol, 2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylpropyl)- (9CI)
Phenol, 2-(2H-benzotriazol-2-yl)-4,6-di-tert-pentyl- (8CI)
Tinuvin 328
2-(2-Hydroxyphenyl)-2,4-benzotriazole, alkylated

Option? SSHOW 3864991

CAS RN 3864-99-1 in file

5 Non-CIS References Available

C20H24ClN3O

```
   CL
   *
   *
   C++C                C
  *    *               *
 *      *              *
C        C++N        C**C**C
 +      *   *          *
  +    *    *          *
   C**C     *        C..C
       +    *       .    .
        +   *      .      .
         N**N*****C        C
                 .      .
                  .    .
                  C..C
                 *   *
                *    *
               O  C**C**C
                     *
                     *
                     C
```

Phenol, 2-(5-chloro-2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)- (9CI)
Phenol, 2,4-di-tert-butyl-6-(5-chloro-2H-benzotriazol-2-yl)- (8CI)
Tinuvin 327
Tinuvin 372
UV 2
2 more names available

Option? SSHOW 256962

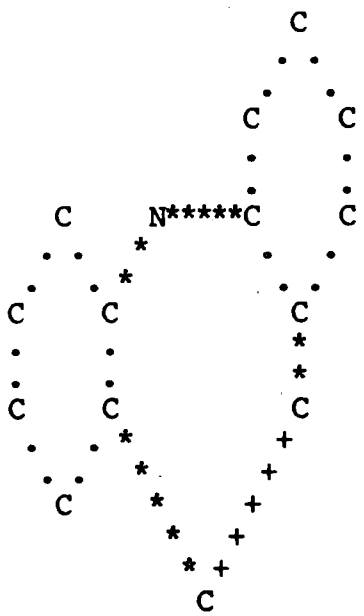
CAS RN 256-96-2 in file

CIS Sources Of Information

6 - CIS, Cambridge X-Ray Crystallography: BZAZPO

5 Non-CIS References Available

C14H11N



5H-Dibenz[b,f]azepine (8CI9CI)
Dibenz[b,f]azepine
Iminostilbene
Stilbene, 2,2'-imino-
2,2'-Iminostilbene
3 more names available

Option? GO AQUIRE

AQUIRE (Version 1.4/3.0 April, 1985) ($55/Hr.)
Latest Data Base Update: June, 1985 (Based on NTIS files of April, 1985)

Latest news for AQUIRE . . .
12 August 1985; New AQUIRE Database Corrected, Rereleased

Option? CAS/2440224
No responses for: CAS/2440224

Option? CAS/25973551
No responses for: CAS/25973551

Option? CAS/3864991
No responses for: CAS/3864991

Option? CAS/3380~~345~~
Can not interpret CAS number: 3380~~345~~

Option? CAS/3380345
No responses for: CAS/3380345

Option? CAS/256962
No responses for: CAS/256962

Option? CAS/3124294R^^}iW3
Can not interpret CAS number: 3124294RW3
Can not interpret CAS number:

Option? CAS/31242941
No responses for: CAS/31242941

Option? ISHOW
No responses for: ISHOW

Option? GO ISHOW

ISHOW (Version 1.1/1.1 October 1983) ($55/Hr.)
Type NEWS at "Option?" for further detail.

Latest news for ISHOW . . .
20 Feb 85; ISHOW Component Now Available For General Use

Option? SHOW 2440224

Conversion to local identifiers resulted in 0 unique occurrences.
Warning: No information was output as a result of this request.

Processing interrupted

Option? SSH
No responses for: SSH

Option? SHOW 25973551

Conversion to local identifiers resulted in 0 unique occurrences.
Warning: No information was output as a result of this request.

Processing interrupted

Option? SHOW.3.
Warning: No responses for: SGIW

Continue (Y/N/Expand)(Y)? N

Option? SHOW 3864991

Conversion to local identifiers resulted in 0 unique occurrences.
Warning: No information was output as a result of this request.

Processing interrupted

Option? SHOW 3380345

Conversion to local identifiers resulted in 0 unique occurrences.
Warning: No information was output as a result of this request.

Processing interrupted

Option? SHOW 256962

Conversion to local identifiers resulted in 0 unique occurrences.
Warning: No information was output as a result of this request.

Processing interrupted

Option? SHOW 31242941

```
Conversion to local identifiers resulted in      0 unique occurrences.
Warning: No information was output as a result of this request.



Processing interrupted

Option? TSCATS
No responses for: TSCATS



Option? GO TSCATS


TSCATS (Version 2.0/2.2 December, 1985)  ($55/Hr.)
Latest Data Base Update: December, 1985

Latest news for TSCATS  . . .
 9 Jan 86; Initial Version of TSCATS Component Now Available

Option? HELP OPTIONS



The commands for TDRS components are:

Command              Arguments
-------  ------------------------------------------------------

[search] search-phrase

 SORT    file-number/field-name [,D]

 PRINT  }
 TYPE   }file-number [/format [/begin - end]]
 DISPLAY}
 SHOW   }

 EXTRACT field-mnemonic,--- FROM file-number TO filename.ext

 ORDER   file-number [/begin - end]

 FORMAT } field-name, ---
        } field-number, ---
        } SAVE
        } PRINT
        } filename.ext

 EXPAND  word [,n]

 RECAP

 SET    EXPERT

 WHEN
```

Conversion to local identifiers resulted in 2 unique occurrences.

Conversion Entry 1; Accession No. 9291

9291. Tinuvin (R) P. 2-(2H-Benzotriazol-2-yl)-4-methylphenol; 2-(2H-benzotriazol-2-yl)-p-cresol [2440-22-4]; 2-(2'-hydroxy-5'-methylphenyl)benzotriazole. C13H11N3O; mol wt 225.25. C 69.32%, H 4.92%, N 18.65%, O 7.10%. Prepn: Heller et al., U.S. pats. 3,004,896; 3,189,615 (1961, 1965 to Geigy).

```
   C++C
  *    *
 *      *
C        C++N           C
 +      *   *           *
  +    *    *           *
   C**C     *        C..C
       +    *       .    .
        +   *      .      .
         N**N*****C        C
                 .      .
                  .    .
                   C..C
                   *
                   *
                   O
```

Minute crystals, mp 131-133 deg. Sol in ethyl acetate, acetone, caprolactam solns, dioctylphthalate, oleyl alcohol, hot petrolatum. Stable to conditions and chemicals used in polymerization or compounding of plastics.

USE: An ultraviolet light absorber for stabilizing plastics and other organic materials against discoloration and deterioration. Effective in protecting polyesters, chlorinated polyesters, polystyrene, polyvinyls, polypropylene, alkyds, cellulose acetate, ethyl cellulose, acrylates, dyes, synthetic and natural fibers, waxes, detergent solns, cosmetic formulations. Ref: Dunn, Fogg, J. Appl. Polymer Sci. 2, 367 (1959).

Revision status: 10th Ed.

Conversion Entry 2; Accession No. 9471

9471. Triclosan. 5-Chloro-2-(2,4-dichlorophenoxy)phenol [3380-34-5]; 2,4,4'-trichloro-2'-hydroxydiphenyl ether; CH 3635 (formerly); Irgasan CH 3635 (formerly); Irgasan DP 300[1]. C12H7Cl3O2; mol wt 289.53. C 49.78%, H 2.44%, Cl 36.73%, O 11.05%. Prepn: Neth. pat. Appl. 6,401,526 corresp to E. Model, J. Bindler, U.S. pat. 3,506,720 (1964, 1970 to Geigy). Physical and bacteriostatic properties: C. A. Savage, Drug Cosmet. Ind. 109(3), 36, 161 (1971). Metabolism: J. G. Black et al., Toxicology 3, 33 (1975). Toxicology: F. L. Lyman, T. Furia, Ind. Med. Surg. 38(2), 64 (1969), C.A. 71, 89601h (1969).

```
      C              C
     . .            . .
```

```
CL*C     C**O     C     C**CL
   .     .        .     .
   .     .        .     .
   C     C*****O**C     C
    .   .           .   .
     . .             . .
      C               C
                      *
                      *
                      CL
```

White to off-white crystalline powder, slight, faintly aromatic odor. mp 54-57.3 deg. Vapor press. (20 deg.C) 4 x 10[-6] mm Hg. pKa 7.9. Insol in water; readily sol in alkaline solns and many organic solvents.

---

[1]Ciba-Geigy

USE: Bacteriostat and preservative for cosmetic and detergent prepns: E. Model, J. Bindler, U.S. pat. 3,629,477 (1971 to Geigy).
THERAP CAT: Disinfectant.

Revision status: 10th Ed.

Option? GO TSCATS

TSCATS (Version 2.0/2.2 December, 1985) ($55/Hr.)
Latest Data Base Update: December, 1985

Latest news for TSCATS . . .
9 Jan 86; Initial Version of TSCATS Component Now Available

Option? SHOW 1/2

Conversion to local identifiers resulted in 0 unique occurrences.
Warning: No information was output as a result of this request.

Processing interrupted

Option? LOGOFF

Your approximate total CIS session cost is $ 22.34
Killed Job 62, User CIS1.5569.3, Account CIS1.5569.3, TTY 37,
at 21-Mar-86 16:05:51-EST,
Used 1.78 Resource Units in 0:00:02

AMShare Remote Computing Service, System AMS20E (2743),

77 - NLM, CHEMLINE: TOXLINE,TOXBACK
112 - Aldrich Catalog/Handbook: 143650
165 - Dictionary of Organic Compounds (DOC5): D-01206
5H-Dibenz[b,f]azepine (8CI9CI)
Dibenz[b,f]azepine
Iminostilbene
Stilbene, 2,2'-imino-
2,2'-Iminostilbene
2,3,6,7-Dibenzazepine
5-Azadibenzo[a,e]cycloheptatriene
5H-Dibenzo[b,f]azepine

Entry 2 CAS RN 2440-22-4
CIS Sources Of Information

2 - CIS, EI Mass Spectrometry
32 - NIOSH/CIS, RTECS: GO6860000

Non-CIS References

1 - EPA, TSCA Inventory List
7 - Merck Index: 9175
21 - U.S. International Trade Commission P&I Statistics
23 - European Economic Community Inventory: 82539
49 - CIS, IRSS
69 - USAN & USP Dictionary of Drug Names
77 - NLM, CHEMLINE: TOXLINE,TOXBACK
112 - Aldrich Catalog/Handbook: S362549
153 - Japan, Priority List for Assessment in Environment: 6562
165 - Dictionary of Organic Compounds (DOC5): H-02554
Phenol, 2-(2H-benzotriazol-2-yl)-4-methyl- (9CI)
p-Cresol, 2-(2H-benzotriazol-2-yl)- (8CI)
Benazol P
Drometrizole (USAN)
Geigy industrial chemical
Tin P
Tinuvin P
Uv absorber-1
UV Absorber-1
WLN: T56 BNNNJ CR BQ E1
2-(2-Hydroxy-5-methylphenyl)-2H-benzotriazole
2-(2-Hydroxy-5-methylphenyl)benzotriazole
2-(2'-Hydroxy-5-methylphenyl)benzotriazole
2-(2H-Benzotriazol-2-yl)-p-cresol
2-(2H-Benzotriazol-2-yl)-4-methylphenol
2-(6-Hydroxy-m-tolyl)-2H-benzotriazole
2-Benzotriazolyl-4-methylphenol

Entry 3 CAS RN 3380-34-5
CIS Sources Of Information

32 - NIOSH/CIS, RTECS: KO1100000
130 - CIS, FRSS (Federal Register Search System)

Non-CIS References

1 - EPA, TSCA Inventory List
4 - EPA, Pesticides - Registered Active Ingredients: 054901
21 - U.S. International Trade Commission P&I Statistics
23 - European Economic Community Inventory: 159475
33 - NIOSH, NOHS: A1355,M1188
35 - ORNL, EMIC
38 - Japan, Chem. Sub. Control Law, Existing Chem. Sub.: 3-912
53 - API/TRC, Thermodynamics and Spectroscopy
69 - USAN & USP Dictionary of Drug Names
76 - EPA, Acceptable Common Names
77 - NLM, CHEMLINE: TOXLINE,TOXBACK
165 - Dictionary of Organic Compounds (DOC5): T-02756

Phenol, 5-chloro-2-(2,4-dichlorophenoxy)- (8CI9CI)
Cloxifenol
CH 3565
Ether, 2'-hydroxy-2,4,4'-trichlorodiphenyl
Irgasan
Irgasan dp300
Irgasan CH 3565
Irgasan DP 300
Irgasan DP 3000
Irgasan DP300
Irgasan-CH 3565
Lexol 300
Phenyl ether, 2'-hydroxy-2,4,4'-trichloro-
Trichlosan
Triclosan (USAN)
TCC
THDP
WLN: QR CG FOR BG DG
Zilesan UW
2-Hydroxy-2',4,4'-trichlorodiphenyl ether
2,2'-Oxybis(1',5'-dichlorophenyl-5-chlorophenol)
2,4,4'-Trichloro-2'-hydroxydiphenyl ether
2',4,4'-Trichloro-2-hydroxydiphenyl ether
2',4',4-Trichloro-2-hydroxydiphenyl ether
3-Chloro-6-(2,4-dichlorophenoxy)phenol
4-Chloro-2-hydroxyphenyl 2,4-dichlorophenyl ether
5-Chloro-2-(2,4-dichlorophenoxy)phenol (ACN)

Entry 4 CAS RN 3864-99-1

Non-CIS References

1 - EPA, TSCA Inventory List
21 - U.S. International Trade Commission P&I Statistics: IMP/T03-77,IMP/T03-79
23 - European Economic Community Inventory: 347039
77 - NLM, CHEMLINE: TOXLINE,TOXBACK
153 - Japan, Priority List for Assessment in Environment: 4278

Phenol, 2-(5-chloro-2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)- (9CI)
Phenol, 2,4-di-tert-butyl-6-(5-chloro-2H-benzotriazol-2-yl)- (8CI)

Tinuvin 327
Tinuvin 372
UV 2
2-(2-Hydroxy-3,4-di-tert-butylphenyl)-5-chlorobenzotriazole
2,4-Di-tert-butyl-6-(5-chloro-2H-benzotriazol-2-yl)phenol

Entry 5 CAS RN 25973-55-1
CIS Sources Of Information

130 - CIS, FRSS (Federal Register Search System)

Non-CIS References

1 - EPA, TSCA Inventory List
21 - U.S. International Trade Commission P&I Statistics
23 - European Economic Community Inventory: 44219X
77 - NLM, CHEMLINE: TOXLINE,TOXBACK
Phenol, 2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylpropyl)- (9CI)
Phenol, 2-(2H-benzotriazol-2-yl)-4,6-di-tert-pentyl- (8CI)
Tinuvin 328
2-(2-Hydroxyphenyl)-2,4-benzotriazole, alkylated

Entry 6 CAS RN 31242-94-1
CIS Sources Of Information

32 - NIOSH/CIS, RTECS: KO4025000

Non-CIS References

77 - NLM, CHEMLINE
Phenyl ether, tetrachloro deriv. (8CI)
Ether, tetrachlorophenyl
Phenyl ether, tetrachloro-
Tetrachlorodiphenyl oxide
WLN: GR XG XOR XG XG

Option? GO RTECS

RTECS Search System (Version 6.4/13.0 October 1985) ($55/hr)

Toxicity data in RTECS have not been critically evaluated

Latest news for RTECS . . .
31 Dec 85; October 1985 Database Installed, New CAS Field Available
Option? SHOW 1/2

CAS RN 256-96-2 not in toxicity file
Entry 2 CAS RN 2440-22-4 NIOSH number GO6860000

p-CRESOL, 2-(2H-BENZOTRIAZOL-2-YL)-
C13-H11-N3-O
MW: 225.27

SKIN AND EYE IRRITATION DATA:
eye-rbt 500 mg/24H MOD 28ZPAK -,146,72

TOXICITY DATA:
orl-mus LD50:6500 mg/kg GTPZAB 10(3),49,66

DATA REFERENCES:
CLASS: SKIN AND EYE IRRITANT
EPAINF: REPORTED IN EPA TSCA INVENTORY, 1983

Entry 3 CAS RN 3380-34-5 NIOSH number KO1100000

ETHER, 2'-HYDROXY-2,4,4'-TRICHLORODIPHENYL
C12-H7-CL3-O2
MW: 289.54

SKIN AND EYE IRRITATION DATA:
skn-hmn 750 ug/3D-I MLD 85DKA8 -,127,77

TOXICITY DATA:
orl-rat LD50:3700 mg/kg 26UZAB 6,245,68/70
skn-rat LD50:9300 mg/kg 26UZAB 6,245,68/70
scu-rat LD50:14700 mg/kg 26UZAB 6,245,68/70
ivn-rat LD50:19 mg/kg TXAPA9 42,1,77
orl-mus LD50:4530 mg/kg 26UZAB 6,245,68/70
C08F07J26 ipr-mus LD50:184 mg/kg JTEHD6 10,699,82

DATA REFERENCES:
CLASS: SKIN AND EYE IRRITANT
EPAINF: REPORTED IN EPA TSCA INVENTORY, 1983
EPAINF: EPA GENETIC TOXICOLOGY PROGRAM, JANUARY 1984

CAS RN 3864-99-1 not in toxicity file
CAS RN 25973-55-1 not in toxicity file
Entry 6 CAS RN 31242-94-1 NIOSH number KO4025000

ETHER, TETRACHLOROPHENYL
C12-H6-CL4-O
MW: 307.98

TOXICITY DATA:
orl-gpg LDLo:50 mg/kg 14CYAT 2,1707,63

DATA REFERENCES:
OSHA: OSHA STANDARD-air:TWA 0.5 mg/m3 (SCP-I) FEREAC 39,23540
,74

Option? GO GENETOX

GENETOX (Version 1.1/2.0 August 1984) ($55/Hr.)
Type NEWS at "Option?" for further detail.

Latest news for GENETOX . . .
19 Feb. 85; GENETOX Component Now Available For General Use

Option? SHOW 1/2

Conversion to local identifiers resulted in 1 unique occurrences.

Conversion Entry 1; Accession No. 501311
(PAR) Parameter Type: HE; MUT
(CAS) CAS Registry Number: 3380-34-5
(NAM) Chemical Name: 5-CHLORO-2-(2,4-DICHLOROPHENOXY)PHENOL
(MOL) Molecular Formula: C12 H7 CL3 O2
(MWT) Molecular Weight: 289.545
(WLN) Wiswesser Line Notation: QR CG FOR BG DG
(TYP) Chemical Type: TEST
(PRP) Study Purpose: MUT-T
(RES) Results Table:

Assay Code	Assay	Species	End Point Code	Result Code
MST	MOUSE SPOT TEST	MOUSE	M	NEG
YEC	GENE CONVERSION TEST	SACCHAROMYCES CERVISIAE	C	"
YEF	FORWARD MUTATION	"	M	POS
YEH	RECOMBINATION OR GENE CONVERSION	"	C	"

(SAS) Summary Table:

Endpoint Code	Endpoint	Findings
C	Chromosomal effect	1 POS ; 1 NEG (2)
M	Gene or point mutations	1 POS; 1 NEG (2)

(DID) Data Collection Identifier: GENETOX

Option? GO CCRIS

CCRIS Version 2.0/2.0 (December, 1984) ($55/Hr.)
Latest Data Base Update: January, 1986 (Literature Coverage Through 1984
)

The Chemical Carcinogenesis Research Information System (CCRIS) database was prepared for the National Cancer Institute by SRI International, under contract number NO1-CP-95607; it contains test results from carcinogenicity, mutagenicity, and tumor promotion/

cocarcinogenicity studies. Each result in the database was judged by the NCI contractor to be an adequate measure of an effect of the chemical tested according to criteria widely accepted by experts in carcinogenesis. However, these results have not been re-evaluated by the National Cancer Institute and their inclusion in the database does not necessarily reflect the views of that Institute. First-time users of CCRIS should refer to the introduction to the User's Manual for a list of the literature sources of the data, and the criteria used for inclusion of these results.

Latest news for CCRIS . . .
5 Feb 86; Significant Update Made To CCRIS Database

Option? SHOW 1/2

Conversion to local identifiers resulted in 0 unique occurrences.
Warning: No information was output as a result of this request.

Processing interrupted

Option? GO OHMTADS

OHM/TADS (Version 7.13/9.5 December, 1985) ($55/Hr.)
Latest Data Base Update: 12/85 - 1,402 Entries Total (See 17 Dec NEWS Me ssage)

Latest news for OHMTADS . . .
17 Dec 85; Database Updated - 68 New Records; 13 Updated Records

Option? SHOW 1

Conversion to local identifiers resulted in 0 unique occurrences.
Warning: No information was output as a result of this request.

Processing interrupted

Option? GO AQUIRE

AQUIRE (Version 1.4/3.0 April, 1985) ($55/Hr.)
Latest Data Base Update: June, 1985 (Based on NTIS files of April, 1985)

Latest news for AQUIRE . . .
12 August 1985; New AQUIRE Database Corrected, Rereleased

Option? SHOW 1/2

Conversion to local identifiers resulted in 0 unique occurrences.
Warning: No information was output as a result of this request.

Processing interrupted

Option? GO ENVIROFATE

ENVIROFATE (Version 1.1/2.0 April 1984) ($55/Hr.)
Type NEWS at "Option?" for further detail.

Latest news for ENVIROF . . .
30 June 84; SPHERE/ENVIROFATE Database Available

Option? SHOW 1/2

Conversion to local identifiers resulted in 0 unique occurrences.
Warning: No information was output as a result of this request.

Processing interrupted

Option? GO MERCCK

MERCCK is not a known component of CIS

Option? GO MERCK

The Merck Index Online (2.2)- Tenth Edition Update 10.3 ($75/hr.)
"Copyright (C) Merck & Co., Inc., 1985
All Rights Reserved."

Latest Data Base Update: January 1986
Update 10.3 Contains New Monographs and Revisions Through November 1985

Latest news for MERCK . . .
15 January 86; MERCK Update 10.3 Released

Option? SHOW 1/2

reviewed
6/88

Tinnuin P

FAP 7B3323 R. Harris
EPA-FOI Ltr 3/16/88

1977 - nucleus anomaly.
1972 - rabbit eye irritation

Ultraviolet Light Absorber

CIBA–GEIGY

Tinuvin® P:

Is thermally stable

Imparts little or no initial color to substrate

Does not discolor on light or heat aging

Is stable to most oxidizing and reducing agents used in polymerization and curing

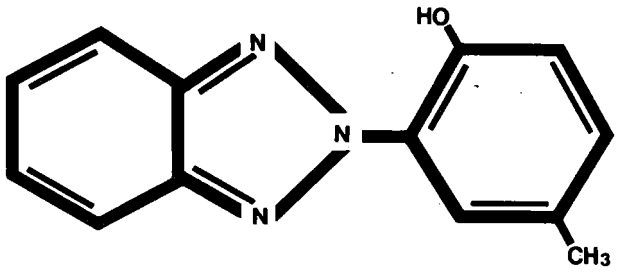
Is compatible and exhibits high permanence or retention in a variety of photosensitive polymers

Exhibits antioxidant, and thermal stabilization properties

Has low oral and dermal toxicity

Tinuvin P offers ultraviolet light protection to a wide range of plastics. It is a strong absorber of ultraviolet radiation in the 300-400 nm region and has a high degree of photostability as its absorption characteristics and structure are unchanged over long periods of light exposure. Photochemical energy absorbed in the ultraviolet region is dissipated as thermal (vibrational) energy at a rate and in amounts which are harmless to surrounding environments. High absorptivity combined with photostability and the ability to release absorbed energy in non-sensitizing ways make Tinuvin P an effective stabilizer against the deteriorating effects of ultraviolet light.

Tinuvin P is a substituted hydroxyphenyl benzotriazole. It is a resonance hybrid of the following limiting structure:



Chemical Name
2(2′-hydroxy-5′-methyl phenyl) benzotriazole

Physical Properties

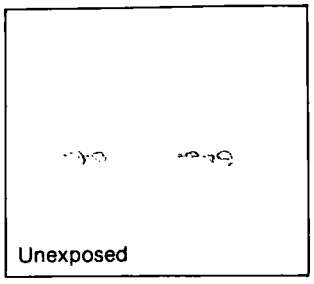
Form	Crystalline Powder
Melting Point:	128-132° C
Molecular Weight	225
Specific Gravity:	1.51
Boiling Point:	225° C (10 mm Hg)

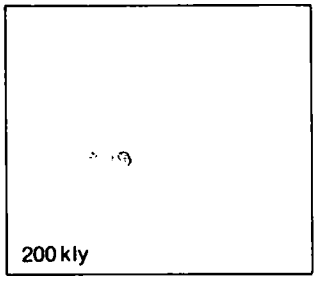
Solubility at 20° C:	g/100 ml
Acetone	2.5
Dioctyl Phthalate	2.5
Ethanol	0.3
Ethyl Acetate	3.5
Methyl Cellosolve	1.7
Methyl Methacrylate	5.0
Mineral Spirits	1.5
Styrene	7.2
Toluene	6.0
Water	nil

U.S. Patents 3,189,615-and 3,004,896

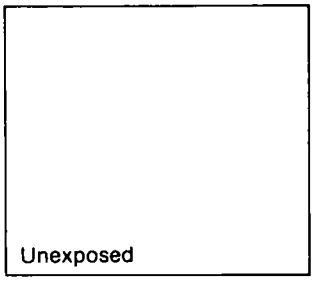
000015

Figure 1
Conventional Polyester
No UVA





0.35% Tinuvin P



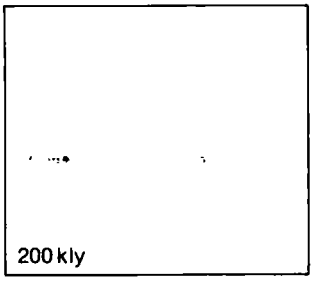
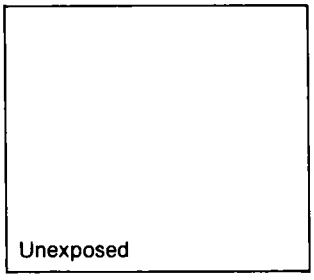
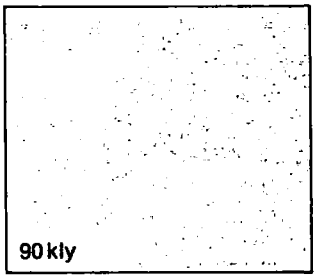


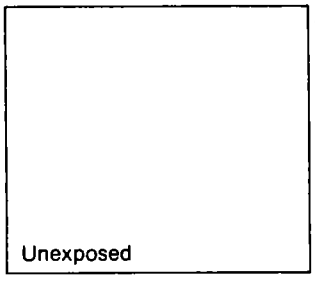
Figure 2
Flame Retardant Polyester
No UVA

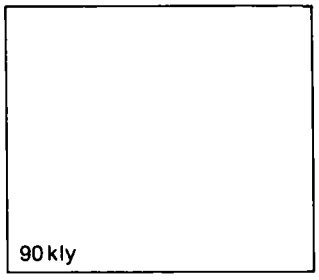




The colors represented on this page have been made as close as possible to the actual polymer samples. A color densitometer was used to insure proper color depth.

1.0% Tinuvin P:





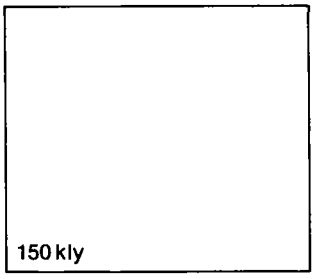
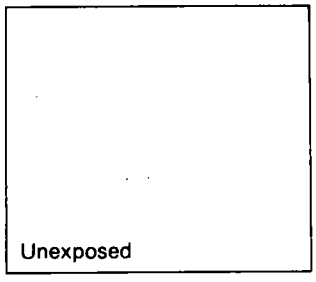
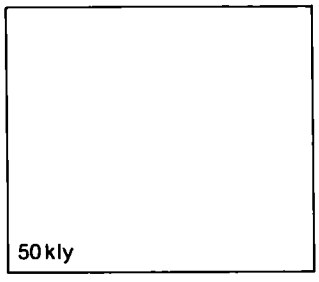
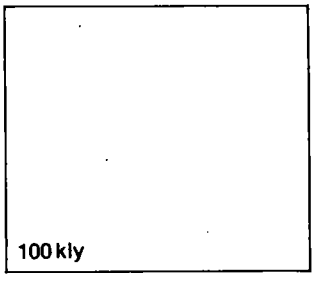


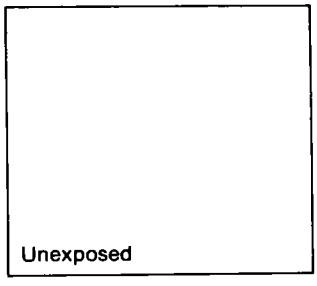
Figure 3
Polycarbonate
No UVA

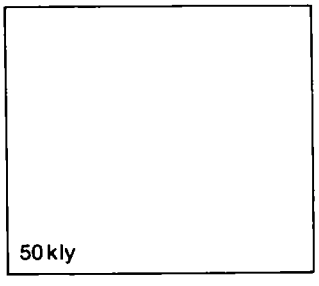


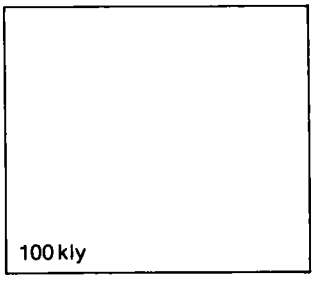




0.3% Tinuvin P:







000016

Optical Properties

The high absorptivity of Tinuvin P in the near ultraviolet (300-400 nm), and its exceptional light fastness are attributable to resonance and to hydrogen bonding between the triazole ring and the phenolic group.

The absorptivity curves of Tinuvin P, phenyl salicylate and 2-hydroxy-4-methoxy benzophenone in chloroform are compared in Figure 4.
The curves indicate relative absorbing power at unit concentration (g/l). The stronger absorbance of Tinuvin P, and the more extensive coverage it provides in the 300-400 nm wavelength region are readily apparent.

Transmission curves of Tinuvin P at various concentrations in chloroform are shown in Figure 5. The curves are distinguished by steeply ascending slopes as they approach 400 nm signifying maximum absorbance of ultraviolet light and minimal absorbance in the visible spectrum, i.e., negligible color.
The shape of the curves is not affected by the substrate although the spectrum may shift slightly.

Figure 4
Absorptivity in Chloroform

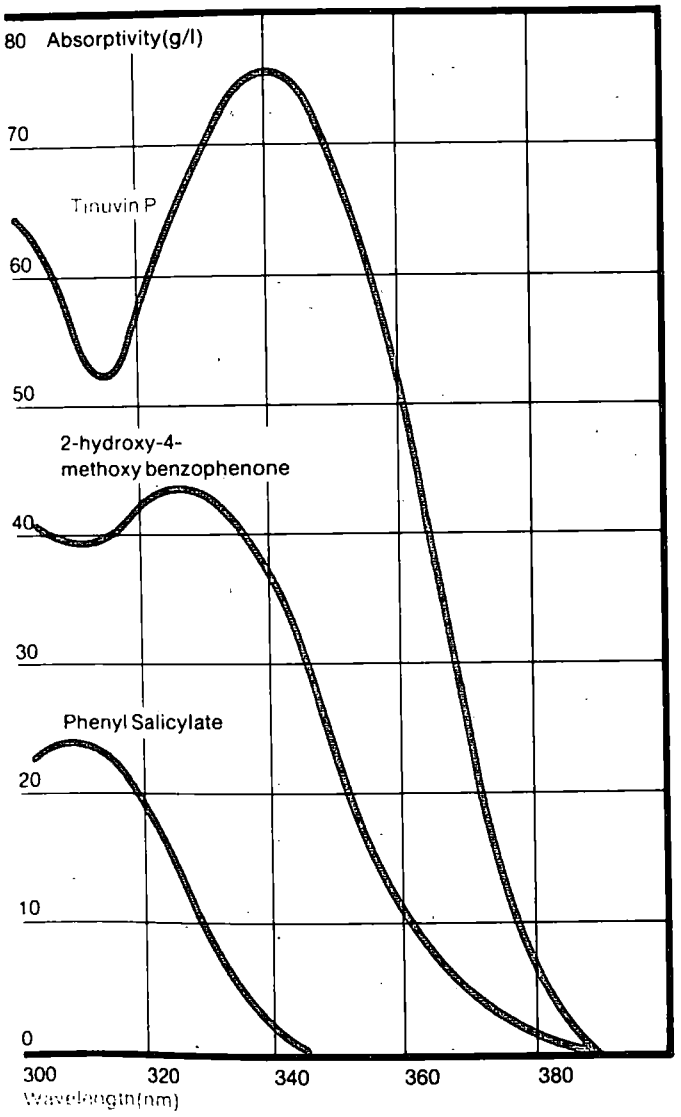
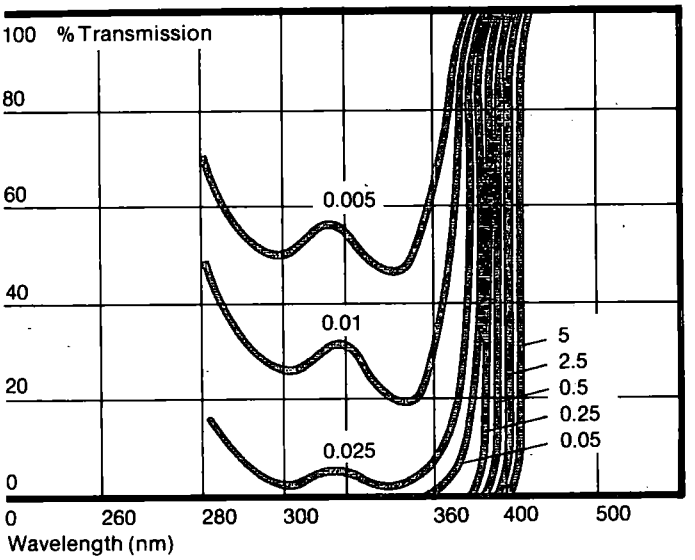


Figure 5
Tinuvin P Transmission Characteristics
1 cm cell Conc: g/1 in Chloroform



000017

Chemical Properties

The chelate ring formed by hydrogen bonding between the phenolic hydroxyl and the triazole ring leads to reduced chemical reactivity of the hydroxyl group. Hydrogen bonding also makes the hydroxyl group less acidic (pK_a 11.7 in 80% aqueous dioxane). Formation of the phenate is promoted by alkalinity and suppressed by acidic substances. The phenate is yellow and shows reduced absorption in the near ultraviolet. Tinuvin P is otherwise unaffected by acid and alkali.

Light Stability

Tinuvin P has been quantitatively recovered unchanged from polyester resins after 14 months' Florida weathering, and from acrylics after 500,000 langleys' accelerated Arizona weathering (equivalent to more than two years' normal exposure). No discoloration has been observed after accelerated UV exposure of dilute Tinuvin P solutions.

Heat Stability

Tinuvin P is stable to processing temperatures as high as 600° F. Negligible deterioration occurs on heating the product in vacuum at 550° F for 24 hours.

Mechanism of Stabilization

Absorption of ultraviolet light frequently produces chemical reactions which result in undesirable changes in the composition, appearance, and physical characteristics of the absorbing material. Ultraviolet light in the wavelength region between 300-400 nm makes up about 5% of the solar radiation reaching the earth's surface and is the main cause of photodegradation.

The stabilization provided by Tinuvin P derives mainly from its preferential absorption of UV radiation in the 300-400 nm region, and its conversion of this absorbed radiation to a harmless form. Thus the amount of ultraviolet light which is accessible to the light sensitive material to cause degradation is reduced to a minimum.

Tinuvin P may also function as an energy transfer agent, to accept photochemical energy absorbed by the substrate, before that energy can cause degradation.

Applications

Ultraviolet radiation is responsible for a variety of deteriorative effects including polymer breakdown, sunburn and skin aging, food spoilage, and fading of colors. Many of these effects may be controlled by shielding with Tinuvin P (i.e., incorporating Tinuvin P in a film or surface coating applied over or on the material to be protected) or incorporating it in the photosensitive material. For maximum effectiveness Tinuvin P should be used in the dissolved state.

Polymers

Many polymers are susceptible to photodegradation by ultraviolet light. Wavelength of maximum sensitivity of several polymers is shown in Table 1. Tinuvin P is especially effective as a light protective agent for polyesters, polystyrene, (including impact grades), acrylics, polycarbonates, polyvinyl chloride and other halogen containing polymers and copolymers (e.g., vinylidenes), acetals and cellulose esters. ABS, unsaturated elastomers (e.g. rubber polymers) and some urethanes, epoxies and nitrocellulose materials also benefit from use of Tinuvin P.

Table 1

Ref: Hirt, Searle, Schmitt, SPE Trans, 1, 1 (1961)

Polymer	Wavelength of maximum sensitivity
Polyesters (various formulations)	325 nm
Polystyrenes	318 nm
Polyethylene	300 nm
Polypropylene (non-heat stabilized)	310 nm
Polyvinyl chloride	310 nm
Polyvinyl chloride copolymer with vinyl acetate	322 and 364 nm
Polycarbonate	295 nm
Polymethyl methacrylate	290 to 315 nm
Polyformaldehyde	300 to 320 nm

Conventional Heat-Cured

Tinuvin P is an outstanding light stabilizer for unsaturated polyesters. With conventional heat-cured systems, 0.2 to 0.7% levels are effective in protecting color and preventing loss of gloss, reducing fiber show in reinforced systems and still allowing excellent initial color.

Tinuvin P may be incorporated in the uncured resin or by pre-dissolving in the styrene or acrylic monomer used for crosslinking.

Figure 1, page 2, shows the excellent initial color and improved color retention provided by Tinuvin P in a conventional polyester system.

In polyester systems containing a cobalt accelerator, discoloration or retardation of cure may occur with Tinuvin P. In such cases, Tinuvin® 328 may be used.

Flame Retardant Grades

Tinuvin P also provides effective light stabilization of flame retardant, halogen-containing, polyester formulations.

Because they are inherently more photo-sensitive, flame retardant formulations generally require higher concentrations (0.5-2.0%) of Tinuvin P than conventional systems.

The excellent color protection provided by Tinuvin P in a chlorinated flame retardant polyester system is shown in Figure 2 on page 2.

Figure 6

Light Stability of Chlorinated Polyester

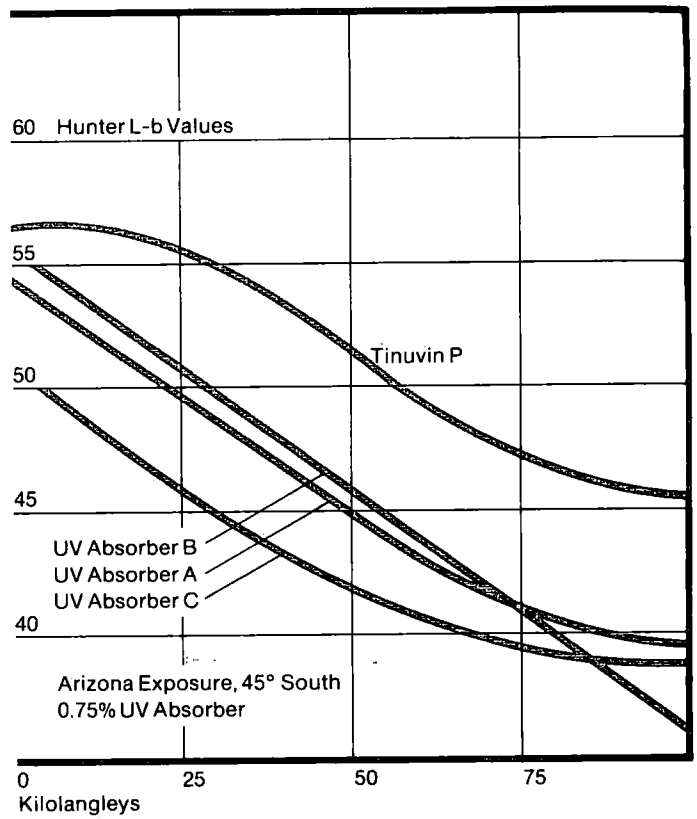


Figure 6 compares the performance of Tinuvin P and three competitive UV stabilizers in chlorinated polyester and illustrates the significantly better performance of Tinuvin P.

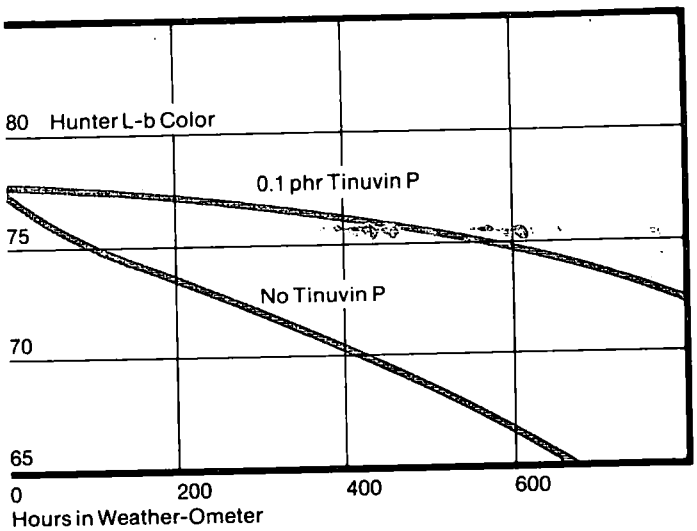
000019

Plasticized Polyvinyl Chloride

Plasticized vinyl sheet and film require UV protection for outdoor use or other applications involving exposure to UV light. Such applications include vinyl tile, auto seat covers, convertible rear windows, greenhouse covers, garden hose, and lawn furniture. Tinuvin P helps retain original color and physical properties of the products and minimizes tack development and plasticizer migration or volatilization. Tinuvin P also improves light stability of light sensitive additives, e.g., chlorinated paraffins, tricresyl phosphate, sulfur containing stabilizers, and certain dyes. Results of Weather-Ometer exposure of plasticized vinyl, with and without 0.1 phr Tinuvin P, are shown in Figure 7.

Figure 7

Weather-Ometer Results



Formulation in Figure 7

PVC Resin	100
DOP/DIOP	20
Epoxy Plasticizer	5
Liquid BA/Cd Stabilizer	3

Exposure: 145° F black panel, 18 minutes continuous water spray every two hours of exposure.

Depending on application and the degree of light stability desired, 0.1-0.5 phr Tinuvin P is usually adequate. Tinuvin P may be incorporated by pre-dissolving in the plasticizer. Solubilities of Tinuvin P in commonly-used plasticizers are as follows:

	g/100 ml @ 25° C
dioctyl phthalate	2.6
dioctyl sebacate	2.5
tricresyl phosphate	3.5

000020

Rigid PVC

Tinuvin P markedly improves the stability of rigid vinyl products to UV radiation. Unlike liquid additives and many low melting solid additives, Tinuvin P does not affect the heat distortion temperature. Clarity and initial color of the substrate are likewise unaffected. Delay in onset of color development is one of the most important indications of UV absorber effectiveness, and correlates with retention of physical properties.

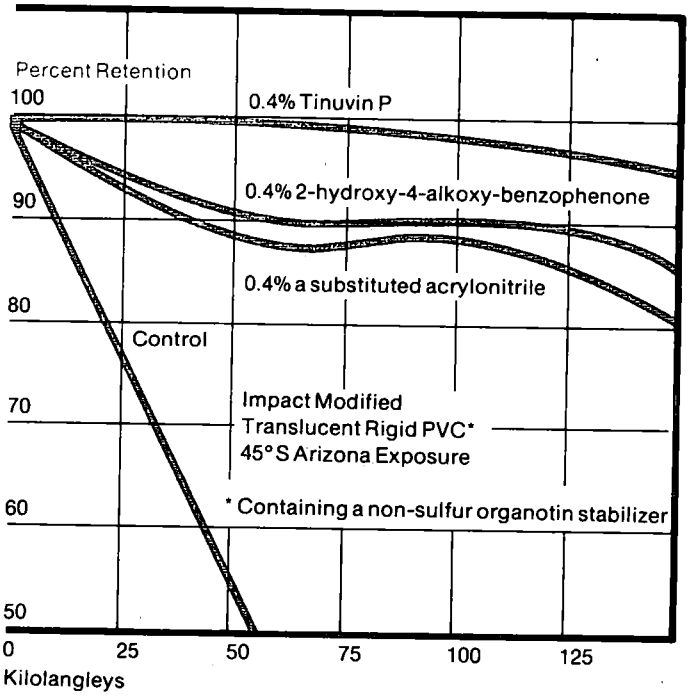
The improvement in color retention on outdoor exposure obtained with Tinuvin P in impact-modified vinyl is shown in Figure 8

Samples with Tinuvin P retained 95% of their original color after more than 10 months of exposure in Arizona (150 kilolangleys).

Further improvement in the light stability and thermal stability of rigid and plasticized vinyl may result when Tinuvin P is used in conjunction with antioxidants such as Irganox® 1076 (CIBA-GEIGY Corporation). PVC formulations containing Tinuvin P may occasionally develop a yellow color when alkaline ingredients or certain barium-cadmium stabilizers are added. This color usually disappears during fluxing or when a small amount of stearic acid is added.

Figure 8

% Retention of Original Color (based on Hunter L-b Values)



Weisfeld, Thacker & Nass* have reported that Tinuvin P provided the best overall resistance to ultraviolet degradation in organotin stabilized rigid vinyl.

Tinuvin P has also been found to provide improved heat stability of vinyls. Results of oven aging at 375° F of PVC homopolymer containing 3 phr alkyl tin mercaptide and Tinuvin P are as follows:

Tinuvin P	Time to Yellowing	Time to Blackening
none	13 minutes	45 minutes
0.15 phr	30 minutes	90 minutes

*"Photodegradation of Rigid Polyvinyl Chloride", SPE Journal, July 1965, 649-648 Reprint available on request.

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PVC Food Packaging

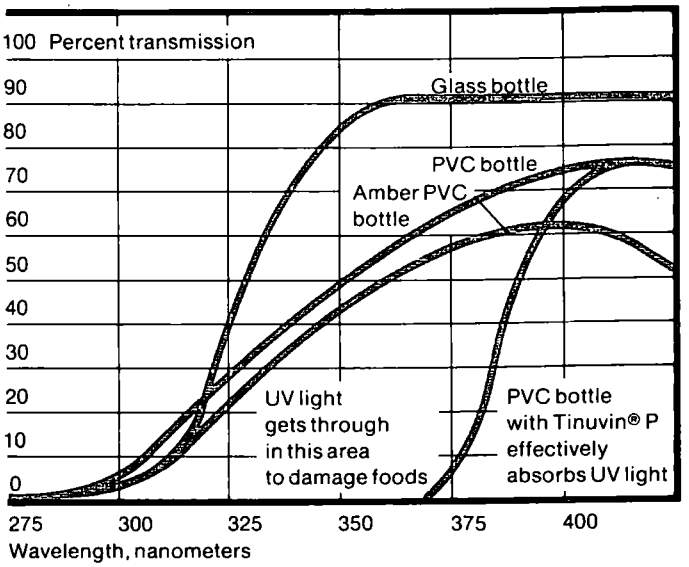
Many foods and cosmetics are sensitive to UV light and, if unprotected, may develop undesirable changes in color, flavor, fragrance and viscosity. The shelf life of salad dressings, mayonnaise, vegetable oils, citrus drinks, etc. may be markedly reduced when exposed to ultraviolet radiation from fluorescent bulbs used in supermarkets or in sunlight transmitted through store windows.

Tinuvin P provides a means of controlling ultraviolet degradation of food and cosmetic products packaged in rigid vinyl or rigid vinyl copolymers and Tinuvin P is cleared by the FDA for these applications.* Ordinary glass bottles and transparent vinyl films and bottles without Tinuvin P transmit UV light and, therefore, only minimal protection to the contents is obtained. Amber colorants used in vinyl are effective in eliminating visible light, but are ineffective at screening out UV light, as shown in Figure 9.

*Federal Regulation 121-2521 and 121-2566

Figure 9

Transmission Curves of PVC bottles with and without Tinuvin P



Polystyrene

Homopolymer

Polystyrene undergoes severe yellowing and surface cracking when exposed to ultraviolet light. Addition of 0.2%-0.5% Tinuvin P considerably improves light stability without adversely affecting initial color. Tinuvin P may be incorporated in styrene monomer before polymerization, if desired, frequently with improvement of resin quality. The effectiveness of Tinuvin P compared to a typical hydroxybenzophenone light stabilizer on exposure to fluorescent black light is shown in Table 2. The data emphasize the special effectiveness of Tinuvin P in stabilizing polystyrene for applications involving exposure to fluorescent light, e.g., light diffusers.

Table 2

UV Stabilization of General Purpose Polystyrene

	Yellowness Index* Hours Fluorescent Black Light Exposure					
UV Absorber	0	350	700	1050	1400	1750
Control	0.61	4.73	9.0	10.6	15.3	22.9
Tinuvin P						
0.15%	0.73	0.86	1.71	1.75	3.38	7.09
0.25%	0.85	0.66	1.58	1.55	2.77	5.06
0.35%	0.75	0.79	1.01	1.33	2.29	5.98
2-hydroxy-4-methoxybenzophenone						
0.20%	1.40	0.96	2.47	2.57	4.08	9.87
0.35%	1.40	1.11	2.05	2.04	3.43	8.06
0.50%	1.51	1.32	1.97	2.08	3.12	7.84

* ASTM D-1925-63T

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Light stability of polystyrene can be further enhanced by use of certain antioxidants in combination with Tinuvin P. Irganox 1076 (CIBA-GEIGY Corporation) is especially useful in this regard. Table 3 illustrates the degree of improvement which can be obtained by use of Tinuvin P/Irganox 1076 combinations.

Impact Polystyrene

Resistance to yellowing and physical property retention of impact polystyrene is significantly improved by use of Tinuvin P. Depending on exposure conditions, degree of light stability desired, etc., 0.2%-1.0% Tinuvin P is recommended. As with the homopolymer, certain antioxidants used in combination with Tinuvin P provide increased light stability. The effect of the antioxidant on light stability is even more pronounced in impact grades than in the homopolymer. Care must be exercised in selection of an antioxidant for use in formulations requiring light stability; some antioxidants and/or their decomposition products can act as photosensitizers to reduce light stability.

Table 4 shows the effect of Tinuvin P and a combination of Tinuvin P/Irganox 1076 in preventing color development of a typical impact polystyrene.

Table 3

Stabilizer Systems in General Purpose Polystyrene

	Yellowness Index Hours Fluorescent Black Light Exposure			
Additives	0	1070	1400	2100
None	2.4	18.7	22.0	29.9
0.35% Tinuvin P	0.9	3.2	4.3	11.3
0.25% Tinuvin P + 0.15% Irganox 1076	1.0	2.8	3.1	8.5

Table 4

Light Stability of Rubber-Modified Impact Polystyrene

	Color Change After Exposure in Arizona-NBS Units		
Additives	25 Kly	50 Kly	100 Kly
None	25	20	23
0.5% Tinuvin P	2	7	11
0.5% Tinuvin P, + 0.1% Irganox 1076	1	1	5

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Rubber and Other Rubber-Modified Polymers
Unstabilized rubber and rubber-modified polymers generally have poor resistance to weathering. The addition of 0.2 to 2.0% Tinuvin P can greatly improve yellowing resistance and physical property retention on light exposure. Weatherability can often be further improved by the use of Tinuvin P/antioxidant combinations, e.g., Irganox 1076 (CIBA-GEIGY Corporation).

Tinuvin P is recommended for use in natural rubber, acrylonitrile-butadiene-styrene (ABS), carboxylated styrene-butadiene-rubber (SBR) latex, impact-modified polystyrene (IPS), acrylic-styrene-acrylonitrile (ASA), and styrene-butadiene-styrene (SBS) copolymers. An example of the performance of Tinuvin P is shown in Table 5.

Transparent sulfur or dicumyl peroxide-cured natural rubber vulcanizates show greatly improved light stability when formulated with Tinuvin P, especially in combination with antioxidants.

The usefulness of Tinuvin P with antioxidants in protecting carboxylated SBR latex on light exposure is shown in Table 6. The antioxidant alone provided moderately improved light stability. Addition of Tinuvin P to the latex containing antioxidant substantially improved color retention.

Table 5
Light Stability of Acrylic-Styrene-Acrylonitrile Copolymers

	After 6 Months Florida Exposure	
Additives	Hunter L-b Color	Retention of Tensile Strength
No UV Absorber	65	57%
0.5% Tinuvin P	78	100%

Table 6
Light Stability of Carboxylated SBR Latex-10mil. Film
Calcium Carbonate Filled
Carbon Arc Fade-Ometer Exposure

		Percent Color Retention After Fade-Ometer Exposure	
Additives	Unaged *	24 Hours	48 Hours
None	73	56	56
0.5% Hindered Phenolic Antioxidant	73	74	70
0.5% Tinuvin P + 0.5% Hindered Phenolic Antioxidant	73	95	94

* Hunter Color L+3a - 3b

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Polycarbonate
Tinuvin P has proven to be an excellent UV absorber for stabilizing polycarbonate. In one exposure study, polycarbonate samples without UV absorber were severely yellowed after 7 months of exposure in Arizona; samples with 0.3% Tinuvin P were not discolored. These results are illustrated in Figure 3 on page 2.

Acrylics
Although acrylics and acrylic multipolymers are more resistant than most polymers to discoloration by UV light, discoloration does occur. The presence of catalyst residues and impurities contribute to yellowing upon light exposure. Tinuvin P provides considerably improved light stability and is more effective than salicylate light stabilizers.
The major Tinuvin P advantages are: 1. Colors painted on the reverse side of outdoor acrylic signs are also protected from UV degradation (fading and shade change) when Tinuvin P is included in the acrylic formulation; 2. Tinuvin P prevents UV light from reaching the colors, and will also protect the bond between the acrylic sheet and the paint.
3. Tinuvin P may be used in radiation-cured acrylic composites. Exposures of 1.25 megarads have been found to have no effect on Tinuvin P. 4. Tinuvin P may be used in semirigid and rigid acrylic and modified acrylic food packaging.*
*Federal Regulation 121-2521 and 121-2566

Polyolefins
Tinuvin P has generally limited compatibility in polyolefins. In these substrates, Tinuvin 328 or Tinuvin 327® are recommended.

Other Polymers
Tinuvin P may be used to improve UV light stability for the following: alkyds; allyl resins; urea and melamine resins; polyphenylene oxide and sulfide; polyamides; linear polyester; styrene/acrylonitrile resins; acrylonitrile polymers and copolymers; and polyurethanes. Use level will depend on degree of stability desired, exposure conditions, thickness of the material to be protected, and compatibility. Generally 0.1-1.0% Tinuvin P is adequate, although higher concentrations may be required to protect thin sectioned materials.

Coatings
Tinuvin P is an effective UV screener and stabilizer in coatings systems. Its good solubility in ketones and esters make it an excellent UV stabilizer for lacquer systems. In systems employing metal driers, color due to Tinuvin P/metal interaction, i.e., chelate formation may occur. Tinuvin 328 is generally preferred where metal driers are used and where increased solvent solubility and/or resin compatibility are required. Use levels of Tinuvin P will depend on film thickness and degree of protection desired. Films of different thicknesses will have the same absorption if the product of layer thickness times UV absorber concentration remains constant. For 1 mil films, Tinuvin P is normally used at 2%, based on solids. Several coats of such thicknesses would require proportionately lower concentrations of Tinuvin P. The table below lists concentrations required to obtain 99% absorption at 360 nm at various film thicknesses.

Dry Film Thickness	Tinuvin P Concentration
4 mils	0.5%
2	1.0
1	2.0

Colorants
Tinuvin P is often useful in stabilizing dyes and pigments against fading. Many colorants, however, are sensitive primarily to visible light, and in such instances ultraviolet absorbers will be of limited value.

Tinuvin P retards deterioration of: 1. synthetic pearlescent agents such as bismuth oxychloride (vinyls, polyolefins), 2. pigments such as dianisidine orange, benzidine yellow, dianisidine blue (acrylic) and, 3. dyes such as Grasol® Fast Yellow 3GL and Grasol Fast Orange 2RN (cellulose butyrate).
Tinuvin P may also be incorporated into synthetic fibers (prior to spinning) to protect mass dyed or conventionally dyed colors, for use in awnings, sail cloth, upholstery and drapery fabrics, carpeting, etc., which do not require frequent laundering. Tinuvin 328 is recommended for polyolefin fiber applications.
Although insoluble in water, Tinuvin P has appreciable solubility in aqueous alcohol and in surfactant solutions; the ultraviolet absorber may therefore be used for protecting colors in shampoos, aftershave lotions, window-cleaning fluids, liquid detergents, etc.

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Other Uses

Adhesives
Tinuvin P may be used in adhesives to retard yellowing, crazing, peeling, and loss of flexibility due to light exposure. Although in some cases improved thermal stability has also been noted, the use of Irganox® antioxidants and thermal stabilizers is recommended for this purpose. Levels of 0.2 to 1.0% Tinuvin P are recommended.

Cosmetics
Tinuvin P may be used in cosmetic and toilet goods formulations to protect light-sensitive ingredients such as dyes, perfumes, etc. The concentration of Tinuvin P usually required is 0.1% or less. Discoloration, deterioration of fragrance, and loss in viscosity are a few of the degradative changes controlled.

Candlewax
White candles will frequently discolor on short light exposure, depending on the degree of refinement of the paraffin and stearic acid used. This discoloration may usually be controlled by as little as 0.05% Tinuvin P. Light stability of candle colors is also improved, as is the thermal stability of several wax-soluble dyes.

Safety Information
The acute oral LD_{50} on single oral dose in mice and rats is greater than 5000 mg/kg. Subacute dermal and oral toxicity studies in animals indicate that Tinuvin P is of relatively low toxicity.
When patch tested in humans as a 0.1% or 0.5% solution in dimethyl phthalate, no irritation or sensitization was observed. No sensitization was observed when Tinuvin P was patch tested as a 25% formulation in petrolatum. Phototoxicity studies indicate that Tinuvin P is not phototoxic in humans. Further details are available on request.

FDA Status
Tinuvin P may be used in accordance with provisions of regulation 121.2566, Title 21, Code of Federal Regulations in the following polymers for food packaging applications:
1. Rigid polyvinylchloride and rigid vinyl chloride copolymers.
2. Semirigid and rigid acrylic and modified acrylic polymers
3. Polystyrene and rubber modified polystyrene.

Important Note:
The information and recommendations contained in this bulletin are based upon data collected by CIBA-GEIGY and believed to be correct. However, no guarantee or warranty of any kind is intended with respect to the information contained herein and CIBA-GEIGY assumes no responsibility for the results of the use of products and processes described herein. No statement or recommendations made herein are to be construed as inducements to infringe any relevant patent, now or hereafter in existence.

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H. Environmental Impact

2(2'-Hydroxy-5'-methylphenyl)benzotriazole, the indirect food additive which is the subject of this petition, meets all of the criteria of 21CFR25.1(f)(1)(v) and therefore is exempt from the requirement of an environmental impact report under §25.1(g).

As a minor constituent of polycarbonate resins that contact food, the quantity of additive produced would be relatively small, and the quantities of raw materials and energy consumed in its production also would be small.

Since the additive already is in use in other indirect food additive applications, the pollutants that result from its manufacture are known. Atmospheric pollutants are nitrogen oxides and minor quantities of toluene. Water pollutants consist of miscellaneous organic compounds and zinc. Solid waste consists of spent sulfuric acid, process organic by-products, and waste papers.

The product is produced at the CIBA-GEIGY Corporation plant in Cranston, RI. At this location, atmospheric and solid waste discharges are regulated by the State of Rhode Island Department of Health. Aqueous discharges are regulated by the U. S. Environmental Protection Agency and the Rhode Island Department of Health.

All atmospheric emissions from this plant are in compliance with the 1966 Rhode Island Clean Air Act as amended.

All aqueous emissions are in compliance with the conditions of MPDES Permit No. RI 0001171 issued to CIBA-GEIGY Corporation on November 5, 1975.

All solid waste disposal is in compliance with the Rules and Regulations of the Rhode Island Department of Health, Division of Solid Waste Management. All out of state disposal is by contract with firms who certify that their operations comply with local, state, and federal regulations.

PH 2.22

CONFIDENTIAL

1. Dez. 1972

Tox. [illegible]

Report No. 1153/28D/72

7N:P

IRRITANT EFFECTS OF TK 10047 ON RABBIT EYE MUCOSA

Industrial Medicine

MAY 7 - 1973

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Freigegeben [illegible] Dr. A. Buxtorf

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HUNTINGDON RESEARCH CENTRE

Division of Toxicology

Sample Designation : TK 10047

Examination for : Irritant effects on rabbit eye mucosa.

Date examined : May, 1972.

EXPERIMENTAL PROCEDURE

The procedure employed was that prescribed by The Food and Drug Administration of the U.S.A. In The Federal Register (17 September, 1964 § 191.12), a transcript of which is attached as Appendix 1 to this report.

On this occasion 100mg of TK 10047 was instilled into each eye.

The ocular reactions were scored by the method described by J.H. Draize in "Appraisal of the Safety of Chemicals in Foods, Drugs and Cosmetics" p 51, a transcript of which is attached as Appendix 2 to this report.

RESULT

The numerical scores awarded to the ocular reactions elicited by TK 10047 are given in Table 1.

No "positive" reactions were observed.

Temporary mild conjunctival reactions were observed in two animals only. In the remaining four animals there was no observed response to treatment.

The maximum group mean reaction of 2 was established on day 1.

CONCLUSION

TK 10047 may be considered "minimally irritant" to the rabbit eye mucosa with temporary mild conjunctival reactions only.

TABLE 1

Numerical scores awarded to the ocular reactions elicited by TK 10047

ANIMAL NUMBER	REGION OF EYE	DAY 1	2	3	4	7	14	21
1	Cornea	0	0	0	0	0		
	Iris	0	0	0	0	0		
	Conjunctivae	0	0	0	0	0		
	TOTAL	0	0	0	0	0		
2	Cornea	0	0	0	0	0		
	Iris	0	0	0	0	0		
	Conjunctivae	0	0	0	0	0		
	TOTAL	0	0	0	0	0		
3	Cornea	0	0	0	0	0		
	Iris	0	0	0	0	0		
	Conjunctivae	2	0	0	0	0		
	TOTAL	2	0	0	0	0		
4	Cornea	0	0	0	0	0		
	Iris	0	0	0	0	0		
	Conjunctivae	8	6	2	2	0		
	TOTAL	8	6	2	2	0		
5	Cornea	0	0	0	0	0		
	Iris	0	0	0	0	0		
	Conjunctivae	0	0	0	0	0		
	TOTAL	0	0	0	0	0		
6	Cornea	0	0	0	0	0		
	Iris	0	0	0	0	0		
	Conjunctivae	0	0	0	0	0		
	TOTAL	0	0	0	0	0		
TOTAL SCORE		10	6	2	2	0		
MEAN/RABBIT		2	1	<1	<1	0		

APPENDIX 1

METHOD OF TESTING PRIMARY IRRITANT SUBSTANCES

From: Federal Register, 17 September, 1964, § 191.11

Primary irritation to the skin is measured by a patch test technique on the abraded and intact skin of the albino rabbit, clipped free of hair. A minimum of six subjects are used in abraded and intact skin tests. Introduce under a square patch such as surgical gauze measuring 1 inch x 1 inch, two single layers thick, 0.5 milliliter (in case of liquids) or 0.5 gram (in the case of solids and semisolids) of the test substance. Dissolve solids in an appropriate solvent and apply the solution as for liquids. The animals are immobilized with patches secured in place by adhesive tape. The entire trunk of the animal is then wrapped with an impervious material such as rubberized cloth for the 24-hour period of exposure. This material aids in maintaining the test patches in position and retards the evaporation of volatile substances. After 24 hours exposure, the patches are removed and the resulting reactions are evaluated on the basis of the designated values in the following table:

Evaluation of skin reactions	Value*
Erythema and eschar formation:	
No erythema	0
Very slight erythema (barely perceptible)	1
Well-defined erythema	2
Moderate to severe erythema	3
Severe erythema (beet redness) to slight eschar formation (injuries in depth)	4
Oedema formation:	
No oedema	0
Very slight oedema (barely perceptible)	1
Slight oedema (edges of area well defined by definite raising)	2
Moderate oedema (raised approximately 1 millimeter)	3
Severe oedema (raised more than 1 millimeter and extending beyond the area of exposure)	4

* The "value" recorded for each reading is the average value of the six or more animals subject to the test.

Readings are again made at the end of a total of 72 hours (48 hours after the first reading). An equal number of exposures are made on areas of skin that have been previously abraded. The abrasions are minor incisions through the stratum corneum, but not sufficiently deep to disturb the derma or to produce bleeding. Evaluate the reactions of the abraded skin at 24 hours and 72 hours, as described in this paragraph. Add the values for erythema and eschar formation at 24 hours and at 72 hours for intact skin to the values on abraded skin at 24 hours and 72 hours (four values). Similarly, add the values for oedema formation at 24 hours and at 72 hours for intact and abraded skin (four values). The total of the eight values is divided by four to give the primary irritation score.

CLASSIFICATION SYSTEM FOR PRIMARY IRRITATION

From "Appraisal of the Safety of Chemicals in Foods, Drugs and Cosmetics", published by the Association of Food and Drug Officials of the United States, 1959, page 46.

"Compounds producing combined averages (primary irritation indices) of 2 or less are only mildly irritating; whereas those with indices from 2 to 5 are moderate irritants, and those with scores above 6 are considered severe irritants."

Appendix 2

Scale for scoring Ocular Lesions

1. Cornea

(A) Opacity-degree of density (area most dense taken for reading)

No opacity	0
Scattered or diffuse area, details of iris clearly visible	1
Easily discernible translucent areas, details of iris slightly obscured	2
Opalescent areas, no details of iris visible, size of pupil barely discernible	3
Opaque, iris invisible	4

(B) Area of cornea involved

One quarter (or less) but not zero	1
Greater than one quarter but less than half	2
Greater than half, but less than three quarters	3
Greater than three quarters, up to whole area	4

A x B x 5

Total maximum = 80

2. Iris

(A) Values

Normal	0
Folds above normal, congestion, swelling, circumcorneal injection (any or all of these or combination of any thereof) iris still reacting to light (sluggish reaction is positive)	1
No reaction to light, haemorrhage, gross destruction (any or all of these)	2

A x 5

Total maximum = 10

3. Conjunctivae

(A) Redness (refers to palpebral and bulbar conjunctivae excluding cornea and iris)

Vessels normal	0
Vessels definitely injected above normal	1
More diffuse, deeper crimson red, individual vessels not easily discernible	2
Diffuse beefy red	3

(B) Chemosis

No swelling	0
Any swelling above normal (includes nictitating membrane)	1
Obvious swelling with partial eversion of lids	2
Swelling with lids about half closed	3
Swelling with lids about half closed to completely closed	4

(C) Discharge

No discharge	0
Any amount different from normal (does not include small amounts observed in inner canthus of normal animals)	1
Discharge with moistening of the lids and hairs just adjacent to lids	2
Discharge with moistening of the lids and hairs, and considerable area around the eye	3

Score (A + B + C) x 2 Total maximum = 20

CIBA-GEIGY Limited
Basle, Switzerland

Industrial Medicine
JAN 31 1977

TINUVIN P

NUCLEUS ANOMALY TEST IN SOMATIC INTERPHASE NUCLEI

TK 10047

Chinese Hamster

(Test for mutagenic effects on bone marrow cells)

PERMANENT RECORD FILE
INDUSTRIAL MEDICINE

PH 2.632

January 7, 1977

Dosage: 500, 1000, 2000 mg/kg

Batch: EN 2790
Route: oral

SUMMARY AND ASSESSMENT

Preparation TK 10047 was administered by gavage. Treatment consisted of one daily application on 2 consecutive days. The animals were sacrificed 24 h after the second application. From the bone marrow smears were made.

The experiment was performed to evaluate any mutagenic effect on somatic interphase cells in vivo. Mutagenic effects present themselves in interphase cells in form of nucleus anomalies of bone marrow cells[1, 2]. These anomalies occur in interphase cells as a consequence of damage during the mitotic process. The increase in anomalies shows a clear dose dependency, comparable to the occurrence of chromosome aberrations in metaphase preparations[3].

The bone marrow smears from animals treated with various doses of preparation TK 10047 showed no significant difference from the control. The incidence of bone marrow cells with anomalies of nuclei corresponds to the frequency observed in the control group.

By contrast, a "positive control" experiment with cyclophosphamide (128 mg/kg) yielded 3.05% cells with anomalies of nuclei. This is significantly different from the controls treated with the vehicle (0.5% CMC) alone.

It is concluded that under the conditions of this experiment, no evidence of mutagenic effects was obtained in Chinese hamsters treated with preparation TK 10047.

(Dr. M. Langauer)

(Prof.Dr.D.Müller)

Date: January 7, 1977

CIBA-GEIGY Limited
Basle, Switzerland
Pharmaceuticals Division
Toxicology/Pathology

PROCEDURE

1. Data on the animals used.

   Chinese hamsters (Cricetulus griseus, weight ♀♀ 27-31 g, ♂♂ 20-34 g) of either sex (♀:♂ = 1:1) obtained from the Tierzuchtinstitut of the University of Zürich were used. Standard diet: NAFAG No.196. Tap water ad libitum. The animals were kept in an air-conditioned room at a temperature of 23°C ± 1.0°C. Humidity: 55% ± 5%. The room was illuminated for 12 hours daily.

2. Treatment schedule.

   The preparation was administered orally to groups of 6 animals each. Treatment consisted of daily one application on 2 consecutive days. 24 h after the second application the animals were sacrificed.

   a) TK 10047, 500, 1000 and 2000 mg/kg in 20 ml/kg 0.5% CMC solution. *)

   b) Cyclophosphamide (ENDOXAN®): 128 mg/kg in 20 ml/kg 0.5% CMC solution (positive control).

   c) 20 ml 0.5% CMC solution/kg (negative control).

3. Bone marrow preparation.

   Bone marrow was harvested from the shafts of both femurs. In a siliconized pipette filled with 0.5 µl rat serum the bone marrow was drawn up. In order to receive a homogeneous suspension the content of pipette was aspirated gently about three times. Small drops of the mixture were transferred on the end of a slide, spread out by pulling it behind a polished cover glass and the preparations were air-dried. At the next day the slides

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*) The oral LD_{50} was determined to be > 6000 mg/kg in Chinese hamster of either sex (cf. Lab.Report: PH 2.635, dated March 19, 1975).

were stained in undiluted May-Grünwald solution for 2 min and subsequently with Giemsa solution (5%) 9 min. After rinsing with distilled water and air-drying the slides were cleared in Xylol and mounted in Eukitt.

4. Scoring of the slides.
1000 bone marrow cells were scored from each animals and the following anomalies were registered:
a) Single Jolly bodies, b) fragments of nuclei in erythrocytes, c) micronuclei in erythroblasts, d) micronuclei in leucopoietic cells, e) bizarre forms of nuclei, f) polyploid cells and g) necrobiotic cells.

5. Statistics.
The significance of difference was assessed by χ^2-test.

RESULTS

(Table 1)

In all dosage groups the percentage of cells displaying anomalies of nuclei did not differ significantly from the negative control.

By contrast, the positive control (cyclophosphamide, 128 mg/kg) yielded a marked increase of the percentage of cells with anomalies. Here the mean percentage of anomalies was 3.05, whereas the negative control yielded a percentage of 0.10. The difference is highly significant ($p < 0.01$).

[1] BOLLER, K. and W. SCHMID (1970), Chemische Mutagenese beim Säuger. Das Knochenmark des Chinesischen Hamsters als in vivo-Testsystem. Hämatologische Befunde nach Behandlung mit Trenimon. Humangenetik 11, 35-54.

[2] MATTER, B. and W. SCHMID (1971), Trenimon-Induced Chromosomal Damage in Bone Marrow Cells of Six Mammalian Species, Evaluated by the Micronucleus Test. Mutation Res. 12, 417-425.

[3] MÜLLER, D., M. LANGAUER, R. RATHENBERG, F.F. STRASSER and R. HESS (1972), Mikrokerntest sowie Chromosomenuntersuchungen an somatischen und gonosomalen Zellen des Chinesischen Hamsters nach Cyclophosphamidgabe. Verh. Dtsch. Ges. Path. 56, 381-384.

Table 1

THE EFFECT OF TK 10047 AND CYCLOPHOSPHAMIDE ON BONE MARROW CELLS OF CHINESE HAMSTER

Animals sacrificed 24 h after the second application

Percent of cells with anomalies of nuclei

	Number of animals	Sex of animals	Single Jolly bodies	Fragments of nuclei in erythrocytes	Micronuclei in erythro-blasts	Micronuclei in leuco-poietic cells	Bizarre forms of nuclei	Polyploid cells	Necrobiotic cells	Total
Control (0.5 % CMC)	1	♀								0.0
	2	♀						0.1		0.1
	3	♀								0.0
	4	♂	0.1					0.1		0.2
	5	♂	0.2							0.2
	6	♂	0.1							0.1
Cyclophosphamide (128 mg/kg)	1	♀	2.9	0.4	0.6			0.4		4.3
	2	♀	3.7	0.6	0.7			0.2	0.1	5.3
	3	♀	2.4	0.1	0.1			0.4		3.0
	4	♂	2.0	0.3				0.2		2.5
	5	♂	1.5		0.2			0.1		1.8
	6	♂	1.0		0.3			0.1		1.4
TK 10047 (500 mg/kg)	1	♀	0.2							0.2
	2	♀	0.1							0.1
	3	♀	0.2							0.2
	4	♂	0.1							0.1
	5	♂	?							0.0
	6	♂								0.0
TK 10047 (1000 mg/kg)	1	♀						0.3		0.3
	2	♀	0.1							0.1
	3	♀	] ?							0.0
	4	♂								0.0
	5	♂	0.2							0.2
	6	♂								0.0
TK 10047 (2000 mg/kg)	1	♀								0.0
	2	♀						0.1		0.1
	3	♀	0.4							0.4
	4	♂	0.3							0.3
	5	♂				0.1				0.1
	6	♂								0.0

To few examined? or Negative?

CONTENTS

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000100

CIBA-GEIGY Corporation
Ardsley, New York 10502
Telephone 914 478 3131

CIBA—GEIGY

August 9, 1972

Dr. M. M. Gladstone
Witco Chemical Corporation
400 N. Michigan Avenue
Chicago, Illinois 60611

Dear Doctor Gladstone:

The enclosed toxicology data sheet is being supplied in response to your telephone request for information concerning Tinuvin 328.

In answer to your specific questions, we can tell you that:

1. The acute oral LD_{50} in rats and mice is >5000 mg/kg.

2. The groups designated R and R' in the structural formula, both are tertiary amyl groups.

If we can be of any further service in this matter, please feel free to contact us.

Cordially yours,

Frank L. Lyman MD/JK

Frank L. Lyman, M. D.
Director, Industrial Medicine

JK:cm
ATTACHMENT

CIBA—GEIGY Corporation
Ardsley, New York 10502

toxicology data

emergency telephone calls
day or night (914) 478-3131

TINUVIN® 328

Classification:

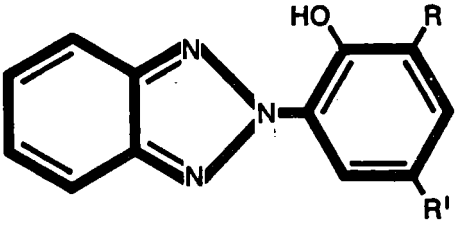
Ultraviolet absorber.

Use:

As an ultraviolet absorber recommended for protective coatings.

Chemical and Physical Properties:

Tinuvin 328 is 2(2'-Hydroxy-3',5'di-tert-amylphenyl) benzotriazole with the following general formula:



It is an off-white powder with a specific gravity of 0.91. Melting point is 81° C. Its molecular weight is 352.

Animal Toxicology:

1. Acute Oral Toxicity
   Rats: LD_{50} >5000 mg/kg
   Mice: LD_{50} >5000 mg/kg
2. Primary Skin Irritation (Rabbits)
   Occlusive patch application of an aqueous paste containing .5 gm Tinuvin to shaved skin failed to produce erythema or edema after 72 hours observation.
3. Acute Dermal Toxicity (Rabbits)
   Acute dermal LD_{50} 1.1 gm/kg. Application produced only mild local irritation.
4. Eye Irritation (Rabbits)
   Instillation of 100 mg of undiluted test material into one eye did not produce irritation after 72 hours observation.

for further information write to:
Department of Industrial Medicine
CIBA—GEIGY Corporation
Ardsley, New York 10502

Human Toxicology:

No cases of poisoning have been reported among employees manufacturing Tinuvin 328 nor in plant workers manufacturing products containing this material.

Treatment:

Since Tinuvin 328 is of low toxicity, accidental ingestion of small amounts will require no treatment. In case of massive ingestion, induce emesis or lavage stomach. Give a saline laxative and supportive therapy.

Handling Precautions:

No special handling precautions are necessary. However, in accordance with good industrial practice, handle with due care and avoid unnecessary personal contact.

Manufacturer:

CIBA-GEIGY Corporation, Ardsley, New York 10502

Source of Data:

Department of Industrial Medicine, CIBA-GEIGY Corporation, Ardsley, New York 10502.

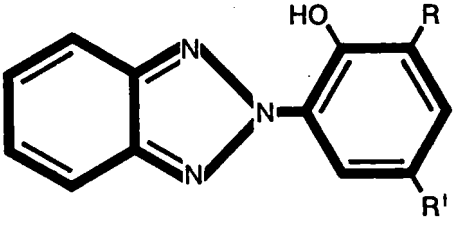
Date:

October 1, 1971

Geigy product information bulletin August, 1968

Tinuvin® 328
ultraviolet absorber

Tinuvin 328 is one of a family of substituted benzotriazoles having the general formula



Its high solubility and desirable balance of properties make it particularly useful for stabilizing coatings and polyolefins. The product is also useful for other substrates requiring UV light protection.

Compared to Geigy's other UV stabilizers, Tinuvin 328 is more solvent soluble, has better resin compatibility and washfastness, is less volatile, and provides a degree of stabilization that is generally equal to or better than other members of the family.

In appearance, Tinuvin 328 is an off-white powder. Its specific gravity is 0.91. Melting point is 81°C and decomposition point, measured by differential thermal analysis, is 391° C.

Solubility of Tinuvin 328 in six solvents at 25°C is compared with two other Geigy UV absorbers in the following table:

	TINUVIN 328	TINUVIN 327	TINUVIN P
n-butyl acetate	28 g/100 g	10 g/100 g	4 g/100 g
ethyl acetate	20	7	10
methyl ethyl ketone	24	6	9
xylene	44	20	7
mineral spirits	14	11	2
water	0	0	0

Tinuvin 328 is covered by U.S. Patents 3,004,896 and 3,189,615

Geigy Industrial Chemicals
Division of
Geigy Chemical Corporation
Ardsley, New York 10502

M-745

Printed in U.S.A.

Extinction curves for Tinuvin 328, Tinuvin P, and Tinuvin 327 are compared in Figure 1. They provide a measure of UV absorption per unit concentration. Note the excellent color (low 'a' at 400 nm) of Tinuvin 328.

Spectral transmission curves of Tinuvin 328 and two competitive UV absorbers are shown in Figure 2. These curves indicate how well an ultraviolet absorber screens out UV light. Note the near-zero transmission (high UV absorption) of Tinuvin 328 in the ultraviolet region and the high transmission in the visible region. Tinuvin 328 provides a better combination of UV light absorption and low color in the visible.

Figure 1

UV Absorber Extinction Curves

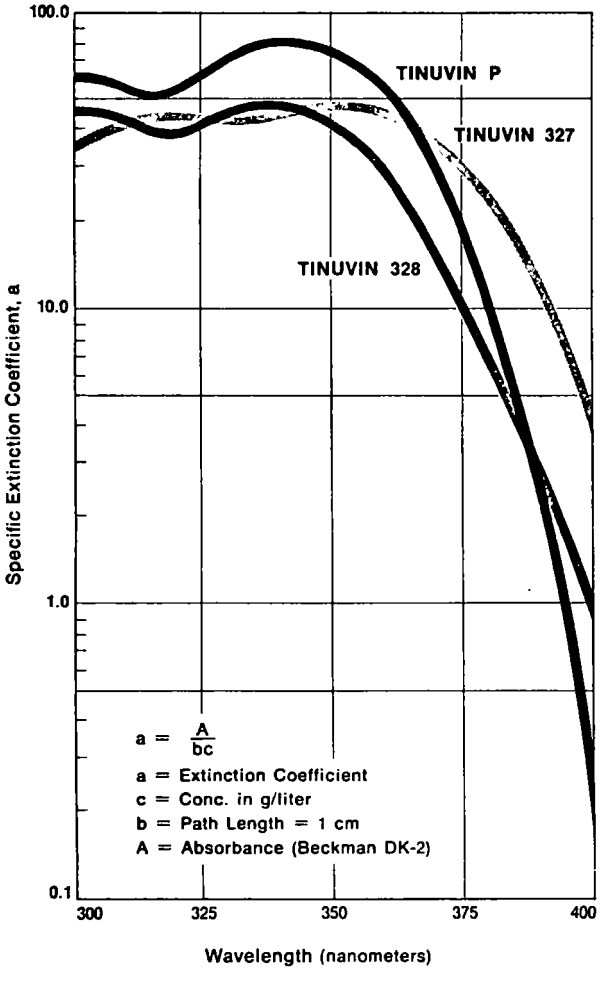
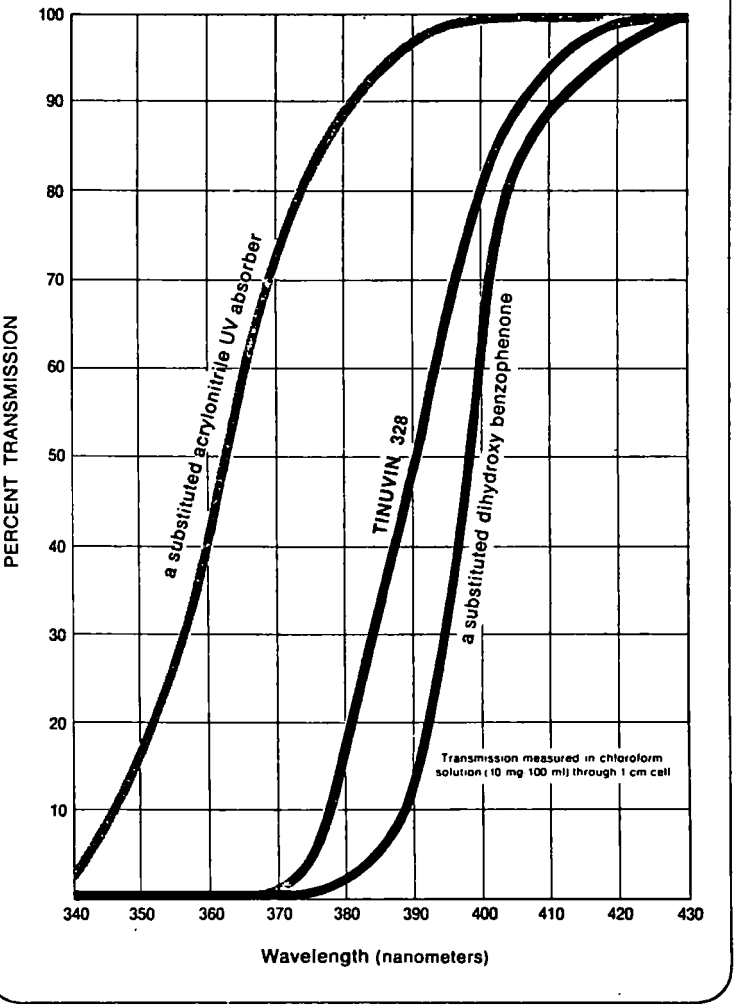


Figure 2

Spectral Transmission Curves



The LD_{50} of Tinuvin 328 on single oral dose in mice and rats is in excess of 5000 mg/kg.

APPLICATIONS

Stable — Tinuvin 328 is highly recommended for protective coatings. It does not cause "yellowing", is unaffected by practical baking requirements and has excellent UV-absorbing characteristics.

Soluble — Tinuvin 328 is highly soluble in common coatings solvents (see page 1). Concentrations of 3% and 5%, based on solids, dissolve readily with stirring at room temperature in the following coating types:

- Moisture-cured polyurethane, 40% solids
- Two-component epoxy, 36% solids
- Long-oil alkyd, 50% solids
- Nitrocellulose, 21% solids

Compatible — Tinuvin 328 does not react with cobalt naphthenate and other metallic driers or promotors, and has excellent compatibility at concentrations up to 5%, based on solids, in a wide range of coating systems.

Coatings containing 3% and 5% of Tinuvin 328 and two competitive UV absorbers were applied to glass slides, air dried for two days at room temperature, then examined by microscope for signs of "blooming" (appearance of UV absorber crystals). Results are shown in Table I.

Table I

Ultraviolet Absorber		Compatibility* in			
		Moisture-cured Polyurethane	Epoxy	Alkyd	Nitro-cellulose
TINUVIN 328	3%	+	+	+	+
	5%	+	+	+	+
UV ABSORBER A	3%	−	+	+	−
	5%	−	−	−	−
UV ABSORBER B	3%	−	+	+	−
	5%	−	+	+	−

* + *denotes compatible*
− *denotes not compatible*

Stabilization — Tinuvin 328 has been found to be at least equivalent to Tinuvin 327 in stabilizing 7 mil monofilament containing 0.5% UV absorber, 0.1% antioxidant (Irganox 1010 or Irganox 1093) and 0.25% DSTDP, as determined by retention of tensile strength after Arizona exposure.

Compatibility — At high concentrations (2%) in 5 mil polypropylene film, Tinuvin 328 is more compatible than Tinuvin 327, as determined by microscopic examination of the film after 6 months' storage at room temperature.

Color — Tinuvin 328 is generally superior to other ultraviolet absorbers in terms of initial color and color after light exposure, when used in combination with Irganox® 1010 (see Figure 3) or Irganox® 1093 (see Figure 4).

Figure 3

(125-mil polypropylene plaque, 0.5% UV Absorber, 0.1% Irganox 1010, 0.25% DSTDP.)

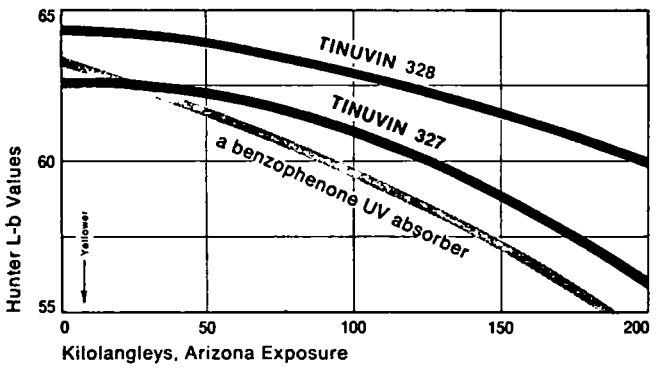
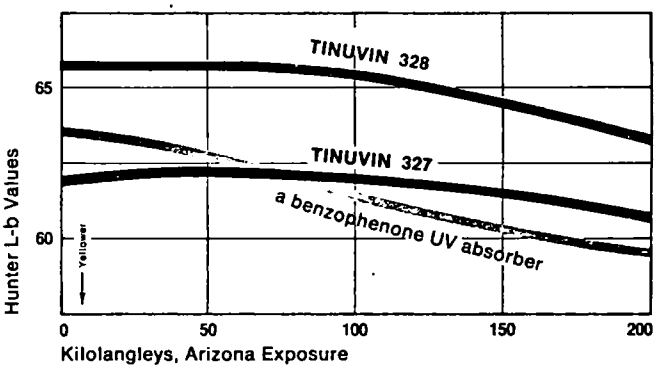


Figure 4

(125-mil polypropylene plaque, 0.5% UV Absorber, 0.1% Irganox 1093, 0.25% DSTDP.)



Aqueous Extraction — Polypropylene 7 mil monofilament containing 0.45% ultraviolet absorber and 0.2% Irganox 858 was washed in 0.24% *Tide* detergent solution at 180°F for 25 cycles of 30 minutes each. The treatment extracted 6% of Tinuvin 328; identical treatment of monofilament containing Tinuvin 327 extracted 11% of the ultraviolet absorber.

Solvent Extraction — When the same monofilament was soaked in perchloroethylene for 24 hours at 25°C without agitation, only 4% of the Tinuvin 328 was extracted.

Volatility — As with all ultraviolet absorbers, some volatilization occurs during fiber extrusion. Tinuvin 328 condenses as an oil whereas Tinuvin 327 condensates are crystalline.

Polyester

Tinuvin 328 dissolves easily in conventional and halogenated polyester resins. Its effectiveness as a light stabilizer in these materials approximates that of Tinuvin P or Tinuvin 327.

In room temperature cured polyester resins, Tinuvin 328 exhibits an initial color superior to that of Tinuvin P or Tinuvin 327. Tinuvin 328 does not react with the cobalt driers normally used in cold cured polyesters.

Other

The excellent compatibility of Tinuvin 328 in a variety of polymers, together with its low volatility and good extraction resistance, suggest its use in rigid and flexible PVC, polyethylene, acrylic polymers, polyurethanes, polyacetals, polycarbonates and polyamides.

Important Note:
The information and recommendations contained in this publication are based upon data collected by Geigy and believed to be correct. However, no guarantee or warranty of any kind, express or implied, is made with respect to the information contained herein, and Geigy assumes no responsibility for the results of the use of products and processes described herein. No statement or recommendations made herein are to be construed as inducements to infringe any relevant patent, now or hereafter in existence.

FMF 000259

CIBA-GEIGY CORP.

2(2'-HYDROXY-5'-METHYLPHENYL)BENZOTRIAZOLE

Tinuvin P

6/88

VOLUME 1 acute Studies

TOXICOLOGICAL INFO

(CIBA-GEIGY)

TINUVIN

Plastics & Additives Division
CIBA-GEIGY Corporation
Three Skyline Drive
Hawthorne, New York 10532
Telephone 914 347 4700

CIBA–GEIGY

April 19, 1982

Petitions Control Branch, HFF-334
Division of Food and Color Additives
Bureau of Foods
Food and Drug Administration
Washington, DC 20204

Re: Master File for 2(2'-Hydroxy-5'-methylphenyl)benzotriazole

Gentlemen:

To facilitate reviews of any future food additive petitions for 2(2'-hydroxy-5'-methylphenyl)benzotriazole, trade name TINUVIN P, CIBA-GEIGY Corporation requests that you establish a Master File for the following toxicological studies. All reports have been submitted in triplicate, as required.

1. "Acute Oral LD_{50} in the Rat of TK 10047," January 23, 1978
2. "Acute Dermal LD_{50} in Rats," February 24, 1972
3. "Safety Evaluation by Acute Inhalation Exposure to Rats," May 27, 1965
4. "RIPT of TINUVIN P in Dimethyl Phthalate Solution," June 6, 1960
5. "Nucleus Anomaly Test in Somatic Interphase Nuclei (with) TK 10047 (in) Chinese Hamster," January 7, 1977
6. "Salmonella/Mammalian-Microsome Mutagenicity Test with TINUVIN P," January 25, 1979
7. "3-Month Toxicity Study on Dogs," November 25, 1981
8. "Long-Term Feeding of TK 10047 to Rats," March 20, 1975
9. "Lifetime Carcinogenicity Study in Mice," August 17, 1981

Your assistance and cooperation is appreciated.

Cordially,

CIBA-GEIGY Corporation

Bruce Schwemmer

Bruce Schwemmer
Director of Product Registrations

BS:PLB:3803h
Enclosures

MASTER FILE

SUMMARY OF TOXICOLOGICAL DATA FOR 2(2'-HYDROXY-5'-METHYLPHENYL) BENZOTRIAZOLE

Acute Studies

1. Acute Oral LD_{50} in Rats - The acute oral LD_{50} was determined to be >10,000 mg/kg, the highest dose tested. (Volume I)

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4. Repeated Insult Patch Test - Patch tests were conducted with 59 human subjects, who received 24-hour patch exposure to the test solution of 0.5% TINUVIN P in dimethyl phthalate 3 days per week for 3 weeks, followed by a similar challenge exposure in the 6th week. The material was neither a primary irritant nor a sensitizer to any of the subjects tested. (Volume I)

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5. Nucleus Anomaly Test in Somatic Interphase Nuclei with the Chinese Hamster - TINUVIN P was administered to Chinese hamsters by gavage; treatment consisted of 1 daily application on 2 consecutive days at levels of 500; 1,000; and 2,000 mg/kg. The animals were sacrificed 24 hours after the second application; bone marrow smears were prepared. The bone marrow smears from treated animals showed no significant difference from the control. The incidence of bone marrow cells with anomalies of nuclei corresponds to the frequency observed in the control group.

   By contrast, a "positive control" experiment with cyclophosphamide (128 mg/kg) yielded 3.05% cells with anomalies of nuclei. This is significantly different from the controls treated with the vehicle (0.5% CMC) alone, which yielded 0.10% anomalies. It was concluded that no evidence of mutagenic effects was observed in Chinese hamsters treated with TINUVIN P under the conditions of the experiment. (Volume I)

6. Salmonella/Mammalian - Microsome Mutagenicity Test - TINUVIN P was tested for mutagenic effects with strains of Salmonella typhimurium (TA 98, TA 100, TA 1535, TA 1537). The test was conducted with the following concentrations of test compound: 10, 30, 90, 270, and 810μg/0.1 ml.

There was no evidence of the induction of point mutations by the test compound or by the metabolites of the compound formed as a result of microsomal activation in the strains used in the experiment. (Volume I)

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9. Lifetime Carcinogenicity Study in Mice - TINUVIN P was administered in the diet to MAGf (SPF) mice for 24 months at levels of 0, 5, 50, and 500 ppm in the feed. Neither gross nor microscopical changes in the organs and tissues related to the treatment with this compound were noted. Numerous benign and malignant tumours were observed in both control and treated mice. Frequency and type of the neoplasms occurring in these animals were not influenced by the treatment.

   Also, other gross and histopathological lesions and changes seen in both control and test animals and described as developmental, degenerative or inflammatory in origin are attributed to the naturally occurring diseases which are common in aged mice of this breeding colony.

   It can be inferred from the observations made during the above study that TINUVIN P when administered to mice daily in the diet over a period of 24 months at dietary levels of 5, 50 and 500 ppm feed, corresponding to a mean daily intake of 0.8, 6.5 and 64 mg/kg bw. in male and 0.8, 6.7 and 62 mg/kg bw. in female animals, respectively, did not produce inflammatory, degenerative, proliferative or neoplastic lesions. (Volume IV)

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CIBA-GEIGY CORP.

2(2'-HYDROXY-5'-METHYLPHENYL)BENZOTRIAZOLE

Tinuvin P

6/88

VOLUME 2 104 weeks rats

DUPLICATE

MASTER FILE

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CIBA-GEIGY CORP.

2(2'HYDROXY-5'-METHYLPHENYL)BENZOTRIAZOLE

Tinuvin P

VOLUME 3

mice.
lifetime Carcinogen

DUPLICATE

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4/19/82

FAP 3B3705

R Harris

EPA FOI Ltr. 3/16/88

6/88

Tinuvin P

- 622

Carcinogenicity memos.

FINDING OF NO SIGNIFICANT IMPACT

FOR

Food Additive Petition 3B 3705, submitted by Ciba-Geigy Corporation, which concerns the use of 2-(2'-hydroxy-5'-methylphenyl) benzotriazole (Tinuvin P) as an ultraviolet light absorber for use in copolymers.

The approval of this petition will not require the preparation of an Environmental Impact Statement.

Prepared by: Katherine M. Hart Date: 10/13/83
Katherine M. Hart, Environmental Scientist
Environmental Impact Section

Approved by: Jerry C. Dubeck Date: Oct. 13, 1983
for Buzz L. Hoffmann, Ph.D., Chief
Environmental Impact Section

FINDING OF NO SIGNIFICANT IMPACT

FOR

Food Additive Petition 3B 3705, submitted by Ciba-Geigy Corporation, which concerns the use of 2-(2'-hydroxy-5'-methylphenyl) benzotriazole (Tinuvin P) as an ultraviolet light absorber for use in copolymers.

The petitioner has submitted an abbreviated Environmental Assessment which is consistent with requirements in the proposed FDA policies and procedures, 44 FR: 71742-71752 (proposed December 11, 1979), Section 25.31(e)(2). Based on the information presented below, it is concluded that approval of the subject additive will not significantly affect the quality of the human environment, and therefore will not require preparation of an Environmental Impact Statement.

1. It is proposed that the additive be permitted as a UV light stabilizer in an amount not exceeding 0.5% by weight of ethylene-1,4-cyclohexylene dimethylene terepthalate copolymers (PETG) complying with 21 CFR 177.1315 and polyethylene phthalate polymers (PET) complying with 21 CFR 177.1630.

Assuming 90% of the maximum amount of additive estimated to be marketed annually is disposed of in land disposal sites, a worst case estimate for concentration of the additive in landfill leachate is 0.24 ppm. Actual concentrations entering the environment would be much less, as indicated by the low values for extraction by water cited in the petition.

2. There are no data available on the toxicity of the subject additive to organisms likely to be exposed in the environment. Data submitted in the petition indicate that the oral LD_{50} for male and female albino rats is greater than 10 g/kg of body weight. There is no way to extrapolate from the toxicity of this chemical in laboratory rats to its toxicity to many organisms in the receiving environment. However, based on the extremely low levels of environmental introduction expected from the proposed use and the indication at least in one species that the subject additive is nontoxic at the expected levels of environmental introduction, the subject additive may reasonably be expected to be nontoxic to organisms in the receiving environment.

3. Although the petitioner is unaware of any additives currently regulated for use in PETG and PET bottles that are UV light absorbers and which the subject additive could replace, approval of this action would result in only a small increase in the market for these copolymers, when compared to the total PET and PETG market volume.

4. The petitioner has documented that there would be no significant environmental impacts at the site of manufacture. All effluents are first processed in the plant biological treatment lagoon prior to discharge to the receiving environment. The petitioner claims that production of the subject additive will be in compliance with all applicable Federal, State, and local emission requirements.

CONTENTS

Section H - Environmental Assessment

Section	Item	Page
H.1	- Environmental Assessment Report	226

0515g/17

TYPE 1/2

Entry 1 CAS RN 95-14-7 NIOSH number DS8580000

MAT: 1H-BENZOTRIAZOLE
SYN: 1,2,-AMINOZOPHENYLENE; AZIMIDOBENZENE; AZIMINOBENZENE; BENZENE

AZIMIDE; BENZISOTRIAZOLE; 1,2,3-BENZOTRIAZOLE; BENZTRIAZOLE; COBRATEC #99; 2,3-DIAZAINDOLE; NCI-C03521; NSC-3058; 1,2,3-TRIAZAINDENE; U-6233
FML: C6H5N3
MW: 119.14
WLN: T56 BMNNJ
UPD: 04-87

MUTAGEN DATA:
mma-sat 100 ug/plate — IAPUDO 27,283,80
mmo-esc 333 ug/plate — ENMUDM 7(Suppl 5),1,85
mma-esc 33300 ng/plate — ENMUDM 7(Suppl 5),1,85
otr-rat:emb 94 ug/plate — JJATDK 1,190,81

TUMORIGENIC DATA:
VO3A60 orl-rat TDLo:220 gm/kg/78W-I — NCITR* NCI-CG-TR-88,78
VO3J60J61 orl-mus TDLo:770 gm/kg/78W-I — NCITR* NCI-CG-TR-88,78

TOXICITY DATA:
orl-rat LDLo:500 mg/kg — NCNSA6 5,22,53
ipr-mus LD50:1000 mg/kg — CNCRA6 30,9,63
ivn-mus LD50:238 mg/kg — JPETAB 105,486,52

DATA REFERENCES:
CLASS: AGRICULTURAL CHEMICAL
CLASS: TUMORIGEN
CLASS: MUTAGEN
EPAINF: EPA TSCA CHEMICAL INVENTORY, 1986
NCIN: NCI CARCINOGENESIS BIOASSAY (FEED);INADEQUATE STUDIES:MOUSE,RAT

NCITR* NCI-CG-TR-88,78
OSHMED: MEETS CRITERIA FOR PROPOSED OSHA MEDICAL RECORDS RULE
FEREAC 47,30420,82

Option? TYPE 2/2

```
                    imported
          manufactured. : .site limited
                volume. : : : .size of plant
ENTRY+--CAS RN----+ : : : : : +-SUBSTANCE NAME/PLANT DATA ----------
    1 95-14-7       O M U N N    1H-Benzotriazole (VAN8CI9CI)
                                MID:   1207
                                  PRD   - FAIRMOUNT CHEMICAL CO., INC.
                                        - ATTN: R. W. THEOBALD
                                        - 117 BLANCHARD STREET
                                  CITY  - NEWARK
                                  CNTY  - ESSEX
                                  STATE - NJ
                                  ZIP   - 07105
                                  EPAREG- O2

    2 95-14-7       O M U N N    1H-Benzotriazole (VAN8CI9CI)
                                MID:   2596
                                  PRD   - COLUMBIA ORGANIC CHEMICALS CO.
                                        - P.O. BOX 9096
                                        - 912 DRAKE ST.
                                  CITY  - COLUMBIA
                                  CNTY  - RICHLAND
                                  STATE - SC
                                  ZIP   - 29290
                                  EPAREG- O4

    3 95-14-7       N U Y N N    1H-Benzotriazole (VAN8CI9CI)
                                MID:   3699
                                  PRD   - AGFA-GEVAETT, INC.
                                        - ATTN: DR. D. SCHULTZE
                                        - 275 NORTH ST.
                                  CITY  - TETERBORO
                                  CNTY  - BERGEN
                                  STATE - NJ
                                  ZIP   - 07608
                                  EPAREG- O2

    4 95-14-7         U Y N Y    1H-Benzotriazole (VAN8CI9CI)
                                MID:   4140
                                  PRD   - THE SIEFLOR CORPORATION
                                        - CENTRAL PLAZA, SUITE 406
                                        - 3440 WILSHIRE BLVD.
                                  CITY  - LOS ANGELES
                                  CNTY  - LOS ANGELES
                                  STATE - CA
                                  ZIP   - 90010
                                  EPAREG- O9

    5 95-14-7         M U N N    1H-Benzotriazole (VAN8CI9CI)
                                MID:   4143
                                  PRD   - SHERWIN WILLIAMS CHEMICALS
                                        - ATTN: K.H. WILKINSON, PLANT MG
                                        - 501 MURRAY ROAD
                                  CITY  - CINCINNATI
                                  CNTY  - HAMILTON
                                  STATE - OH
                                  ZIP   - 45217
                                  EPAREG- O5

    6 95-14-7       O U Y N N    1H-Benzotriazole (VAN8CI9CI)
                                MID:   5608
                                  PRD   - MOBIL OIL CORPORATION
                                        - 150 EAST 42ND STREET
                                  CITY  - NEW YORK
                                  CNTY  - NEW YORK
                                  STATE - NY
                                  ZIP   - 10017
                                  EPAREG- O2

    7 95-14-7       N U U N N    1H-Benzotriazole (VAN8CI9CI)
                                MID:   5608
                                  PRD   - MOBIL OIL CORPORATION
                                        - 150 EAST 42ND STREET
                                  CITY  - NEW YORK
                                  CNTY  - NEW YORK
                                  STATE - NY
                                  ZIP   - 10017
                                  EPAREG- O2

    8 95-14-7       N U U N N    1H-Benzotriazole (VAN8CI9CI)
                                Plant information is confidential
```

Option? TYPE 3/1 XXX
TYPE 3/2

File 3; Entry 1; Accession No. 1112

1112. 1H-Benzotriazole. [95-14-7] 1,2,3-Benzotriazole; benztriazole; azimidobenzene; benzisotriazole. C6H5N3; mol wt 119.12. C 60.49%, H 4.23%, N 35.28%. Prepd by the action of nitrous acid on o-phenylenediamine: Ladenburg, Ber. 9, 219 (1876); Damschroder, Peterson, Org. Syn. coll. vol. III, 106 (1955).

```
      C..C
     .    .
    .      .
N**C        C
%   .      .
%    .    .
%     C..C
%    *
%   *
N%%N
```

Needles from benzene, mp 98.5 deg. bp[15] 204 deg.; bp[2.0] 159 deg. Caution: May explode during vacuum distillation, see Chem. & Eng. News 34, 2450 (1956). Sparingly sol in water. Sol in alc, benzene, toluene, chloroform, DMF.

Revision status: 10th Ed.

Option? TYPE 4/2

File 4: Entry 1
CITATION NUMBER: 43.175.13 (43FR40061, 9-8-78)
1H-Benzotriazole (95-14-7)
Notice; Nat'l Cancer Institute; Bioassay report, suspected carcinogen(icity), no evidence;

File 4: Entry 2
CITATION NUMBER: 44.143.79 (44FR43431, 7-24-79)
1,2,3-Benzotriazole (95-14-7)
Notice; Public Health Service, Nat'l Toxicology Program; 1979 Annual Plan, 8-10-79; Comments solicited by 8-17-79; Salmonella/microsome plate assays; (43FR53060)

File 4: Entry 3
CITATION NUMBER: 45.28.257 (45FR8900, 2-8-80)
1,2,3-Benzotriazole (95-14-7)
Notice; Public Health Service, Nat'l Toxicology Program; 1980 plan; Test chemical;

File 4: Entry 4
CITATION NUMBER: 45.42.309 (45FR13657ff, 2-29-80)
1H-Benzotriazole (95-14-7)
Proposed rule; Revision of 40CFR712, Environmental Protection Agency, Office of Pesticides and Toxic Substances, Toxic Substances Control Act; Recordkeeping, reporting regulation; Comments solicited by 5-6-80; (44FR37517, 42FR55026ff, 44FR28558, 42FR39185, 42FR53805)

File 4: Entry 5
CITATION NUMBER: 45.251.365 (45FR85916ff, 12-30-80)
Benzotriazole (95-14-7)
Final rule; Revision of 15CFR399.2Supplement No. 1, Department of Commerce, International Trade Administration; Effective date 12-30-80; Interpretations. (45FR43012ff, 44FR2093, 43FR12661, 45FR6141, 45FR29783, 45FR11862)
Option?

MEMORANDUM OF CALL

Previous editions usable

TO: Frank

☐ YOU WERE CALLED BY— ☐ YOU WERE VISITED BY—

Rudolph Harris

OF (Organization) FDA

☐ PLEASE PHONE ▶ ☐ FTS ☐ AUTOVON

☐ WILL CALL AGAIN ☐ IS WAITING TO SEE YOU

☐ RETURNED YOUR CALL ☐ WISHES AN APPOINTMENT

MESSAGE

472-5690

FOI PERSON

RECEIVED BY	DATE	TIME
gmc	4/12	2:13

63-110 NSN 7540-00-634-4018

☆U.S. GPO: 1986—491-247/40000

STANDARD FORM 63 (Rev. 8-81)
Prescribed by GSA
FPMR (41 CFR) 101—11.6

Date

ROUTING AND TRANSMITTAL SLIP

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. 5 PCB SOIL SAMPLES FOR COUENTRY		
2. SAND & GRAVEL - WHAT METHOD		
3. OF ANALYSIS & SAMPLE (DUPLICATE SPLIT)?		
4. - SEE TOM EPSTEIN		
5. DM PORTEOUS		

	Action		File		Note and Return
	Approval		For Clearance		Per Conversation
	As Requested		For Correction		Prepare Reply
	Circulate		For Your Information		See Me
	Comment		Investigate		Signature
	Coordination		Justify		

REMARKS

FDA → RI 838-5280 FTS

BOB WETHEREL

TINUVIN STUDY

- DC - HQ 485-0276 BUZZ HOFFMANN

ENV. IMPACT DOCUMENT

BOB WETHEREL

NORTH EAST TECHNICAL SERVICES UNIT

FDA - BLDG 5-26

CBC - DAVISVILLE

N. KINGSTOWN, RI 02852

DC - MIKE HARRIS 485-0278

SEND LIST OF HSL CHEMICALS TO ANALYZE FOR

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)	Room No.—Bldg.
	Phone No.

3-15-88 ASK HOW DID ESTABLISH LEACHING CONC. ?

FDA FOOD ADDITIVE PETITION #s

901, 1220, 1557, 2272, 2459, 2542, 2585, 2830
3323, 3507, 3705, 3791, 3991 AND ACCOMPANYING
MASTER FILES,

TOXICITY DATA CONTAINED IN THESE
PETITION

LTR DATED 11-20-87 TO MR MORRISSEY
FDA
— INDIRECT ADDITIVE BRANCH —
HFF-335
200 C ST S.W.
WASH 20204

FOI

ATT: MR. THOMAS C. BROWN
472-5690

— DR. CHRIS MISRA — TOXICOLOGIST
472-5701
CONTACT PERSON FOR TINUVIN STUDY
APPROVING OFFICER FOR TINUVINS
* EXPERT ON INDIRECT FOOD ADDITIVE

ADDRESS TO,
FREEDOM INFO OFFICER
PATRICIA GEE
200 C ST S.W
FDA 485 0296
5TH FLOOR MIDDLE
URGENT REQUEST
PLEASE EXPEDITE
NEEDED FOR PUBLIC MEETING
DIV. OF REGULATORY GUIDANCE HFF-314 WASH 20204

(4) 3-9-88

INDIRECT

FDA REGULATED AS FOOD ADDITIVE AS FOOD PACKAGING + PROCESSING EQUIP WHICH MEANS MAY MIGRATE TO FOOD

* UNDER SPECIFIC CONDITIONS OF USE

• CHEMIST ANALYZE HOW MUCH GET INTO FOOD (PROTECTED BUCKS OF DIETARY EXPOSURE

• TOXICOLOGIST DECIDE IF GOOD OR BAD

TINUVIN P → 2[2'-HYDROXY-5'-METHYLPHENYL] BENZOTRIAZOLE

- ORAL TOX DATA IN RATS
- MUTAGENISITY IN BONE MARROW CHINESE HAMSTER
- AMES MUTAGENISITY TEST - BACT TEST
- 3 MONTH TOXICITY STUDY IN DOG
- 2 YR FEEDING STUDY IN RATS
- " " " " " MICE

- 328 -

- ORAL ACUTE TOXICITY STUDY IN RATS
- " " " " IN MICE

- 622 LD → DIMETHYLSUCCINATE POLYMER W/4-HYDROX-2,2,6,6-TETRA METHYL-1-PIPERIDINE ETHANOL

- ORAL ACUTE IN RATS
- 3 MO FEEDING STUDY IN DOGS
- CHINESE BONE MARROW IN HAMSTERS

(2)

IRGANOX → METHYLENE OCTADECAL

DI TERT BUTYL HYDROXO HYDRO CYNAMATE

DO NOT MIGRATE TO FOODS

+ REPRODUCTION STUDY IN RATS

+ METABOLIC STUDY IN RATS

+ 3 MO. FEEDING " " "

— 2 YR " " " "

2-[2H-BENZOTRIAZOLE-2-YL]-4,6-BIS[1-METHYL-1-PHENYLETHYL]PHENOL

NAT. ENV. POLICY ACT

— 234/900 UNDER NEPA FINDING OF NO SIGNIFICANT IMPACT

LC50 262 PPM

— AQUATIC ACUTE TOXICITY LEVEL FOR ZEBRA FISH

— LC50 >91 PPM FOR DAPHNIA MAGNA

COMPANY HIRES CONTRACT LAB AND LAB CERTIFIES — [redacted]

GOOD LAB PRACTICE (GLP REGULATIONS)

USED CORRECT STANDARD PROTOCOL & ACCURACY

— EST. ENV. INTRODUCTION LEVEL OF THIS SUBSTANCE < 10 PPB → COULD BE FROM NOT MUCH LEACHATE FROM LANDFILL OR NOT MUCH USE IN USA

PAPER EXERCISE ASSUMING WORST CASE ∴ STABLE COMPOUND

DR FRANCIS LIN
FDA
DIV. OF TOXICOLOGY
HFF 158
200 C ST S.W.
WASH, D.C. 20204

— 472-4690 —

RELAYING INFO FROM LETTER LIN WROTE TO MR MORRISSEY IN LEGAL COUNCIL (RI)

DATED 11-20-1987

- MATERIAL SAFETY DATA SHEETS - MSDS SHEETS

- TOSCA REGISTRATION STUDIES - CIBA HAS 143 COMPOUNDS REGISTERED

2-26-88 MEETING W/ CIBA

- DISCUSS CIBA ANALYZING FOR CIBA CHEMICALS / WHAT ARE CIBA CHEMICALS

- DISCUSS TINUVINS

- DISCUSS EPA OVERSITE OF ACTUAL STUDY

- AIR EMISSIONS FROM WELLS

REG BY FDA

TINUVIN -P, 328, + 900, + 327, NOV 1985 MSDS WAS DONE

— CIBA WILL GET —

REG. BY FDA

234

622

PRESENTATION OF DATA BY CIBA

MARTHA
513 922-6024
VOL CH 2 SEC 1.5.5.1-9
TOFFENIL
PHENYLBUTAZONE
PROPAZINE

U.S./Canada Agreement

(from page 1)

the United States by approximately 2 million tons from 1980 levels by 2000, and to achieve a comparable percentage of emission reductions in Canada;

—reduce in each country vehicle emissions of nitrogen oxides;

—implement measures in each country to protect visibility and prevent significant air quality deterioration; and

—accurately monitor these emissions in each country.

Under this agreement, the two countries will no longer view their mutual air sheds as divisible. We look to mutual development of technologies and regulatory principles to benefit both countries, including market-based approaches to regulation pioneered in the Clean Air Act of 1990 that get the greatest environmental pretection at the lowest total cost to each of us.

In addition, this agreement will establish a bilateral Air Quality Committee to assist in the agreement's implementation and will impose several general obligations on the United States and Canada in addressing transboundary air pollution. As a result of this agreement, the United States and Canada are committed to:

—monitor emmissions and exchange information on economic research, atmospheric modeling, and human health and ecological effects;

—assess actions that may cause significant transboundary air pollution; and

—take meaasures, as appropriate, to avoid or mitigate the potential risk posed by actions that are likely to cause significant transboundary air pollution. ❑

5H-DIBENZO(B,F)AZEPINE, 5-(3-(DIMETHYLAMINO)PROPYL)-10,11-DIHYDRO- → MIPRAMINE (TOFRANIL)

4-N-BUTYL-1,2-DIPHENYL PYRAZOLIDINE-3,5-DIONE → PHENYLBUTAZONE (BUTAZOLIDIN)

? PROPAZINE

5-CHLORO-2-(2,4-DICHLOROPHENOXY)-PHENOL → IRGASAN DP300

April 15 is coming. Don't forge to file your taxes.

PERSISTENCE – TINUVIN

BH. 4,56, APP C,D,E – 80 HRS

RIVER STUDY

QA/PLAN

JOANNA HALL

327 BEFORE RECOVERY

MARA GENERATE LIST

TCH EST

2-27 TINUVIN (P) OR (328) WILL BE USED IN PH II

DISCHARGE 9.60-84 → 7-84

DIANE LEEGER

STAFFS ACTIVITIES MET

INSP-MENT POINTS – N/A

STAFF ACTIVITIES MET

INSP-MENTS –

DIANE LEEGER 914 478-2359

KEITA 78-4984

200 AMPHEC

Test your pollution prevention IQ

Here are some questions to test your knowledge about some little known facts...or maybe you know them all. Test yourself and see how much you know. Try these questions on your friends, too, and see how much they know about living in today's environment. More questions in the next issue.

1. The furnace/air conditioner uses more energy than anything else in the home. What is the second greatest source of home energy use? a) home appliances
   b) indoor and outdoor lighting
   c) hot water heater

2. What accounts for more than half of the hazardous waste displosed of by individuals?
   a) paint products
   b) cosmetic products
   c) household cleaners

3. The proportion of Americans who get to work using public transportation has changed how much since 1960?
   a) increased more than 50%
   b) increased, but less than 50%
   c) dropped more than 50%
   d) dropped, but lesss than 50%

4. Some 220 million acres of land in the U.S. have been deforested for livestock production. What proportion of U.S. croplands are used just to grow feed for livestock?
   a) 15%
   b) 25%
   c) 50%
   d) 75%

5. In the average U.S. household, what proportion of the water is used in the bathroom?
   a) 20%
   b) 35%
   c) 50%
   d) 75%

6. Aerosol cans that say "No CFCs" are environmentally safe. True or false?

7. The best time to water your lawn is
   a) morning
   b) afternoon
   c) early evening
   d) night

8. The bleaching of paper for paper towels, coffee filters, etc. has been linked with what toxic substance?
   a) dioxin
   b) cholorofluorocarbons
   c) lead
   d) sulfuric acid

9. How many trees are used in making disposble diapers every year?
   a) 10 million
   b) 100 million
   c) 1 billion
   d) 3 billion

10. What is the primary source of significant exposure to lead in the environment?
   a) deteriorating lead-based point in housing
   b) urban soil and dust contaminated by lead from paint and gasoline
   c) drinking waster contaminated by lead solder joining water pipes, past use of lead service lines, and continued use of lead in brass plumbing fixtures
   d) emissions from lead smelters and municipal waste combustors

1.a. 2.c. 3.c. 4.c. 5.d. 6. false. Most such aerosols use propane or butane which contribute to smog. Use products with non-aerosol vacuum pumps instead. 7.a. in the heat of the day, water evaporates 4 to 8 times more quickly than early morning; watering at night can cause fungus. 8.a. 9.c. 10.a. The next largest sources are b and c.

Allen Oi of the Ambient Air and Emissions Monitorin g Section at ESD received the January Employee of the Month Award. Allen led a six-person team to conduct a carbon dioxide study in Worcester, MA His responsibilities included training the team to operate equipment, conduct sampling, filtering and weighing.
He is commended for his dedication and professionalism.
(His photo was npot available at the time.)