ORIGINAL

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DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-06-16478	89100000282	7/21/10

COMMENTS:

DOES NOT CONTAIN CBI

328574

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10 JUL 21 AM 11:44

DuPont Haskell Global Centers
for Health and Environmental Sciences
1090 Elkton Road, P.O. Box 50
Newark, DE 19714-0050

July 20, 2010

Via Federal Express

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, DC 20004

8EHQ 06-16478

8EHQ-0710-16478O
DCN: 89100000282

8 9 1 0 0 0 0 0 2 8 2

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478

This letter is a supplement to our letter of February 5, 2010 and summarizes the final results of a developmental toxicity study in rats with the above referenced test substance. This test substance is subject to a Consent Order, PMN P-08-509.

Groups of 22 time-mated Crl:CD(SD) rats were administered solutions of the test substance in deionized water at dose levels of 0, 10, 100, or 1000 mg/kg/day. Dosing was initiated on gestation day (GD) 6 and continued through GD 20. During the in-life portion of the study, maternal body weights and food consumption as well as clinical observations data were collected. On GD 21, dams were euthanized and underwent a gross external and internal examination. Weights for maternal livers and kidneys were recorded and these tissues were examined microscopically. The gravid uteri were removed, weighed, and dissected. Uterine contents were described and fetuses were counted, weighed, sexed, and examined for external, visceral, head, and skeletal alterations.

There was a dose-related increase in the number of dams found with early deliveries on GD 21. There were 0, 0, 4, and 9 dams found delivered at 0, 10, 100, and 1000 mg/kg/day, respectively. In addition, mean fetal weight was 8 and 28% lower (statistically significant) than controls at 100 and 1000 mg/kg/day, respectively. Maternal kidney weights were significantly higher at 1000 mg/kg/day and maternal liver weights were significantly higher at 100 and 1000 mg/kg/day. These changes were reported in the previous letter. The following is a complete summary of the study.

One female in the 1000 mg/kg/day was found dead on gestation day 20. This female had lower mean body weight gains and/or food consumption compared to the control group during gestation days 12-18. The test substance-related liver and kidney changes (moderate coagulative necrosis in the liver and fibrin thrombi in the glomerular capillaries) noted microscopically were considered the cause of death in this animal. Four and 9 females in the 100 and 1000 mg/kg/day groups, respectively, delivered early on gestation day 21. The mortality in the 1000 mg/kg/day group and early deliveries in the 100 and 1000 mg/kg/day groups were considered test substance-related. All other females survived to the scheduled necropsy.

Test substance-related clinical findings were noted in the 1000 mg/kg/day group and consisted of yellow material on various body surfaces and salivation or evidence thereof (clear material around the mouth). Mean body weight, mean body weight gain, mean food consumption, and mean gravid uterine weight in the 1000 mg/kg/day group were lower than control. At 100 mg/kg/day, mean gravid uterine weight was lower compared to control. An edematous pancreas was noted in 2 females that delivered early in the 1000 mg/kg/day group at necropsy; the relationship of this finding to the test substance is uncertain. Other macroscopic findings occurred in single females and/or are not uncommon in females that deliver. Higher mean liver weights were noted in the 100 and 1000 mg/kg/day group females, and higher mean kidney weight was observed in the 1000 mg/kg/day group. There were no microscopic correlates to the higher mean kidney weight. Focal necrosis of the liver was noted in some females in the 100 and

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1000 mg/kg/day groups in a dose-related manner. In addition, test substance-related hepatocellular hypertrophy was noted at 1000 mg/kg/day; hypertrophy was morphologically consistent with a PPARα agonist.

Mean fetal weights were 8.8% and 28.1% lower in the 100 and 1000 mg/kg/day groups, respectively. Intrauterine survival was not affected by test substance administration at any dosage level. There were no test substance-related fetal malformations. A higher mean litter proportion of 14th rudimentary ribs was observed in the 1000 mg/kg/day group, resulting in a higher mean litter proportion of total skeletal variations and total developmental variations. Although considered test substance-related, the increase in the number of fetuses with this finding was not considered adverse because it has been suggested that 14th rudimentary ribs are resorbed during postnatal development.

The no-observed-adverse-effect level (NOAEL) for maternal and developmental toxicity was considered to be 10 mg/kg/day based on mortality and lower mean body weight gains and food consumption at 1000 mg/kg/day and early deliveries, microscopic findings in the liver (focal necrosis), and lower mean fetal weights at 100 and 1000 mg/kg/day. At 1000 mg/kg/day, there were additional test substance-related effects that were not considered adverse and consisted of higher kidney and liver weights and hepatocellular hypertrophy.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A. Michael Kaplan

A. Michael Kaplan, Ph.D.
Director - Regulatory Affairs

AMK/SMM: clp
(302) 366-5260

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DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-06-16478	89100000119	2/12/10

COMMENTS:

DOES NOT CONTAIN CBI

8EHQ-0210-16478K
89100000119

DuPont-Haskell Global Centers
for Health and Environmental Sciences
1090 Elkton Road, P.O. Box 50
Newark, DE 19714-0050

10 FEB 12 AM 11:03

February 5, 2010

Via Federal Express

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, DC 20004

8EHQ-06-16478

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478

This letter is to inform you of the preliminary results of a developmental toxicity study in rats with the above referenced test substance. This test substance is subject to a Consent Order, PMN P-08-509.

Groups of 22 time-mated Crl:CD(SD) rats were administered solutions of the test substance in deionized water at dose levels of 0, 10, 100, or 1000 mg/kg/day. Dosing was initiated on gestation day (GD) 6 and continued through GD 20. During the in-life portion of the study, maternal body weights and food consumption as well as clinical observations data were collected. On GD 21, dams were euthanized and underwent a gross external and internal examination. Weights for maternal livers and kidneys were recorded and these tissues were preserved for future histopathologic examination. The gravid uteri were removed, weighed, and dissected. Uterine contents were described and fetuses were counted, weighed, sexed, and examined for external, visceral, head, and skeletal alterations.

There was a dose-related increase in the number of dams found with early deliveries in their cages on the morning of GD 21. There were 0, 0, 4, and 9 dams found delivered at 0, 10, 100, and 1000 mg/kg/day, respectively. In addition, mean fetal weight was 8 and 28% lower than controls at 100 and 1000 mg/kg/day, respectively; these reductions were statistically significant. Slight reductions in maternal body weight and food consumption occurred at 1000 mg/kg/day. Maternal kidney weights were significantly higher at 1000 mg/kg/day and maternal liver weights were significantly higher at 100 and 1000 mg/kg/day. The remaining data collected to date were generally comparable to control group data across all groups tested. There were no test substance-related increased in fetal resorptions, malformations, or variations at any dose level tested. Maternal histopathology examinations are currently in progress.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A. Michael Kaplan/cp

89100000119

A. Michael Kaplan, Ph.D.
Director - Regulatory Affairs

AMK/SMM: clp
(302) 366-5260

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MR#324639

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DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-06-16478	89100000149	3/16/10

COMMENTS: 8EFU.

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MR# 325456

8EHQ-0310-16478L
89100000149

DuPont Haskell Global Centers
for Health and Environmental Sciences
1090 Elkton Road, P.O. Box 50
Newark, DE 19714-0050

March 15, 2010

Via Federal Express

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, DC 20004

RECEIVED
OPPT CBIC
10 MAR 16 AM 10:49

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478

This letter is to inform you of the results of an inherent biodegradation test with the above referenced test substance. This test substance is subject to a Consent Order, PMN P-08-509.

The purpose of this test was to evaluate the inherent biodegradability of the test substance via a 28-day test. The test was designed to meet the requirements of SEPA HJ/T 153-2004, "the guidelines for the testing of chemicals", OECD Procedure 302C, "Inherent Biodegradability: Modified MITI Test (II), adopted May 1981. In the test, the test substance and micro-organisms not adapted to the test substance were added into the aerobic, aqueous medium in BOD bottles. Test solutions were prepared in an inorganic salts medium, inoculated with a number of micro-organisms collected from 10 places in Nanjing, China, and kept in BOD bottles in the dark at 25°C ± 1°C. Then the Biochemical Oxygen Demand (BOD) and residual chemicals in BOD bottles were measured during the 28-day period.

Based on the residue analysis, the biodegradation of the test substance was 0% and there was hardly any change for the test substance in the "abiotic" vessel during the testing period. The BOD results showed that biodegradation of the test substance was both <1% after 14 and 28 days. The test was valid because the level of biodegradation of the reference substance aniline exceeded 40% after 7 days, and 65% after 14 days. Therefore, the test substance was not inherently biodegradable under this test condition.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A. Michael Kaplan

A. Michael Kaplan, Ph.D.
Director - Regulatory Affairs

8EHQ-06-16478

AMK/WRB: clp
(302) 366-5260

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8EHQ-1209-16478J
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December 29, 2009

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Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, DC 20004

8 9 1 0 0 0 0 0 0 9 1

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478

This letter is to inform you of the results of a 90-day oral toxicity study in mice with the above referenced test substance. This test substance is subject to a Consent Order, PMN P-08-509.

Four groups of young adult male and female Crl:CD1 mice (10/sex/group) were dosed by oral gavage for at least 90 days. Mice were dosed with the test substance in deionized water at doses of 0 (control), 0.1, 0.5, or 5 mg/kg/day of the test substance. The control mice were dosed with deionized water at the same dose volume as the high dose group. In the animals designated for subchronic toxicity evaluation, body weights, food consumption, and detailed clinical observations were evaluated weekly and acute clinical observations were evaluated daily. All mice received ophthalmology examinations prior to study start and all subchronic toxicity mice were examined near the end of the dosing period. Neurobehavioral evaluations (abbreviated functional observational battery [FOB] and motor activity) were evaluated in all subchronic toxicity mice prior to study start (including spares) and near the end of dosing. Clinical pathology endpoints (hematology, clinical chemistry, coagulation parameters) were evaluated at the end of the exposure period. After 96 (males) or 97 (females) days of dosing, the surviving mice were sacrificed and given a gross and microscopic pathological examination.

No test substance-related deaths occurred. No neurobehavioral, clinical or ophthalmological observations were attributed to exposure to the test substance. No deaths, clinical or ophthalmological observations, or neurobehavioral effects were attributed to test substance exposure. Body weight and nutritional parameters in the 5 mg/kg/day male group were higher than in controls during the exposure period; the body weight increases were attributed mainly to increased liver weight. No test substance-related effects on body weight, body weight gain, food consumption, or food efficiency were observed in males in lower dose groups or in females in any dose group.

Preliminary clinical and anatomic pathology data are available. These data indicate there were no adverse, treatment-related changes in hematology, coagulation, or urinalysis parameters attributed to exposure to the test substance. Total bile acids and liver enzymes (alanine aminotransferase, alkaline phosphatase, sorbitol dehydrogenase, and aspartate aminotransferase (males only) were increased in both sexes at 5 mg/kg/day and were associated with increased liver weights and liver microscopic pathology: hypertrophy, focal necrosis, and increased binucleate hepatocytes (males and females), and increased mitoses, apoptosis, and Kupffer cell pigment (males only). Liver hypertrophy was also observed in males at 0.5 mg/kg/day. Increased albumin (both sexes) and total protein (males only) were observed at 5 mg/kg/day. Effects were generally more severe in males than in females.

Other statistically significant clinical pathology differences included increased platelets in 0.5 and 5 mg/kg/day males, increased monocytes in 0.1 mg/kg/day females, reduced cholesterol in 5 mg/kg/day males, increased albumin and total protein (males only) in 5 mg/kg/day males and females, reduced bilirubin in 5 mg/kg/day females, increased chloride in 5 mg/kg/day males, reduced potassium in 5 mg/kg/day males and females. Other statistically

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significant anatomic pathology differences of uncertain relationship to treatment included slightly increased adrenal weights with adrenal cortical hypertrophy, increased kidney weight with minimal tubular epithelial hypertrophy in 5 mg/kg/day males, and reduced spleen weight with no corroborative pathological changes.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A. Michael Kaplan

A. Michael Kaplan, Ph.D.
Director - Regulatory Affairs

AMK/SAM: clp
(302) 366-5260

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Date 12-29-09 FedEx Tracking Number 870972584476

Sender's Name A. Michael Kaplan Phone 302 366-5260

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4b Express Freight Service ** To most locations. *Packages over 150 lbs.*

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Does this shipment contain dangerous goods?

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☐ No ☐ Yes As per attached Shipper's Declaration ☐ Yes Shipper's Declaration not required ☐ Dry Ice Dry ice, 9, UN 1845 ____ x ____ kg

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TSCA NON-CONFIDENTIAL BUSINESS INFORMATION

DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-06-16478	89100000164	3/19/10

COMMENTS: 8EFU.

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8EHQ-0310-16478M
89100000164

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DuPont Haskell Global Centers
for Health and Environmental Sciences
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Newark, DE 19714-0050

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March 18, 2010

Via Federal Express

8EHQ-06-16478

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, DC 20004

89100000164

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478

This letter is to inform you of the results of a pilot reproduction study in northern bobwhite quail with the above referenced test substance. This test substance is subject to a Consent Order, PMN P-08-509.

The pilot study evaluated the effects upon adult northern bobwhite quail (*Colinus virginianus*) of dietary exposure to the test substance over a six-week period. Effects on health, weight gain and feed consumption were examined along with the effects of adult exposure to the test substance on the number of eggs laid, normal development of eggs, viability of the embryos, percent hatchability, offspring survival and egg shell thickness.

Three treatment groups, each containing five pairs of northern bobwhite quail, were fed diets containing the test substance at nominal dietary concentrations of 10, 100 or 1000 ppm. A fourth control group, fed non-treated diet, was maintained concurrently with the treatment groups. Results of the analysis of the diet samples verified that the test substance was present at the appropriate concentrations, that the diet mixes were homogeneous, and that the test substance was stable for the length of exposure. The test birds were acclimated to the facilities and study pens prior to initiation of the test. During the study, all adult birds were observed daily for signs of toxicity or abnormal behavior. Adult body weights were measured at test initiation, on Weeks 2, 4, and at adult termination. Feed consumption for each pen was measured weekly throughout the test. At the conclusion of the exposure period, all adult birds were euthanized and necropsied.

Eggs were collected daily from all pens, when available. During Weeks 1 and 2 eggs were counted, then disposed. Eggs produced during Weeks 3 through 6 were counted and those selected for egg shell thickness measurement were removed. The remaining eggs were identified by an alphabetic lot code (Lots A, B, C & D). All eggs laid in a weekly interval were considered as one lot. Cracked or abnormal eggs were recorded and discarded. All eggs not discarded were placed in an incubator. Eggs were candled on Day 12 of incubation to determine embryo viability and on Day 21 to determine embryo survival. On Day 21 of incubation, the eggs were placed in a hatcher and allowed to hatch. All hatchlings, unhatched eggs and egg shells were removed from the hatcher on Day 25 or 26 of incubation. The individual body weight of the surviving hatchlings was determined. Hatchlings were leg banded for identification by pen of origin and then routinely housed according to the appropriate parental concentration grouping in brooding pens until 14 days of age. Offspring were observed daily from hatching until 14 days of age. At 14 days of age, the average body weight by parental pen of all surviving offspring was determined. All eggs laid during the six-week test were used in evaluation of egg production among the test groups. The evaluations of the other reproductive parameters were based on the eggs produced during Weeks 3 through 6 of the test (Lots A – D).

No mortalities occurred during the course of the study. Incidental clinical observations normally associated with penwear were observed during the test. Such observations included foot and head lesions and an ocular injury. Except for the incidental clinical findings, all birds in the 0, 10, 100, or 1000 ppm treatment groups were normal in

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appearance and behavior for the duration of the test. When compared to the control group, there were no apparent treatment-related effects upon body weight or feed consumption at the 10, 100 or 1000 ppm test concentrations.

Due to the small sample size and short length of range-finding tests, it is not atypical for variation in egg production to be observed. While reproductive parameters were variable among individuals, when compared to the control group, there appeared to be no treatment-related effects upon reproductive performance at the 10 or 100 ppm test concentrations. However, at the 1000 ppm test concentration there was a slight reduction in viability of embryos, which was also evidenced in reductions in numbers of hatchlings and 14-day old survivors as percentages of eggs set and the maximum set.

When compared to the control group, there appeared to be no treatment-related effects upon egg shell thickness measurements and offspring body weights at the 10, 100 or 1000 ppm test concentrations. At the end of Week 6 (Day 42), all surviving birds were euthanized and subjected to gross necropsy. All findings observed were considered to be incidental and not related to treatment.

The no-observed-effect concentration for northern bobwhite quail exposed to the test substance in the diet during the study was 100 ppm.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A. Michael Kaplan

A. Michael Kaplan, Ph.D.
Director - Regulatory Affairs

AMK/RAH: clp
(302) 366-5260

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TSCA NON-CONFIDENTIAL BUSINESS INFORMATION

DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-06-16478	89110000071	1/19/11

COMMENTS:

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3325 00

DuPont Haskell Global Centers
for Health and Environmental Sciences
1090 Elkton Road, P.O. Box 50
Newark, DE 19714-0050

January 18, 2011

Via Federal Express

8EHQ-06-16478

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
1201 Constitution Ave., NW
Washington, DC 20004

8911000071

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OPPT CBIC
11 JAN 19 AM 10: 58

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478
2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, ammonium salt
CAS # 62037-80-3

This letter is a supplement to our letter of July 15, 2010 and summarizes the final results of a reproduction/developmental toxicity screening study in mice with the above referenced test substance. This test substance is subject to a Consent Order, P-08-509.

The test substance was administered once daily via oral gavage to groups of F_0 mice (CD-1; 25 per sex per dose group) at doses of 0 (deionized water), 0.1, 0.5, or 5 mg/kg/day at a dose volume of 10 ml/kg/day. Male mice (F_0) were dosed for a minimum of 70 days prior to mating and continued until the day of scheduled euthanasia. Female mice (F_0) were dosed for a minimum of 14 days prior to mating and continued throughout mating, gestation, and lactation until the day of scheduled euthanasia following weaning of offspring. For females that did not have positive signs of mating or delivery, dosing continued until the day of euthanasia. F_1 males and females were dosed beginning in postnatal day (PND) 21 until the day of euthanasia. Clinical signs, body weights, and food consumption were recorded throughout the study. At scheduled euthanasia, all animals underwent a gross external and internal examination; selected organs/tissues were weighed and/or retained for histopathologic examination. Reproductive performance was assessed by gonadal function, mating behavior, conception, parturition and lactation of the F_0 generation and the development of offspring from conception through day 40 of postnatal life. Developmental landmark data (vaginal patency and balanopreputial separation) were collected for F_1 offspring. Plasma samples for toxicokinetic analyses were collected from culled pups and pooled by litter on PND 4. Plasma samples for toxicokinetic analyses were also prepared from a terminal bleed for F_0 females, weanlings that were not selected for developmental landmarks (PND 21), and weanlings designated for developmental landmarks (PND 40).

F_0 and F_1 survival were unaffected by test substance administration at all dosage levels. Test substance-related, but non-adverse increases in body weights/gains and food consumption were observed in F_0 males and females at 5 and 0.5 mg/kg/day. Test substance-related lower mean body weights and body weight gains were noted for F_1 males and females in the 5 mg/kg/day group throughout the pre-weaning period. Mean body weights in the 5 mg/kg/day females were similar to the control group by PND 35 and the differences in body weights observed in the males were progressively less from PND 21-40. There were no test substance-related body weight or body weight gain differences from the control group in F_1 males and females in the 0.1 and 0.5 mg/kg/day groups.

Delays in the attainment of balanopreputial separation and vaginal patency were noted in the F_1 males and females in the 5 mg/kg/day group when compared to the control group. However, these delays were attributed to the effects on mean body weight noted in this group during the pre-weaning period and not considered to be a direct effect of

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test substance administration. No test substance-related effects were observed on F_0 reproductive performance (mating, fertility, or copulation indices, and mean days between pairing and coitus), mean gestation length, the process of parturition, mean numbers of implantation sites, or unaccounted-for sites. Mean numbers of F_1 pups born, live litter size, percentage of males at birth, postnatal survival, and the general physical condition of the F_1 pups were unaffected by test substance administration at all dosage levels.

A slight increase in the incidence of gross white areas in liver in the 5 mg/kg/day F_0 females correlated with microscopic focal necrosis. There were no test substance-related gross findings in the F_0 males and females in the 0.1 and 0.5 mg/kg/day groups or in the F_0 males in the 5 mg/kg/day group. F_1 necropsy findings did not indicate any correlation to test substance administration.

Microscopic examination of the reproductive organs of both males and females revealed no test substance-related effects at any dose level tested. Microscopically, minimal to moderate hepatocellular hypertrophy was present in both sexes of F_0 adults at dose levels of 0.5 and 5 mg/kg/day. A corresponding increase in liver weight parameters was observed at both dose levels. Hepatocellular hypertrophy was characterized by cytoplasmic eosinophilic stippling that is consistent with peroxisome proliferation. In the 5 mg/kg/day F_0 males and females, other liver lesions included increases in single cell necrosis, mitotic figures, lipofuscin pigment, and focal necrosis (females only). A low incidence of single cell necrosis was also present in the 0.5 mg/kg/day male group. Microscopic examination of the kidneys of all F_0 adults revealed a minimal increase in non-adverse tubular cell hypertrophy in males given 0.5 and 5 mg/kg/day. This finding correlated with an increase in mean absolute kidney weight in both sexes given 5 mg/kg/day.

The mean maternal plasma concentrations of test substance measured two hours after dosing on day 21 of lactation were 903, 4966, and 36420 ng/ml in the 0.1, 0.5, and 5 mg/kg/day dose groups, respectively. In postnatal day 4 F_1 pups, mean plasma levels were lower (approximately 2- to 4-fold) than the lactation day 21 maternal values. In postnatal day 21 F_1 pups, mean plasma levels of test substance in all dose groups were markedly less (approximately 40- to 60-fold lower) than the respective lactation day 21 maternal values. In the F_1 offspring samples on postnatal day 40 that had been directly dosed since weaning on postnatal day 21, mean plasma levels of test substance were similar to those of the respective maternal dose groups sampled at postnatal day 21.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

S. Satheesh Anand, Ph.D., DABT
Senior Research Toxicologist

SSA/SMM: clp
(302) 366-5314

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DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-06-16436	89110000020	11/1/10

COMMENTS:

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330920

DuPont Haskell Global Centers
for Health and Environmental Sciences
1090 Elkton Road, P.O. Box 50
Newark, DE 19714-0050

October 29, 2010

Via Federal Express

8EHQ-06-16436

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, DC 20004

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478
2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, ammonium salt
CAS # 62037-80-3

This letter is to inform you the results of a 90-day early life-stage toxicity test in rainbow trout with the above referenced test substance. This test substance is subject to a Consent Order, PMN-08-509.

The effect of test substance (purity 84%) on hatching, growth and survival of rainbow trout, *Oncorhynchus mykiss*, embryos, alevins, and fingerlings was assessed in an intermittent-flow, 90-day early life-stage toxicity test (U.S. EPA OPPTS 850.1400; OECD 210). The mean measured test concentrations over the 90-day study were 0.651, 1.08, 2.16, 4.66, and 8.89 mg/L. No test substance was detected in the control treatment during the study.

The 90-day NOEC and LOEC values based on mean last day of hatch were determined to be 1.08 mg/L and 2.16 mg/L, respectively. The 90-day NOEC and LOEC values for all other measured parameters were determined to be greater than 8.89 mg/L, the highest tested concentration. The 90-day EC_{50} values for all measured parameters were greater than 8.89 mg/L. Evaluation of the actual data for mean last day of hatching indicated that it ranged from 24 days in the control to 23 days in the highest three test concentrations. Based on the lack of any other significant effects on the endpoints (including growth endpoints) evaluated at any concentration less than 8.89 mg/L, the slight decrease in last day of hatching is not a significant biological effect and the overall study NOEC and LOEC are therefore 8.89 and greater than 8.89 mg/L, respectively.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A. Michael Kaplan

A. Michael Kaplan, Ph.D.
Director - Regulatory Affairs

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AMK/RAH: clp
(302) 366-5260

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DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-06-16436	89100000163	3/19/10

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March 18, 2010

Via Federal Express

8EHQ-06-16436

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, DC 20004

89100000163

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478

This letter is to inform you of the results of a pilot reproduction study in northern bobwhite quail with the above referenced test substance. This test substance is subject to a Consent Order, PMN P-08-509.

The pilot study evaluated the effects upon adult northern bobwhite quail (*Colinus virginianus*) of dietary exposure to the test substance over a six-week period. Effects on health, weight gain and feed consumption were examined along with the effects of adult exposure to the test substance on the number of eggs laid, normal development of eggs, viability of the embryos, percent hatchability, offspring survival and egg shell thickness.

Three treatment groups, each containing five pairs of northern bobwhite quail, were fed diets containing the test substance at nominal dietary concentrations of 10, 100 or 1000 ppm. A fourth control group, fed non-treated diet, was maintained concurrently with the treatment groups. Results of the analysis of the diet samples verified that the test substance was present at the appropriate concentrations, that the diet mixes were homogeneous, and that the test substance was stable for the length of exposure. The test birds were acclimated to the facilities and study pens prior to initiation of the test. During the study, all adult birds were observed daily for signs of toxicity or abnormal behavior. Adult body weights were measured at test initiation, on Weeks 2, 4, and at adult termination. Feed consumption for each pen was measured weekly throughout the test. At the conclusion of the exposure period, all adult birds were euthanized and necropsied.

Eggs were collected daily from all pens, when available. During Weeks 1 and 2 eggs were counted, then disposed. Eggs produced during Weeks 3 through 6 were counted and those selected for egg shell thickness measurement were removed. The remaining eggs were identified by an alphabetic lot code (Lots A, B, C & D). All eggs laid in a weekly interval were considered as one lot. Cracked or abnormal eggs were recorded and discarded. All eggs not discarded were placed in an incubator. Eggs were candled on Day 12 of incubation to determine embryo viability and on Day 21 to determine embryo survival. On Day 21 of incubation, the eggs were placed in a hatcher and allowed to hatch. All hatchlings, unhatched eggs and egg shells were removed from the hatcher on Day 25 or 26 of incubation. The individual body weight of the surviving hatchlings was determined. Hatchlings were leg banded for identification by pen of origin and then routinely housed according to the appropriate parental concentration grouping in brooding pens until 14 days of age. Offspring were observed daily from hatching until 14 days of age. At 14 days of age, the average body weight by parental pen of all surviving offspring was determined. All eggs laid during the six-week test were used in evaluation of egg production among the test groups. The evaluations of the other reproductive parameters were based on the eggs produced during Weeks 3 through 6 of the test (Lots A – D).

No mortalities occurred during the course of the study. Incidental clinical observations normally associated with penwear were observed during the test. Such observations included foot and head lesions and an ocular injury. Except for the incidental clinical findings, all birds in the 0, 10, 100, or 1000 ppm treatment groups were normal in

CONTAINS NO CBI

appearance and behavior for the duration of the test. When compared to the control group, there were no apparent treatment-related effects upon body weight or feed consumption at the 10, 100 or 1000 ppm test concentrations.

Due to the small sample size and short length of range-finding tests, it is not atypical for variation in egg production to be observed. While reproductive parameters were variable among individuals, when compared to the control group, there appeared to be no treatment-related effects upon reproductive performance at the 10 or 100 ppm test concentrations. However, at the 1000 ppm test concentration there was a slight reduction in viability of embryos, which was also evidenced in reductions in numbers of hatchlings and 14-day old survivors as percentages of eggs set and the maximum set.

When compared to the control group, there appeared to be no treatment-related effects upon egg shell thickness measurements and offspring body weights at the 10, 100 or 1000 ppm test concentrations. At the end of Week 6 (Day 42), all surviving birds were euthanized and subjected to gross necropsy. All findings observed were considered to be incidental and not related to treatment.

The no-observed-effect concentration for northern bobwhite quail exposed to the test substance in the diet during the study was 100 ppm.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A. Michael Kaplan

A. Michael Kaplan, Ph.D.
Director - Regulatory Affairs

AMK/RAH: clp
(302) 366-5260

ORIGINAL

TSCA NON-CONFIDENTIAL BUSINESS INFORMATION

DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-06-16436	89100000279	7/19/10

COMMENTS:

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328453

10 JUL 19 AM 6:09

DuPont Haskell Global Centers
for Health and Environmental Sciences
1090 Elkton Road, P.O. Box 50
Newark, DE 19714-0050

July 15, 2010

Via Federal Express

8EHQ 06 16436

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, DC 20004

8910000079

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478
2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, ammonium salt

This letter is to inform you the preliminary results of an ongoing oral reproduction/developmental toxicity screening study in mice with the above referenced test substance. This test substance is subject to a Consent Order, PMN-08-509.

The objective of the study was to provide preliminary information on the potential adverse effects of the test substance on male and female reproduction. Test substance was administered once daily via oral gavage to groups of F_0 mice (CD-1; 25 per sex per dose group) at doses of 0 (deionized water), 0.1, 0.5, or 5 mg/kg/day at a dose volume of 10 ml/kg/day. Male mice (F_0) were dosed for a minimum of 70 days prior to mating and continued until the day of scheduled euthanasia. Female mice (F_0) were dosed for a minimum of 14 days prior to mating and continued throughout mating, gestation, and lactation until the day of scheduled euthanasia following weaning of offspring. For females that did not have positive signs of mating or delivery, dosing continued until the day of euthanasia. F_1 males and females were dosed beginning in postnatal day (PND) 21 until the day of euthanasia. Clinical signs, body weights, and food consumption were recorded throughout the study. At scheduled euthanasia, all animals underwent a gross external and internal examination; selected organs/tissues were weighed and/or retained for histopathologic examination. Reproductive performance was assessed by gonadal function, mating behavior, conception, parturition and lactation of the F_0 generation and the development of offspring from conception through day 40 of postnatal life. Developmental landmark data (vaginal patency and balanopreputial separation) was collected for F_1 offspring. Plasma samples for toxicokinetic analyses were collected from culled pups and pooled by litter on PND 4. Plasma samples for toxicokinetic analyses were prepared from a terminal bleed for F_0 females, weanlings that were not selected for developmental landmarks (PND 21), and weanlings designated for developmental landmarks (PND 40).

Full tabulation and summarization of the study data is in progress. The preliminary findings described below were based on summary data that are unaudited and pending full statistical analyses. In addition, the histopathologic examinations and toxicokinetic analyses are in progress.

At 5 mg/kg/day, a statistically significant increase in body weights/gains, food consumption, liver weights (42% in males and 102% in females) and kidney weights (8% in males, which is not statistically significant and 21% in females) compared to controls was observed in F_0 males and females. Offspring weights were lower, (3 and 6% for females and males, respectively), but not statistically significant than controls at birth. However, statistical significance for lower offspring body weight was evident beginning on PND 4 and persisting throughout lactation (15 to 24% lower than controls). Body weights remained lower until euthanasia on PND 40 but the magnitude of

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change diminished such that the mean final body weights on PND40 were 8% lower in males and 2% lower in females compared to controls. Mean day of achievement for preputial separation was 30.1 compared with 27.5 for controls. Mean day of achievement for vaginal patency was 30.0 compared with 26.6 for controls. These apparent differences in sexual maturation rates, however, are considered secondary to the body weight reductions at this dose level as these endpoints have been demonstrated to be sensitive to reductions in body weight and food consumption. (Carney et al., 2004 and Ashby and Lefevre, 2000) In addition, there are no differences in sexual maturation data at doses that did not result in lower body weights.

Test substance-related effects at 0.5 mg/kg/day included increased body weights/gains and food consumption (F_0 females) and increased liver weights (F_0 males – 26% and females – 24%).

There were no apparent test substance-related and adverse findings at 0.1 mg/kg/day.

Reproductive performance data including mating and fertility, gestation length, litter size and sex ratio at birth, postnatal survival throughout lactation including instances of whole litter losses were all generally comparable to the control group data at all doses tested.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A. Michael Kaplan

A. Michael Kaplan, Ph.D.
Director - Regulatory Affairs

AMK/SM: clp
(302) 366-5260

References:

Carney, E.W. et al., (2004) The Effects of Feed Restriction During *in Utero* and Postnatal Development in Rats, *Toxicological Sciences* 82, 237-249.

Ashby, J. and P.A. Lefevre (2000) The Peripubertal Male Rat Assay as an Alternative to the Hershberger Castrated Male Rat Assay for the Detection of Anti-androgens, Oestrogens and Metabolic Modulators, *Journal of Applied Toxicology* 20, 35-47.

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ORIGINAL

TSCA NON-CONFIDENTIAL BUSINESS INFORMATION

DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-06-16436	89100000281	7/21/10

COMMENTS:

DOES NOT CONTAIN CBI

328574

DuPont

10 JUL 21 AM 11:44

DuPont Haskell Global Centers
for Health and Environmental Sciences
1090 Elkton Road, P.O. Box 50
Newark, DE 19714-0050

July 20, 2010

Via Federal Express

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, DC 20004

8EHQ-0710-10436

8EHQ-06-16436

DCN: 89100000281

89100000281

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478

This letter is a supplement to our letter of February 5, 2010 and summarizes the final results of a developmental toxicity study in rats with the above referenced test substance. This test substance is subject to a Consent Order, PMN P-08-509.

Groups of 22 time-mated Crl:CD(SD) rats were administered solutions of the test substance in deionized water at dose levels of 0, 10, 100, or 1000 mg/kg/day. Dosing was initiated on gestation day (GD) 6 and continued through GD 20. During the in-life portion of the study, maternal body weights and food consumption as well as clinical observations data were collected. On GD 21, dams were euthanized and underwent a gross external and internal examination. Weights for maternal livers and kidneys were recorded and these tissues were examined microscopically. The gravid uteri were removed, weighed, and dissected. Uterine contents were described and fetuses were counted, weighed, sexed, and examined for external, visceral, head, and skeletal alterations.

There was a dose-related increase in the number of dams found with early deliveries on GD 21. There were 0, 0, 4, and 9 dams found delivered at 0, 10, 100, and 1000 mg/kg/day, respectively. In addition, mean fetal weight was 8 and 28% lower (statistically significant) than controls at 100 and 1000 mg/kg/day, respectively. Maternal kidney weights were significantly higher at 1000 mg/kg/day and maternal liver weights were significantly higher at 100 and 1000 mg/kg/day. These changes were reported in the previous letter. The following is a complete summary of the study.

One female in the 1000 mg/kg/day was found dead on gestation day 20. This female had lower mean body weight gains and/or food consumption compared to the control group during gestation days 12-18. The test substance-related liver and kidney changes (moderate coagulative necrosis in the liver and fibrin thrombi in the glomerular capillaries) noted microscopically were considered the cause of death in this animal. Four and 9 females in the 100 and 1000 mg/kg/day groups, respectively, delivered early on gestation day 21. The mortality in the 1000 mg/kg/day group and early deliveries in the 100 and 1000 mg/kg/day groups were considered test substance-related. All other females survived to the scheduled necropsy.

Test substance-related clinical findings were noted in the 1000 mg/kg/day group and consisted of yellow material on various body surfaces and salivation or evidence thereof (clear material around the mouth). Mean body weight, mean body weight gain, mean food consumption, and mean gravid uterine weight in the 1000 mg/kg/day group were lower than control. At 100 mg/kg/day, mean gravid uterine weight was lower compared to control. An edematous pancreas was noted in 2 females that delivered early in the 1000 mg/kg/day group at necropsy; the relationship of this finding to the test substance is uncertain. Other macroscopic findings occurred in single females and/or are not uncommon in females that deliver. Higher mean liver weights were noted in the 100 and 1000 mg/kg/day group females, and higher mean kidney weight was observed in the 1000 mg/kg/day group. There were no microscopic correlates to the higher mean kidney weight. Focal necrosis of the liver was noted in some females in the 100 and

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1000 mg/kg/day groups in a dose-related manner. In addition, test substance-related hepatocellular hypertrophy was noted at 1000 mg/kg/day; hypertrophy was morphologically consistent with a PPARα agonist.

Mean fetal weights were 8.8% and 28.1% lower in the 100 and 1000 mg/kg/day groups, respectively. Intrauterine survival was not affected by test substance administration at any dosage level. There were no test substance-related fetal malformations. A higher mean litter proportion of 14th rudimentary ribs was observed in the 1000 mg/kg/day group, resulting in a higher mean litter proportion of total skeletal variations and total developmental variations. Although considered test substance-related, the increase in the number of fetuses with this finding was not considered adverse because it has been suggested that 14th rudimentary ribs are resorbed during postnatal development.

The no-observed-adverse-effect level (NOAEL) for maternal and developmental toxicity was considered to be 10 mg/kg/day based on mortality and lower mean body weight gains and food consumption at 1000 mg/kg/day and early deliveries, microscopic findings in the liver (focal necrosis), and lower mean fetal weights at 100 and 1000 mg/kg/day. At 1000 mg/kg/day, there were additional test substance-related effects that were not considered adverse and consisted of higher kidney and liver weights and hepatocellular hypertrophy.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A. Michael Kaplan

A. Michael Kaplan, Ph.D.
Director - Regulatory Affairs

AMK/SMM: clp
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53

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TSCA NON-CONFIDENTIAL BUSINESS INFORMATION

DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-06-16478	89110000021	11/1/10

COMMENTS:

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330920

DuPont Haskell Global Centers
for Health and Environmental Sciences
1090 Elkton Road, P.O. Box 50
Newark, DE 19714-0050

October 29, 2010

Via Federal Express

8EHQ-06-16478

8EHQ-1010-16478P

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, DC 20004

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478
2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, ammonium salt
CAS # 62037-80-3

This letter is to inform you the results of a 90-day early life-stage toxicity test in rainbow trout with the above referenced test substance. This test substance is subject to a Consent Order, PMN-08-509.

The effect of test substance (purity 84%) on hatching, growth and survival of rainbow trout, *Oncorhynchus mykiss*, embryos, alevins, and fingerlings was assessed in an intermittent-flow, 90-day early life-stage toxicity test (U.S. EPA OPPTS 850.1400; OECD 210). The mean measured test concentrations over the 90-day study were 0.651, 1.08, 2.16, 4.66, and 8.89 mg/L. No test substance was detected in the control treatment during the study.

The 90-day NOEC and LOEC values based on mean last day of hatch were determined to be 1.08 mg/L and 2.16 mg/L, respectively. The 90-day NOEC and LOEC values for all other measured parameters were determined to be greater than 8.89 mg/L, the highest tested concentration. The 90-day EC_{50} values for all measured parameters were greater than 8.89 mg/L. Evaluation of the actual data for mean last day of hatching indicated that it ranged from 24 days in the control to 23 days in the highest three test concentrations. Based on the lack of any other significant effects on the endpoints (including growth endpoints) evaluated at any concentration less than 8.89 mg/L, the slight decrease in last day of hatching is not a significant biological effect and the overall study NOEC and LOEC are therefore 8.89 and greater than 8.89 mg/L, respectively.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A. Michael Kaplan

A. Michael Kaplan, Ph.D.
Director - Regulatory Affairs

DCN:89110000021

AMK/RAH: clp
(302) 366-5260

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8EHQ-06-16436	89110000187	3/11/11

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334147
MR #

Andrea V. Malinowski
Corporate Counsel

DuPont Legal
Wilmington Office Buildings
1007 Market Street
Wilmington, DE 19898
302-774-6443 Tel 302-774-4812 Fax
andrea.v.malinowski@usa.dupont.com E-mail

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March 10, 2011

VIA FEDERAL EXPRESS

Attn: TSCA Declassification Coordinator
U.S. Environmental Protection Agency
Office of Pollution Prevention and Toxics
Document Control Office (7407M)
Washington, D.C. 20460

8EHQ-06-16436

Re: Declassification Activity - TSCA §8(e) Submission
Originally Assigned 8EHQ Number: 8EHQ-06-16436 (letter dated 04.07.06)
Originally Assigned Bar Code: 88060000208
CAS number: 62037-80-3
Supplemental Submission - Revised Public Copy of Submission

Dear TSCA Declassification Coordinator:

This submission is made in connection with the EPA 2010 CBI Declassification Challenge initiative.

Please find enclosed a revised public copy of the above-identified submission. Any information still claimed as confidential business information (CBI) in the attached report has been redacted and replaced by brackets. The originally assigned 8EHQ number has been added by the submitter to the first page of the enclosed revised public copy of the submission.

Very truly yours,

Andrea V. Malinowski

Enclosure

8911000018 7

Revised Public Copy - Submitted 03.10.11
Originally Assigned 8EHQ Number: 8EHQ-06-16436
Originally Assigned Bar Code: 88060000208

DuPont Haskell Laboratory
for Health and Environmental Sciences
Elkton Road, P.O. Box 50
Newark, DE 19714-0050

April 7, 2006

Via Federal Express

Confidential Business Information

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, D.C. 20460

Dear 8(e) Coordinator:

Tetrafluoro-2- (heptafluoropropoxy)-propionic acid, ammonium salt
CAS # 62037-80-3
Generic Name: Perfluorinated aliphatic carboxylic acid, ammonium salt

This letter is to inform you of the results of a pre-1977 (1963) acute oral toxicity study that we recently became aware of on the above-referenced R&D test substance.

The test substance was administered by gavage as an aqueous solution, in single doses to young adult male rats ranging from 1.5 to 17,000 mg/kg of body weight. The rats were observed for clinical signs and weighted during a 14-day observation period. At the end of the observation period, surviving rats were sacrificed, selected organs weighed and examined histologically.

Rats dosed at 7,500, 11,000, 12,963, and 17,000 mg/kg died within approximately 3 hour of dosing and exhibited discomfort, gasping and/or tonic convulsions prior to death. Rats dosed at 5,000, 3,400 and 2,250 mg/kg exhibited discomfort, increased water intake, inactivity and initial weight loss followed by normal weight gain. These rats had slightly enlarged livers (enlarged hepatocytes with pronounced cell membranes). In addition, slight to moderate degenerative changes in the pancreas were noted. No findings were noted in rats dosed below 2,250 mg/kg. The Approximate Lethal Dose (ALD) was 7,500 mg/kg.

Under these experimental conditions, the findings described above appear to be reportable, based upon the guidance given in the EPA TSCA Section 8(e) Reporting Guide (June 1991).

Substantiation of our confidentiality claim is enclosed

Sincerely,

A. Michael Kaplan

A. Michael Kaplan, Ph.D.
Director – Regulatory Affairs and Occupational Health

AMK/GWJ: clp
(302) 366-5260

From: (302) 773-0071 Origin ID: ZWIA
Doris Duffy
E. I. du Pont de Nemours & Co.
1007 Market Street
D-7096-1
Wilmington, DE 19898

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EPA East Building, Room 6428
1201 Constitution Avenue
Washington, DC 20004

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ORIGINAL

TSCA NON-CONFIDENTIAL BUSINESS INFORMATION

DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-06-16478	89110000021	11/1/10

COMMENTS:

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330920

DuPont Haskell Global Centers
for Health and Environmental Sciences
1090 Elkton Road, P.O. Box 50
Newark, DE 19714-0050

October 29, 2010

Via Federal Express

8EHQ-06-16478

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, DC 20004

8EHQ-1010-16478P

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478
2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, ammonium salt
CAS # 62037-80-3

This letter is to inform you the results of a 90-day early life-stage toxicity test in rainbow trout with the above referenced test substance. This test substance is subject to a Consent Order, PMN-08-509.

The effect of test substance (purity 84%) on hatching, growth and survival of rainbow trout, *Oncorhynchus mykiss*, embryos, alevins, and fingerlings was assessed in an intermittent-flow, 90-day early life-stage toxicity test (U.S. EPA OPPTS 850.1400; OECD 210). The mean measured test concentrations over the 90-day study were 0.651, 1.08, 2.16, 4.66, and 8.89 mg/L. No test substance was detected in the control treatment during the study.

The 90-day NOEC and LOEC values based on mean last day of hatch were determined to be 1.08 mg/L and 2.16 mg/L, respectively. The 90-day NOEC and LOEC values for all other measured parameters were determined to be greater than 8.89 mg/L, the highest tested concentration. The 90-day EC_{50} values for all measured parameters were greater than 8.89 mg/L. Evaluation of the actual data for mean last day of hatching indicated that it ranged from 24 days in the control to 23 days in the highest three test concentrations. Based on the lack of any other significant effects on the endpoints (including growth endpoints) evaluated at any concentration less than 8.89 mg/L, the slight decrease in last day of hatching is not a significant biological effect and the overall study NOEC and LOEC are therefore 8.89 and greater than 8.89 mg/L, respectively.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A. Michael Kaplan

A. Michael Kaplan, Ph.D.
Director - Regulatory Affairs

DCN:89110000021

AMK/RAH: clp
(302) 366-5260

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8EHQ-0406-16436S

April 7, 2006

Via Federal Express

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Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, D.C. 20460

8EHQ 06-16436

Dear 8(e) Coordinator:

Perfluorinated aliphatic carboxylic acid, ammonium salt

This letter is to inform you of the results of a pre-1977 (1963) acute oral toxicity study that we recently became aware of on the above-referenced R&D test substance.

The test substance was administered by gavage as an aqueous solution, in single doses to young adult male rats ranging from 1.5 to 17,000 mg/kg of body weight. The rats were observed for clinical signs and weighted during a 14-day observation period. At the end of the observation period, surviving rats were sacrificed, selected organs weighed and examined histologically.

Rats dosed at 7,500, 11,000, 12,963, and 17,000 mg/kg died within approximately 3 hour of dosing and exhibited discomfort, gasping and/or tonic convulsions prior to death. Rats dosed at 5,000, 3,400 and 2,250 mg/kg exhibited discomfort, increased water intake, inactivity and initial weight loss followed by normal weight gain. These rats had slightly enlarged livers (enlarged hepatocytes with pronounced cell membranes). In addition, slight to moderate degenerative changes in the pancreas were noted. No findings were noted in rats dosed below 2,250 mg/kg. The Approximate Lethal Dose (ALD) was 7,500 mg/kg.

Under these experimental conditions, the findings described above appear to be reportable, based upon the guidance given in the EPA TSCA Section 8(e) Reporting Guide (June 1991).

Sincerely,

88060000207

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October 30, 2007

Via Federal Express

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
1201 Constitution Ave., NW
Washington, DC 20460

07 NOV -1 PM 6:05

8EHQ-06-16436

Company Sanitized

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478
Perfluorinated Aliphatic Carboxylic Acid, Ammonium Salt

This letter is to inform you of the results of an acute eye irritation test, an acute dermal toxicity study, and a combined *in vivo* micronucleus and chromosome aberration assay in bone marrow cells from male and female ICR mice with the R&D test substance referenced above.

Acute Eye Irritation Test:

An aliquot of 0.1 mL of test substance was administered to 1 eye of 1 rabbit. The treated and control eye remained unwashed following treatment. The conjunctiva, iris, and cornea of the treated eye were evaluated and scored according to a numerical scale approximately 1, 24, and 28 hours following administration of the test substance.

Brown and white discoloration of the conjunctiva membrane, which appeared to look like necrosis, was observed at 1, 24, and 28 hours after instillation of the test substance. Corneal opacity (score of 2), iritis (score of 1), conjunctival chemosis (score of 2 or 4), and discharge (score of 2 or 3) were also observed. Fluorescein stain examinations were positive for corneal injury. The rabbit was euthanized the day after treatment.

Acute Dermal Toxicity Test:

A single dose of the test substance was applied to the shaved, intact skin of 5 male and 5 female rats at a dose of 5000 mg/kg of body weight. The application site was covered with a semi-occlusive dressing for 24 hours, after which the test substance was removed. The rats were observed for 14 days following application. The rats were necropsied to detect grossly observable evidence of organ or tissue damage at the end of the 15-day test period.

No deaths occurred. The rats exhibited no clinical signs of systemic toxicity during the study. Four rats exhibited wet fur (perineum, inguen) and/or yellow-stained fur/skin (perineum, inguen) after test substance removal. These clinical signs are commonly seen in wrapped rats and therefore are not considered test substance related. High posture observed in a rat on test day 4 was not considered test substance related because it was only observed in a single animal. Hair loss observed in 1 rat was considered incidental. The rats exhibited no body weight losses. No erythema or edema was observed on the test site of male rats. All female rats exhibited erythema (score of 2) but no edema on the test site the day after application of the test substance. No erythema was observed by 2 days after application. Hyperkeratosis was observed on the test site of 8 rats, and ulceration was observed on the test site of 3 rats during the study. All dermal effects cleared by 13 days after application. No gross lesions were observed at necropsy.

Combined *In Vivo* Micronucleus and Chromosome Aberration Assay:

The test substance was evaluated for clastogenicity in a combined *in vivo* micronucleus and chromosome aberration assay in bone marrow cells from male and female ICR mice. The test substance, and the control substances were administered once by oral intubation, and animals were sacrificed 24 or 48 hours after the

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treatment. The test substance was delivered in water. Concurrent negative (vehicle) controls were included at both sacrifice time points, as well as a positive cyclophosphamide control at the 24-hour sacrifice time point.

A pilot toxicity study was initially conducted. Two male mice each were dosed at 1, 10, 100 or 1000 mg/kg while five male and five female mice were dosed at 2000 mg/kg of the test substance. Mortality was observed in 4/5 males and 4/5 females at 2000 mg/kg. Piloerection was seen in 1/2 males at 1 mg/kg, in all males at doses $\geq$ 10 mg/kg and in all females at 2000 mg/kg. Lethargy and cool to the touch were noted in all males at 1000 and 2000 mg/kg and in all females at 2000 mg/kg. No appreciable changes occurred in the mean group animal body weights of males at doses $\leq$ 100 mg/kg. Appreciable reductions in the mean group animal body weights of up to 10.9% and 8.6% occurred in males at 1000 and 2000 mg/kg, respectively, and of up to 12.6% in females at 2000 mg/kg. In order to further assess toxicity of the test substance, a toxicity study was performed.

In the toxicity study, male and female mice (5/sex/group) were dosed at 1200, 1400, 1600 or 1800 mg/kg. Mortality was observed in 1/5 males at 1400 mg/kg, 2/5 males and 1/5 females at 1600 mg/kg and 3/5 males and 2/5 females at 1800 mg/kg. Lethargy and piloerection were seen in all males and all females at all doses. No appreciable changes in the mean group animal body weights of males or females occurred at any of the doses. Based upon these results, the high dose for the definitive micronucleus study was set at 1300 mg/kg, which was estimated to be the maximum tolerated dose.

The definitive micronucleus assay consisted of seven groups, each containing 5 male and 5 female mice. Mice in five of these groups were treated either with the controls (vehicle or positive) or the test substance at 325, 650 or 1300 mg/kg and were euthanized 24 hours after treatment. Mice in the other two groups were treated either with the vehicle control or the test substance at 1300 mg/kg and were euthanized 48 hours after treatment. An additional group of 5 male and 5 female mice were treated with the test substance at 1300 mg/kg to be used as replacement animals for the high dose in the event of mortality. Animals were observed for signs of toxicity during the course of the study. From each animal, at the time of euthanasia, bone marrow from one femur was collected and processed for micronucleus analysis and the bone marrow from the other femur was processed for analysis of chromosome aberrations.

Mortality was observed in 3/15 males and 1/15 females at 1300 mg/kg. Piloerection was seen in all males and all females treated with the test substance. Lethargy was noted in 2/5 males at 650 mg/kg and all males and all females at 1300 mg/kg. All males and all females treated with the control substances appeared normal following dose administration. The *in vivo* mouse micronucleus and chromosome aberration test results were negative.

Under these experimental conditions, the findings described above appear to be reportable, based upon EPA's TSCA Section 8(e) reporting criteria.

Sincerely,

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October 30, 2007

Via Federal Express

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
1201 Constitution Ave., NW
Washington, DC 20460

8EHQ-06-16436

Company Sanitized

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478
Perfluorinated Aliphatic Carboxylic Acid, Ammonium Salt

This letter is to inform you of the results of an acute eye irritation test, an acute dermal toxicity study, and a combined *in vivo* micronucleus and chromosome aberration assay in bone marrow cells from male and female ICR mice with the R&D test substance referenced above.

Acute Eye Irritation Test:

An aliquot of 0.1 mL of test substance was administered to 1 eye of 1 rabbit. The treated and control eye remained unwashed following treatment. The conjunctiva, iris, and cornea of the treated eye were evaluated and scored according to a numerical scale approximately 1, 24, and 28 hours following administration of the test substance.

Brown and white discoloration of the conjunctiva membrane, which appeared to look like necrosis, was observed at 1, 24, and 28 hours after instillation of the test substance. Corneal opacity (score of 2), iritis (score of 1), conjunctival chemosis (score of 2 or 4), and discharge (score of 2 or 3) were also observed. Fluorescein stain examinations were positive for corneal injury. The rabbit was euthanized the day after treatment.

Acute Dermal Toxicity Test:

A single dose of the test substance was applied to the shaved, intact skin of 5 male and 5 female rats at a dose of 5000 mg/kg of body weight. The application site was covered with a semi-occlusive dressing for 24 hours, after which the test substance was removed. The rats were observed for 14 days following application. The rats were necropsied to detect grossly observable evidence of organ or tissue damage at the end of the 15-day test period.

No deaths occurred. The rats exhibited no clinical signs of systemic toxicity during the study. Four rats exhibited wet fur (perineum, inguen) and/or yellow-stained fur/skin (perineum, inguen) after test substance removal. These clinical signs are commonly seen in wrapped rats and therefore are not considered test substance related. High posture observed in a rat on test day 4 was not considered test substance related because it was only observed in a single animal. Hair loss observed in 1 rat was considered incidental. The rats exhibited no body weight losses. No erythema or edema was observed on the test site of male rats. All female rats exhibited erythema (score of 2) but no edema on the test site the day after application of the test substance. No erythema was observed by 2 days after application. Hyperkeratosis was observed on the test site of 8 rats, and ulceration was observed on the test site of 3 rats during the study. All dermal effects cleared by 13 days after application. No gross lesions were observed at necropsy.

Combined *In Vivo* Micronucleus and Chromosome Aberration Assay:

The test substance was evaluated for clastogenicity in a combined *in vivo* micronucleus and chromosome aberration assay in bone marrow cells from male and female ICR mice. The test substance, and the control substances were administered once by oral intubation, and animals were sacrificed 24 or 48 hours after the

307808

treatment. The test substance was delivered in water. Concurrent negative (vehicle) controls were included at both sacrifice time points, as well as a positive cyclophosphamide control at the 24-hour sacrifice time point.

A pilot toxicity study was initially conducted. Two male mice each were dosed at 1, 10, 100 or 1000 mg/kg while five male and five female mice were dosed at 2000 mg/kg of the test substance. Mortality was observed in 4/5 males and 4/5 females at 2000 mg/kg. Piloerection was seen in 1/2 males at 1 mg/kg, in all males at doses $\geq$ 10 mg/kg and in all females at 2000 mg/kg. Lethargy and cool to the touch were noted in all males at 1000 and 2000 mg/kg and in all females at 2000 mg/kg. No appreciable changes occurred in the mean group animal body weights of males at doses $\leq$ 100 mg/kg. Appreciable reductions in the mean group animal body weights of up to 10.9% and 8.6% occurred in males at 1000 and 2000 mg/kg, respectively, and of up to 12.6% in females at 2000 mg/kg. In order to further assess toxicity of the test substance, a toxicity study was performed.

In the toxicity study, male and female mice (5/sex/group) were dosed at 1200, 1400, 1600 or 1800 mg/kg. Mortality was observed in 1/5 males at 1400 mg/kg, 2/5 males and 1/5 females at 1600 mg/kg and 3/5 males and 2/5 females at 1800 mg/kg. Lethargy and piloerection were seen in all males and all females at all doses. No appreciable changes in the mean group animal body weights of males or females occurred at any of the doses. Based upon these results, the high dose for the definitive micronucleus study was set at 1300 mg/kg, which was estimated to be the maximum tolerated dose.

The definitive micronucleus assay consisted of seven groups, each containing 5 male and 5 female mice. Mice in five of these groups were treated either with the controls (vehicle or positive) or the test substance at 325, 650 or 1300 mg/kg and were euthanized 24 hours after treatment. Mice in the other two groups were treated either with the vehicle control or the test substance at 1300 mg/kg and were euthanized 48 hours after treatment. An additional group of 5 male and 5 female mice were treated with the test substance at 1300 mg/kg to be used as replacement animals for the high dose in the event of mortality. Animals were observed for signs of toxicity during the course of the study. From each animal, at the time of euthanasia, bone marrow from one femur was collected and processed for micronucleus analysis and the bone marrow from the other femur was processed for analysis of chromosome aberrations.

Mortality was observed in 3/15 males and 1/15 females at 1300 mg/kg. Piloerection was seen in all males and all females treated with the test substance. Lethargy was noted in 2/5 males at 650 mg/kg and all males and all females at 1300 mg/kg. All males and all females treated with the control substances appeared normal following dose administration. The *in vivo* mouse micronucleus and chromosome aberration test results were negative.

Under these experimental conditions, the findings described above appear to be reportable, based upon EPA's TSCA Section 8(e) reporting criteria.

Sincerely,

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February 20, 2008

08 FEB 22 AM 6:01

Via Federal Express

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
1201 Constitution Ave., NW
Washington, DC 20004

8EHQ-06-16436

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478
Perfluorinated Aliphatic Carboxylic Acid, Ammonium Salt

This letter is to inform you of the results of a repeated dose oral toxicity 7-day gavage screening study in mice with the R&D test substance referenced above.

Mice (5 males/group) were dosed by oral gavage with 0 or 30 mg/kg/day of the test substance to evaluate potential subacute toxicity of the test substance when administered by oral gavage to male mice for 7 consecutive days.

Mice were weighed prior to dosing and on day 7 prior to sacrifice. Mice were observed for clinical signs at least once daily on test days 0-7. Tissues were collected at necropsy from all study animals on test day 7 for anatomic pathology evaluation. All tissues were placed in appropriate fixative. Liver, kidneys, heart, brain, spleen, testes, and thymus were weighed. Liver, kidneys, heart, brain, spleen, testes, nose, and thymus were processed to slides and examined microscopically.

The mean body weight of the test animals on test day 7 was 105.4% of control (significant in the 2 sample t-test $p<0.05$). Statistically significant and test substance-related organ weight changes were limited to the liver, which had approximately 2-fold elevations in all liver weight parameters. Test substance-related microscopic changes were limited to the liver and included the following: minimal single cell necrosis of hepatocytes, moderate hepatocellular hypertrophy, and moderate increases in mitotic figures. These changes occurred in mice administered 30 mg/kg of the test substance and were not seen in the controls. Minimal vacuolation of hepatocytes was present in 1/5 mice treated with 30 mg/kg of the test substance. It is uncertain as to whether this change is test substance related.

Sincerely,

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May 23, 2008

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Room 6428
Attention: 8(e) Coordinator
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U.S. Environmental Protection Agency
1201 Constitution Ave., NW
Washington, DC 20004

8EHQ-06-16436

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478
Perfluorinated Aliphatic Carboxylic Acid, Ammonium Salt

This letter is to inform you of the results of a repeated dose 28-day oral toxicity study in rats and mice with the R&D test substance referenced above.

Rats:

The test substance was administered to male and female Crl:CD®(SD)IGS BR rats by oral gavage for 28 consecutive days. The following table presents the study group arrangement:

	Dosage (mg/kg/day)	Number of Animals
Males		
1	0	20[a]
2	0.3	10
3	3	10
4	30	20[b]
Females		
1	0	20[a]
2	3	10
3	30	10
4	300	20[a]

a 10 animals/sex/group was submitted for necropsy on test day 28. The remaining 10 animals/sex/group in groups 1 and 4 were necropsied on test day 56 after a 28-day recovery.

Body weights, food consumption, and clinical observations were evaluated. Clinical pathology and gross and microscopic pathology endpoints were evaluated. Liver samples were collected for evaluation of total cytochrome P-450 content and beta-oxidation activity.

Minimal decreases in red cell mass parameters (RBC count, hemoglobin, and hematocrit) were present in male rats administered 3 or 30 mg/kg/day. There were no treatment-related hematological effects in female rats. In male rats, decreases in serum cholesterol were present in all dosed groups. Triglycerides were also decreased in male rats but decreases were statistically significant only in the 3 mg/kg/day group. Albumin was increased and globulin was decreased in the 30 mg/kg/day male group. Globulin was also decreased in the 3 mg/kg/day male group. Albumin/globulin ratio was increased in 3 and 30 mg/kg/day males. BUN and glucose, were increased in male rats administered 30 mg/kg/day. These changes were very sight, were not associated with correlative histology (BUN) or were within laboratory historical values (glucose). These changes were of uncertain relationship to treatment and considered non-adverse. Treatment-related changes in females were

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limited to a decrease in globulin (with an associated increase in albumin/globulin ratio) at 300 mg/kg/day. Changes in clinical pathology parameters were reversible following the 4-week recovery period.

In male rats, statistically significant increases in kidney and liver weights were present in the 3 and 30 mg/kg/day groups. In females, organ weight changes were limited to increases in liver weight relative to body weight in the 300 mg/kg/day group. All organ weight changes were reversible, as no statistically significant increases in organ weights were observed in the 4-week recovery groups.

Multifocal centrilobular hypertrophy of the liver was observed in the male 30 mg/kg/day group and in the female 300 mg/kg/day group. Reversibility of this change was observed in male and female rats necropsied after a 4-week recovery.

The test substance was an inducer of hepatic peroxisomal β-oxidation activity, a measure of peroxisome proliferation, in male rats after administration of 0.3, 3 and 30 mg/kg/day and in female rats after administration of 30 and 300 mg/kg/day. Total hepatic microsomal cytochrome P-450 enzyme content was increased at a dosage of 30 mg/kg/day in male rats but not in females. β-oxidation activity (male and female) and total cytochrome P-450 content (male) had returned to control levels after approximately 28 days of recovery.

Mice:

The test substance was administered to male and female Crl:CD-1(ICR) mice by oral gavage for 28 consecutive days. The following table presents the study group arrangement:

Group Number	Dosage (mg/kg/day)	Number of Animals
Males		
1	0	20[a]
2	0.1	10
3	3	10
4	30	20[a]
Females		
1	0	20[a]
2	0.1	10
3	3	10
4	30	20[a]

a 10 animals/sex/group were submitted for necropsy on test day 28. The remaining 10 animals/sex/group in groups 1 and 4 were necropsied on test day 56 after a 28-day recovery.

Body weights, food consumption, and clinical observations were evaluated. Clinical pathology and gross and microscopic pathology endpoints were evaluated. Liver samples were collected for evaluation of total cytochrome P-450 content and beta-oxidation activity.

Minimal decreases in one or more red cell mass parameters (RBC count, hemoglobin, and hematocrit) were present in male mice administered 3 or 30 mg/kg/day. These changes were reversible following the 4-week recovery period. Statistically significant increases in monocytes and large unstained cells were also present in 30 mg/kg/day males but these changes were not associated with changes in other red cell mass parameters. There were no treatment-related hematological effects in female mice.

Albumin was increased in the 30 mg/kg/day male group, while globulin (and albumin/globulin ratio) was decreased in both males at females at 3 and 30 mg/kg/day. All serum protein changes were reversible following the 4-wek recovery period. In male mice administered 30 mg/kg/day, liver enzymes (ALT, AST, SDH, ALKP) were statistically increased at the end of the exposure period. In females only ALKP and SDH were increased. All of these changes in liver enzymes were reversible except for a slight increase in SDH in the 30 mg/kg/day males. Other statistically significant changes observed at the end of the exposure period were a slight decrease in

chloride and increase in BUN in males administered 30 mg/kg/day. Changes in these parameters were minimal and not associated with correlative microscopic changes.

All other statistically significant changes in clinical pathology parameters were either not dose related or only occurred in recovery groups.

In male mice, statistically significant increases in liver and adrenal weights (absolute and relative to body or brain weight) were present in the 3 and 30 mg/kg/day groups. Liver weights were mostly, but not completely, reversible, as slight but statistically increases in liver weight were present in the 30 mg/kg/day male group after 4 weeks of recovery. In female mice, statistically significant increases in liver weights (absolute and relative to body or brain weight) were present in the 3 and 30 mg/kg/day groups. As in males, liver weight increases were mostly but not completely reversible (statistically increased for relative to body weight) in the 30 mg/kg/day female group after 4 weeks of recovery. Uterine weights (absolute and relative to body or brain weight) were statistically decreased in the 30 mg/kg/day female group. This change reversed after 4 weeks of recovery.

Adrenal cortical hypertrophy, suggestive of systemic stress, was observed in the 30 mg/kg/day males at the primary necropsy. Adrenal cortical hypertrophy was not observed in the 30 mg/kg/day males at the recovery necropsy. Hepatocellular hypertrophy was observed in the 3 and 30 mg/kg/day group males and females at the primary necropsy. The hepatocellular hypertrophy was characterized by expansion of the hepatocellular cytoplasm by numerous fine eosinophilic granules lending a generalized eosinophilic tinctorial change to the affected livers. The distribution of the hepatocellular hypertrophy was centrilobular when of minimal or mild severity and diffuse when of moderate severity. These changes are consistent with peroxisomal proliferation. Other findings in the liver at the primary necropsy were multifocal single cell hepatocellular necrosis in the 3 and 30 mg/kg/day group males and 30 mg/kg/day group females and increased mitotic figures in the 30 mg/kg/day group males and females. All liver changes were reversible, as hepatocellular hypertrophy, single cell hepatocellular necrosis and increased mitoses in the liver were not observed in the 30 mg/kg/day group males and females at the recovery necropsy.

There were an increased number of animals in the diestrus stage of the estrous cycle in the 30 mg/kg/day group females compared to control group females at the primary necropsy. These changes are likely secondary to systemic stress (as indicated by adrenal hypertrophy). Decreased estrous cycling is common in stressed mice. The number of animals in the diestrus stage of the estrous cycle was equal in the control and 30 mg/kg/day group females at the recovery necropsy.

All other findings were consistent with gavage injuries or were considered to be incidental findings or related to some aspect of experimental manipulation other than administration of the test substance.

The test substance was an inducer of hepatic peroxisomal β-oxidation activity, a measure of peroxisome proliferation, in male mice after administration of 0.1, 3 and 30 mg/kg/day and in female mice after administration of 3 and 30 mg/kg/day for 28 days. Total hepatic microsomal cytochrome P-450 enzyme content was decreased at a dosage of 3 and 30 mg/kg/day in male mice but not in females. β-oxidation activity in both male and female mice had returned to control levels after approximately 28 days of recovery while total cytochrome P-450 content remained below control levels in the males.

Sincerely,

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December 5, 2008

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Via Federal Express

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
1201 Constitution Ave., NW
Washington, DC 20004

8 9 0 9 0 0 0 0 6 9 / S

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478
Perfluorinated Aliphatic Carboxylic Acid, Ammonium Salt

This letter is to inform you of the results of a chronic *Daphnia magna* study with the R&D test substance referenced above.

The effect of the test substance (purity 84%) on the survival, growth, and reproduction of *Daphnia magna* was assessed in a chronic, unaerated 21-day static-renewal test in accordance with the test guidelines (U.S. EPA OPPTS 850.1300; OECD 211).

Nominal test substance concentrations selected for the study were 2.5, 5, 10, 20, or 40 mg/L. The corresponding mean, measured concentrations of the test substance were 2.13, 4.17, 8.13, 16.2, and 33.0 mg/L. A dilution water control was used in this study. The test substance was not detected in the dilution water control.

On day 21 at study termination there was at least 90% mobility in each test concentration group and the control. The EC_{50} for adult survival was greater than >33.0 mg/L. The Fisher Exact test and the Cochran-Armitage trend test determined that the NOEC for survival of adult *Daphnia magna* on day 21 was >33.0 mg/L.

The NOEC for the number of live young per surviving female on day 21 was 4.17 mg/L using the Jonckheere-Terpstra test. The NOEC for the number of immobile young on day 21 was 8.13 mg/L while the NOEC for the first day of reproduction was >33.0 mg/L. The NOECs for the number of immobile young and first day of reproduction were determined using the Jonckheere-Terpstra test.

A standard one-way ANOVA was done on the data reporting the length of surviving adult *Daphnia magna*. The data were found to be normally distributed by the Shapiro-Wilk test. The Jonckheere-Terpstra test was used to determine that the NOEC for the length of surviving *Daphnia magna* at test end was >33.0 mg/L.

A standard one-way ANOVA was done on the data reporting the dry weight of surviving adult *Daphnia magna*. The data were found to be non-normally distributed by the Shapiro-Wilk test. The Jonckheere-Terpstra test was used to determine the NOEC for the dry weight of surviving *Daphnia magna* at test end was >33.0 mg/L.

The overall study NOEC (no-observed-effect concentration), LOEC (lowest-observed-effect concentration), and MATC (maximum-acceptable-toxicant concentration) for the test substance, based on mean, measured test concentrations and the total number of live young produced per surviving female, were 4.17 mg/L, 6.15 mg/L, and 8.13 mg/L for *Daphnia magna* exposed to the test substance for 21 days.

Sincere'

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May 12, 2009

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09 MAY 14 AM 6:05

Via Federal Express

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
1201 Constitution Ave., NW
Washington, DC 20004

8EHQ-0509-16436H

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478
Perfluorinated Aliphatic Carboxylic Acid, Ammonium Salt

This letter is to inform you of the results of an acute inhalation toxicity study with the R&D test substance referenced above.

One group of one male and one female rat was exposed to air only, 2 groups of 3 male and 3 female rats were exposed to aerosol concentrations of 13 or 100 mg/m^3 of the test substance in air and a group of 5 male and 5 female rats were exposed to 5,200 mg/m^3 of the test substance. Aerosol atmospheres were generated by nebulization, and concentrations of the test substance were measured by gravimetric analysis. The ammonia vapor concentration was monitored with Draeger tubes. The ammonia concentration measured during the 0 and 13 mg/m^3 exposures was less than 1 ppm. During the 100 and 5,200 mg/m^3 exposures the ammonia concentrations were 21 ppm and 960 ppm, respectively.

Rats in the control, 13 and 100 mg/m^3 were weighed and observed for clinical signs of toxicity during a 2-day recovery period Rats in the 5,200 mg/m^3 exposure group were weighed and observed for clinical signs of toxicity during a 14-day recovery period. Gross examinations were performed on all rats, and respiratory tract tissues (lung, larynx/pharynx, trachea, and nose) from the control, 13 and 100 mg/m^3 groups were evaluated microscopically. Respiratory tract tissues from the 5,200 mg/m^3 exposure group were not examined microscopically.

No deaths occurred in any exposure group and there were no toxicologically significant clinical signs, gross pathological or microscopic findings in any rats from any exposure group. There were no statistically significant body weight losses in the 13 and 100 mg/m^3 exposure groups when compared to that of the control rats. Rats in the 5,200 mg/m^3 exposure group lost from 2.5 to 6.8% of their original body weight for 1 or 2 days post exposure. Under the conditions of this study, the no observable effect level for clinical signs, body-weight effects, gross pathology, and respiratory pathology in rats exposed to aerosol of the test substance was 100 mg/m^3. The 4-hour inhalation median lethal concentration (LC_{50}) for aerosols of the test substance in male and female rats was greater than 5,200 mg/m^3.

Sincerely,

DCN:89090000263s

Company Sanitized

319120

DuPont Haskell Global Centers
for Health and Environmental Sciences
1090 Elkton Road, P.O. Box 50
Newark, DE 19714-0050

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OPPT CBIC
09 SEP 18 AM 6:09

September 16, 2009

Via Federal Express

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, DC 20004

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478

This letter is to inform you of the results of a 90-day oral toxicity study in rats with the above referenced test substance. This test substance is subject to a Consent Order, PMN P-08-509.

The test substance was administered orally by gavage once daily for a minimum of 90 consecutive days to 3 groups (Groups 2-4) of Crl:CD(SD) rats. Dosage levels were 0.1, 10 and 100 mg/kg/day for males and 10, 100 and 1000 mg/kg/day for females. A concurrent control group (Group 1) received the vehicle on a comparable regimen. The dose volume was 10 mL/kg for all groups. Each group consisted of 10 animals/sex (Main Study). Additional animals (10/sex/group) were added in Groups 1 and 4 to assess the reversibility of effects (Recovery Group). Body weights, food consumption, and clinical observations were evaluated. Functional observational battery and locomotor activity data were recorded and ophthalmic examinations were performed for all animals. Following a minimum of 90 days of dose administration, surviving Main Study animals were euthanized; the surviving Recovery Group animals in the control and high-dose groups were euthanized following a 29/30-day recovery period. Clinical pathology and gross and microscopic pathology endpoints were evaluated.

There were 3 test substance-related deaths in the 1000 mg/kg/day group females. One of these rats was euthanized *in extremis* on study day 8 due to the clinical observation of impaired use of the hind limbs and forelimbs. Two of these rats were found dead on study day 21 or 37.

Most of the 1000 mg/kg/day females exhibited intermittent wet clear material around the mouth at the time of dosing and approximately 1-2 hours post-dosing. Two 100 mg/kg/day males exhibited wet clear material around the mouth on 2 days at the time of dosing. One 100 mg/kg/day male vocalized during handling on one occasion.

There were no adverse or test substance-related effects on body weights or food consumption.

Test substance-related organ weight changes consisted of higher kidney and liver weights. All kidney weight parameters (absolute, relative to body and brain weight) were minimally increased in the high dose male and female groups (100 mg/kg/day males; 1000 mg/kg/day females). In the 1000 mg/kg/day females these changes were associated with evidence of diuresis (increased urine volume and decreased urine osmolality) and microscopic changes in the kidneys–mostly in early death animals. In the 100 mg/kg/day males there were no clinical pathology or microscopic changes suggestive of kidney injury. Minimal kidney weight increases (statistically significant) were also present in the recovery group males but not females. Kidney weight relative to body weight was also increased in the 10 mg/kg/day male and female groups and the 100 mg/kg/day female group. However, at these dose levels, there were no changes in other kidney weight parameters (absolute kidney weight and kidney weight relative to brain weight), and no correlative changes in clinical chemistry, urinalysis, or histopathology suggestive of renal

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toxicity. Thus, the statistically significant changes in kidney weight relative to body weight in the 10 mg/kg/day male and female groups, and the 100 mg/kg/day female group, were not considered to be adverse.

All liver weight parameters (absolute, relative to body and brain weight) were increased in the 10 and 100 mg/kg/day male groups and in the 1000 mg/kg/day female group. Liver weight changes correlated with microscopic hepatocellular hypertrophy, but they were not associated with degeneration or necrosis in the liver or with changes in clinical chemistries suggestive of liver toxicity. Therefore, these liver weight increases were not considered to be adverse. In 100 mg/kg/day males, liver weight changes were reversible except for liver weight relative to body weight, which was mostly, but not completely reversible. Changes in liver weight in females showed partial recovery but were not completely reversible following the 4-week recovery period.

Microscopic findings in two of the 1000 mg/kg/day females that died (nos. 7315 and 7318) were similar, suggesting that these deaths were test substance related. Female no. 7315 (found dead on study day 21) had microscopic lesions of renal tubular necrosis, renal papillary necrosis, hepatocellular hypertrophy, and lymphoid depletion in multiple tissues. Female no. 7318 (found dead on study day 37) had microscopic lesions of renal papillary necrosis, hyperplasia of the transitional epithelium of the urinary bladder, coagulation necrosis of portions of an adrenal gland, hepatocellular hypertrophy, and lymphoid depletion in multiple tissues. Lymphoid and adrenal changes in these animals were likely secondary to agonal stress.

The other early death female (euthanized *in extremis* on study day 8) had gross lesions of red areas in the stomach, urinary bladder, and thymus. Microscopic findings included necrosis, hemorrhage, and focal thrombosis of the spinal cord, thrombosis and myocardial fiber degeneration of the heart, necrosis in the glandular stomach, and hemorrhage in the lung, thymus, and urinary bladder. These pathology findings in this animal were not observed in other animals in this group and thus, the relationship of this early death to treatment is uncertain. In addition to the microscopic changes observed in the 1000 mg/kg/day group females found dead or euthanized *in extremis*, one 1000 mg/kg/day group female (animal no. 7279) had minimal renal tubular necrosis and regeneration at the study week 13 primary necropsy.

Minimal hepatocellular hypertrophy was observed in the livers of some primary necropsy animals in the 10 and 100 mg/kg/day male groups and in the 100 and 1000 mg/kg/day female groups. Hepatocellular hypertrophy was associated with increased eosinophilic granularity of the hepatocyte cytoplasm consistent with peroxisome proliferation. Hypertrophy was not associated with microscopic changes indicative of liver injury (such as degeneration or necrosis) or with changes in clinical chemistry indicative of liver injury. Therefore, these changes were not considered to be adverse.

Test substance-related hematology changes in red cell mass parameters (red cell counts, hemoglobin, hematocrit,) were present the high dose male (100 mg/kg/day) and female (1000 mg/kg/day) groups at the end of the exposure period. Decreases in these parameters were approximately 11 - 13% below controls in males and 18 - 28% below controls in females. In addition, individual values for these erythrocyte parameters in several animals at these dose levels were below laboratory reference interval. The decreases in red cell mass parameters were associated with an increase in the absolute reticulocyte count in both sexes and, in females, changes in red cell indices, including an increase in mean cell volume (MCV) and mean cell hemoglobin (MCH), and a decrease in mean cell hemoglobin concentration (MCHC). The changes in reticulocyte counts and red cell indices indicate a regenerative response to the decreases in red cell mass. Based on the magnitude of the decreases in the mean erythrocyte parameters, as well as the presence of anemia in some animals—as indicated by decreases in red cell mass parameters below reference intervals–the erythrocyte changes in high dose males and females were considered to be test substance-related and adverse.

Consistent with their regenerative nature, the red cell changes in high dose males and females, showed recovery following the approximately 4-week recovery period. In females, recovery was complete, as values for some red cell mass parameters were statistically increased (along with a decrease in reticulocytes and an equivocal increase in MCV) compared to controls. In males, recovery was present but was not complete, as slight decreases (about 5% below controls) in red cell mass parameters were still present at the end of the recovery period. In addition, absolute reticulocyte counts remained minimally elevated in this group. Based on the regenerative response noted in the high dose recovery group males, complete recovery would be expected with increased recovery time

Statistically significant decreases in erythrocyte parameters were also present in the 10 mg/kg/day male group. At this dose level, the decreases were minimal (approximately 7% below controls), and values for individual animals

were within laboratory reference intervals (except hematocrit in two males were 0.2 percentage points below the reference interval). Consistent with the minimal nature of the erythrocyte changes at this dose, there were no statistically significant changes in absolute reticulocyte counts. Based on the minimal nature of the effects on red cell parameters, the lack of an increase in reticulocyte counts–suggesting a lack of an erythropoietic stimulus–and the absence of anemia in individual animals, the erythrocyte effects in the 10 mg/kg/day male group were not considered to be adverse.

Test substance-related and statistically significant changes in several clinical chemistry parameters were present in male rats administered 10 mg/kg/day and above and in females administered 100 mg/kg/day and above. Most changes were consistent with PPARα activation. In a previous 28-day study in rats, the test substance was shown to be a peroxisome proliferator based in increases in liver beta oxidation and microscopic changes in the liver. All changes were reversible following the approximately 4-week recovery period.

Test substance-related decreases (variable statistical significance) in cholesterol were present in male rats administered 10 or 100 mg/kg/day and in females administered 100 or 1000 mg/kg/day. Decreases were minimal, as values for most animals in the affected groups were within laboratory reference intervals. There are no known adverse effects associated with minimal decreases in cholesterol. As such, these changes were considered to be test substance related but non-adverse. Effects on cholesterol were reversible in both males and females as there were no statistically significant changes in cholesterol in the high dose recovery groups.

Higher albumin (males only) and lower globulin levels, as well as associated increases in albumin/globulin ratio, were present in the 10 and 100 mg/kg/day male groups and the 1000 mg/kg/day female group. Lower total protein (due to lower globulin) was also present in the 1000 mg/kg/day female group. Individual values for these protein parameters were outside laboratory reference intervals in several animals, especially in the high dose male and female groups. All serum protein changes were reversible, as mean values were similar to controls following the 4-week recovery period. The biological significance of the changes in total protein is uncertain. The pattern of change in serum proteins–decreased globulin and increased albumin–is consistent with the known anti-inflammatory properties of $PPAR_{\alpha}$ agonist.

Urea nitrogen was minimally increased in the 100 mg/kg/day group males. This increase was likely of non-renal origin as it was not associated with changes in creatinine, urinalysis parameters, or renal histopathology. As with serum protein changes, the pattern of changes in urea nitrogen is consistent with those reported for other peroxisome proliferators. Changes in urea nitrogen were reversible in males, as there were no statistically significant changes in these parameters following the approximately 4-week recovery period.

Alkaline phosphatase was minimally increased in the 10 and 100 mg/kg/day male groups and in the 1000 mg/kg/day female group. Alkaline phosphatase may be increased in association with cholestatic liver disease, however, in this study, other markers of cholestatic liver injury were not increased (bilirubin and glutamyl transferase were actually decreased in the 1000 mg/kg/day females), and there were no effects on other enzymes indicative of hepatocellular injury (ALT, AST, SDH). Additionally, there was no histopathological evidence of liver cytotoxicity. Therefore, these minimal increases in alkaline phosphatase were the result of extra hepatic factors and were likely due to induction of liver microsomal enzymes. In the previous 28-day study in rats, the test material was an inducer of total P450 enzyme. As such, these increases were not considered to be adverse. The increases in alkaline phosphatase were reversible following the approximately 4 week recovery period.

Serum phosphorus was minimally increased in the 10 and 100 mg/kg/day male groups and in the 1000 mg/kg/day female group. Values in individual animals in these groups were all within laboratory reference intervals, and the mean values in the affected male groups were actually lower than the historical mean. In addition, there were no changes in serum calcium. Based on these considerations, the changes in phosphorus were considered to be test substance-related but non-adverse. The changes in serum phosphorus were reversible in both males and females following the approximately 4- week recovery period.

Total bilirubin and glutamyl transferase were decreased in the 1000 mg/kg/day female group. Total bilirubin was also decreased in the 100 mg/kg/day female group. These changes were considered to be test substance related but non-adverse based on the direction of change (decreased rather than increased). The changes in both parameters were reversible following the approximately 4-week recovery period.

Statistically significant increase in urine volume and lower urine osmolality (not statistically significant) suggestive of diuresis were noted in the 1000 mg/kg/day group females at study week 13 as compared to the control group.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A. Michael Kaplan

A. Michael Kaplan, Ph.D.
Director - Regulatory Affairs

AMK/CC: clp
(302) 366-5260

ORIGINAL

TSCA NON-CONFIDENTIAL BUSINESS INFORMATION

DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-06-16436	89100000090	12/29/09

COMMENTS:

DOES NOT CONTAIN CBI

MR#323694

8EHQ-1209-16436J
89100000090

DuPont Haskell Global Centers
for Health and Environmental Sciences
1090 Elkton Road, P.O. Box 50
Newark, DE 19714-0050

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09 DEC 29 AM 10: 33

December 29, 2009

Via Federal Express

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, DC 20004

8 9 1 0 0 0 0 0 0 0 0

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478

This letter is to inform you of the results of a 90-day oral toxicity study in mice with the above referenced test substance. This test substance is subject to a Consent Order, PMN P-08-509.

Four groups of young adult male and female Crl:CD1 mice (10/sex/group) were dosed by oral gavage for at least 90 days. Mice were dosed with the test substance in deionized water at doses of 0 (control), 0.1, 0.5, or 5 mg/kg/day of the test substance. The control mice were dosed with deionized water at the same dose volume as the high dose group. In the animals designated for subchronic toxicity evaluation, body weights, food consumption, and detailed clinical observations were evaluated weekly and acute clinical observations were evaluated daily. All mice received ophthalmology examinations prior to study start and all subchronic toxicity mice were examined near the end of the dosing period. Neurobehavioral evaluations (abbreviated functional observational battery [FOB] and motor activity) were evaluated in all subchronic toxicity mice prior to study start (including spares) and near the end of dosing. Clinical pathology endpoints (hematology, clinical chemistry, coagulation parameters) were evaluated at the end of the exposure period. After 96 (males) or 97 (females) days of dosing, the surviving mice were sacrificed and given a gross and microscopic pathological examination.

No test substance-related deaths occurred. No neurobehavioral, clinical or ophthalmological observations were attributed to exposure to the test substance. No deaths, clinical or ophthalmological observations, or neurobehavioral effects were attributed to test substance exposure. Body weight and nutritional parameters in the 5 mg/kg/day male group were higher than in controls during the exposure period; the body weight increases were attributed mainly to increased liver weight. No test substance-related effects on body weight, body weight gain, food consumption, or food efficiency were observed in males in lower dose groups or in females in any dose group.

Preliminary clinical and anatomic pathology data are available. These data indicate there were no adverse, treatment-related changes in hematology, coagulation, or urinalysis parameters attributed to exposure to the test substance. Total bile acids and liver enzymes (alanine aminotransferase, alkaline phosphatase, sorbitol dehydrogenase, and aspartate aminotransferase (males only) were increased in both sexes at 5 mg/kg/day and were associated with increased liver weights and liver microscopic pathology: hypertrophy, focal necrosis, and increased binucleate hepatocytes (males and females), and increased mitoses, apoptosis, and Kupffer cell pigment (males only). Liver hypertrophy was also observed in males at 0.5 mg/kg/day. Increased albumin (both sexes) and total protein (males only) were observed at 5 mg/kg/day. Effects were generally more severe in males than in females.

Other statistically significant clinical pathology differences included increased platelets in 0.5 and 5 mg/kg/day males, increased monocytes in 0.1 mg/kg/day females, reduced cholesterol in 5 mg/kg/day males, increased albumin and total protein (males only) in 5 mg/kg/day males and females, reduced bilirubin in 5 mg/kg/day females, increased chloride in 5 mg/kg/day males, reduced potassium in 5 mg/kg/day males and females. Other statistically

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significant anatomic pathology differences of uncertain relationship to treatment included slightly increased adrenal weights with adrenal cortical hypertrophy, increased kidney weight with minimal tubular epithelial hypertrophy in 5 mg/kg/day males, and reduced spleen weight with no corroborative pathological changes.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A. Michael Kaplan

A. Michael Kaplan, Ph.D.
Director - Regulatory Affairs

AMK/SAM: clp
(302) 366-5260

ORIGINAL

TSCA NON-CONFIDENTIAL BUSINESS INFORMATION

DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-06-16436	89100000118	2/12/10

COMMENTS:

DOES NOT CONTAIN CBI

8EHQ-0210-16436K
89100000118

DuPont Haskell Global Centers
for Health and Environmental Sciences
1090 Elkton Road, P.O. Box 50
Newark, DE 19714-0050

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10 FEB 12 AM 11:03

February 5, 2010

Via Federal Express

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, DC 20004

8EHQ-06-16436

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478

This letter is to inform you of the preliminary results of a developmental toxicity study in rats with the above referenced test substance. This test substance is subject to a Consent Order, PMN P-08-509.

Groups of 22 time-mated Crl:CD(SD) rats were administered solutions of the test substance in deionized water at dose levels of 0, 10, 100, or 1000 mg/kg/day. Dosing was initiated on gestation day (GD) 6 and continued through GD 20. During the in-life portion of the study, maternal body weights and food consumption as well as clinical observations data were collected. On GD 21, dams were euthanized and underwent a gross external and internal examination. Weights for maternal livers and kidneys were recorded and these tissues were preserved for future histopathologic examination. The gravid uteri were removed, weighed, and dissected. Uterine contents were described and fetuses were counted, weighed, sexed, and examined for external, visceral, head, and skeletal alterations.

There was a dose-related increase in the number of dams found with early deliveries in their cages on the morning of GD 21. There were 0, 0, 4, and 9 dams found delivered at 0, 10, 100, and 1000 mg/kg/day, respectively. In addition, mean fetal weight was 8 and 28% lower than controls at 100 and 1000 mg/kg/day, respectively; these reductions were statistically significant. Slight reductions in maternal body weight and food consumption occurred at 1000 mg/kg/day. Maternal kidney weights were significantly higher at 1000 mg/kg/day and maternal liver weights were significantly higher at 100 and 1000 mg/kg/day. The remaining data collected to date were generally comparable to control group data across all groups tested. There were no test substance-related increased in fetal resorptions, malformations, or variations at any dose level tested. Maternal histopathology examinations are currently in progress.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A. Michael Kaplan/cp

89100000118

A. Michael Kaplan, Ph.D.
Director - Regulatory Affairs

AMK/SMM: clp
(302) 366-5260

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MR#324639

ORIGINAL

TSCA NON-CONFIDENTIAL BUSINESS INFORMATION

DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-06-16436	89100000148	3/16/10

COMMENTS: 8EFU.

DOES NOT CONTAIN CBI

MR# 325456

8EHQ-0310-16436L
89100000148

DuPont Haskell Global Centers
for Health and Environmental Sciences
1090 Elkton Road, P.O. Box 50
Newark, DE 19714-0050

March 15, 2010

Via Federal Express

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, DC 20004

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10 MAR 16 AM 10:49

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478

This letter is to inform you of the results of an inherent biodegradation test with the above referenced test substance. This test substance is subject to a Consent Order, PMN P-08-509.

The purpose of this test was to evaluate the inherent biodegradability of the test substance via a 28-day test. The test was designed to meet the requirements of SEPA HJ/T 153-2004, "the guidelines for the testing of chemicals", OECD Procedure 302C, "Inherent Biodegradability: Modified MITI Test (II), adopted May 1981. In the test, the test substance and micro-organisms not adapted to the test substance were added into the aerobic, aqueous medium in BOD bottles. Test solutions were prepared in an inorganic salts medium, inoculated with a number of micro-organisms collected from 10 places in Nanjing, China, and kept in BOD bottles in the dark at 25°C ± 1°C. Then the Biochemical Oxygen Demand (BOD) and residual chemicals in BOD bottles were measured during the 28-day period.

Based on the residue analysis, the biodegradation of the test substance was 0% and there was hardly any change for the test substance in the "abiotic" vessel during the testing period. The BOD results showed that biodegradation of the test substance was both <1% after 14 and 28 days. The test was valid because the level of biodegradation of the reference substance aniline exceeded 40% after 7 days, and 65% after 14 days. Therefore, the test substance was not inherently biodegradable under this test condition.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A. Michael Kaplan

A. Michael Kaplan, Ph.D.
Director - Regulatory Affairs

8EHQ-06-16436

AMK/WRB: clp
(302) 366-5260

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DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-06-16436	89130000231	1/9/13

COMMENTS: 8EFU

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HQ#350977

DuPont Haskell Global Centers
for Health and Environmental Sciences
1090 Elkton Road, P.O. Box 50
Newark, DE 19714-0050

January 8, 2013

Via Federal Express

8EHQ-06-16436

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
1201 Constitution Ave., NW
Washington, DC 20004

8913000023 1

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2013 JAN -9 AM 10: 32

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478
2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, ammonium salt
CAS # 62037-80-3

This letter is to inform you of the preliminary results of a 2 year rat oral gavage study with the above referenced test substance. This test substance is subject to a Consent Order, P-08-509.

A 2-year oral gavage study was conducted in Crl:CD(SD) rats (80/sex/concentration) with the test substance at doses of 0, 0.1 (males only), 1, 50, and 500 (females only) mg/kg bw/day. The rats were evaluated for mortality, clinical signs, body weight and weight gain, food consumption, and food efficiency, and received an ophthalmology examination pretest and after 1 and 2 years of dosing. Ten rats/sex/dose were designated for evaluation of chronic toxicity. These rats were evaluated for clinical pathology at 3, 6, and 12 months, and for anatomic pathology (organ weights, gross and microscopic pathology) at the end of 12 months. The remaining rats (70 rats/sex/dose; main study rats) were dosed for up to 23 (females) or 24 (males) months. Females were sacrificed at week 100 due to poor overall survival, although survival was comparable among all dose groups. Clinical pathology (WBC differential counts) was evaluated at 12, 18, and 24 months in all surviving main study rats. All animals received a gross pathology evaluation at necropsy, and organ weights were collected in animals surviving to terminal sacrifice. Microscopic examination of tissues was conducted in animals that survived to scheduled sacrifice (12 month and end of study), and in all animals that died prior to scheduled sacrifice.

No test substance-related differences in survival or in clinical or ophthalmological signs were observed in any dose group. No adverse effects on overall body weight and nutritional parameters were observed in any dose group, although these parameters were transiently lower than control (statistically significant) in high-dose males (50 mg/kg/day) and females (500 mg/kg/day) over some weekly/biweekly intervals, particularly during the middle of the study. In 500 mg/kg/day females, the body weight over the first year of the study was statistically significantly lower than in control, although the difference was not statistically significant at the end of two years. Test substance-related, adverse or potentially adverse findings were observed in some clinical and anatomic pathology parameters in females at 500 mg/kg/day and in males at 50 mg/kg/day parameters, as discussed below.

Clinical pathology: The following statistically significant differences were considered adverse:

500 mg/kg/day (females only):

- ↓ red blood cell mass parameters (RBC, HGB, HCT, most time points), with ↑ MCV and reduced MCHC at the 12 month time point.
- ↑P (12 month), ↑ BUN (12 month), ↑A/G ratio (all time points), ↓globulin (all time points),

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- urine: ↑urine volume and pH, ↓specific gravity (6, 12 month)

50 mg/kg/day:

- ↑ALP (male all time points), ↑ALT (male 12 month), ↑albumin (male all time points), ↑A/G ratio (male all time points)

<u>**Anatomic pathology**</u>: Increases in the following microscopic pathology findings were considered adverse:

500 mg/kg/day (females):

- Liver: adenoma, hypertrophy (also ↑ at one year), degeneration and necrosis; ↑ liver weight (at one and two year)
- Kidney: papillary necrosis and edema, chronic progressive nephropathy (also ↑ at one year), dilated tubules,
- Stomach: non-glandular mucosal hyperplasia
- Tongue: mucosal hyperplasia/inflammation

50 mg/kg/day:

- Liver: ↑ liver weight (males at one year only), hypertrophy, degeneration and necrosis (also ↑ in males at one year), basophilic foci; (males only except hypertrophy)
- In males, marginal increases were observed in the following:
  - Pancreas: acinar cell tumors; equivocal acinar cell hyperplasia (both sexes)
  - Testes: interstitial cell tumors and hyperplasia

All other statistically significant changes in clinical and anatomic pathology parameters were considered spurious and/or nonadverse based on absence of a dose response, the transient occurrence of the finding, the minimal nature or direction of the change, and/or the lack of correlative changes in related parameters. These included:

500 mg/kg/day (females only)

- ↑ Cl (6 month), ↑albumin (3 month), ↓bilirubin (all time points), ↓total protein (3 month), ↓ cholesterol (6 month), ↓APTT (12 month)
- Uterus: stromal polyps (not significant by Fisher's exact test and within historical control range)
- Lung: histiocytosis (within historical control range)
- Adrenal: benign pheochromocytoma (not significant by Fisher's exact test, within historical control range and not associated with correlative increase in hyperplasia)

50 mg/kg/day:

- ↓red blood cell mass parameters (RBC, HGB, HCT) at all time points in males; ↓RBC in females (12 month)
- ↓APTT (12 month; female))
- ↑ Ca (male 12 month), ↑P (male 3 month), ↑A/G ratio (female 3 and 6 month), ↓globulin (female 6 month)
- Urine: ↓urine volume (male 12 month) and pH (male 6 and 12 month)

1 mg/kg/day:

- ↓HGB (female 3 month), ↑ALP (male 12 month), ↑ BUN (male 12 month), ↑albumin (male 12 month), ↑A/G ratio (male all time points), ↑Cl (female 6 month)
- Urine: ↑urine volume (male 12 month) and pH (male 6 and 12 month; female 6 month)

0.1 mg/kg/day (males only):

- ↑P (3 month)
- Urine: ↓urine volume and ↓ pH (both 12 month)

Under the conditions of this study, the no-observed-adverse-effect level (NOAEL) was considered to be 1 mg/kg/day in male and female rats. Test substance-related neoplastic changes were observed at the high dose (500 mg/kg/day in females; 50 mg/kg/day in males) and included hepatocellular tumors in females and, in males, equivocal increases in pancreatic acinar cell tumors and testicular interstitial cell tumors. These tumor findings are typical of those previously reported in rats following exposure to other PPARα agonists. Based on the high dose threshold for these tumor responses in this study, the lack of genotoxicity of the test material across a battery of *in vitro* and *in vivo* tests, and the known responses of the rat versus other species, including humans, to these PPARα-associated tumor responses, these tumor findings are not considered relevant for human risk assessment.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

S. Satheesh Anand, Ph.D., DABT
Senior Research Toxicologist

SSA/SAM: jhh
(302) 366-5314

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ORIGINAL

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DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ- 06-16436	89110000070	1/19/11

COMMENTS:

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3325 00

DuPont Haskell Global Centers
for Health and Environmental Sciences
1090 Elkton Road, P.O. Box 50
Newark, DE 19714-0050

January 18, 2011

Via Federal Express

8EHQ-06-16436

11 JAN 19 AM 10:58

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
1201 Constitution Ave., NW
Washington, DC 20004

8911000070

Dear 8(e) Coordinator:

8EHQ-06-16436/8EHQ-06-16478
2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, ammonium salt
CAS # 62037-80-3

This letter is a supplement to our letter of July 15, 2010 and summarizes the final results of a reproduction/developmental toxicity screening study in mice with the above referenced test substance. This test substance is subject to a Consent Order, P-08-509.

The test substance was administered once daily via oral gavage to groups of F_0 mice (CD-1; 25 per sex per dose group) at doses of 0 (deionized water), 0.1, 0.5, or 5 mg/kg/day at a dose volume of 10 ml/kg/day. Male mice (F_0) were dosed for a minimum of 70 days prior to mating and continued until the day of scheduled euthanasia. Female mice (F_0) were dosed for a minimum of 14 days prior to mating and continued throughout mating, gestation, and lactation until the day of scheduled euthanasia following weaning of offspring. For females that did not have positive signs of mating or delivery, dosing continued until the day of euthanasia. F_1 males and females were dosed beginning in postnatal day (PND) 21 until the day of euthanasia. Clinical signs, body weights, and food consumption were recorded throughout the study. At scheduled euthanasia, all animals underwent a gross external and internal examination; selected organs/tissues were weighed and/or retained for histopathologic examination. Reproductive performance was assessed by gonadal function, mating behavior, conception, parturition and lactation of the F_0 generation and the development of offspring from conception through day 40 of postnatal life. Developmental landmark data (vaginal patency and balanopreputial separation) were collected for F_1 offspring. Plasma samples for toxicokinetic analyses were collected from culled pups and pooled by litter on PND 4. Plasma samples for toxicokinetic analyses were also prepared from a terminal bleed for F_0 females, weanlings that were not selected for developmental landmarks (PND 21), and weanlings designated for developmental landmarks (PND 40).

F_0 and F_1 survival were unaffected by test substance administration at all dosage levels. Test substance-related, but non-adverse increases in body weights/gains and food consumption were observed in F_0 males and females at 5 and 0.5 mg/kg/day. Test substance-related lower mean body weights and body weight gains were noted for F_1 males and females in the 5 mg/kg/day group throughout the pre-weaning period. Mean body weights in the 5 mg/kg/day females were similar to the control group by PND 35 and the differences in body weights observed in the males were progressively less from PND 21-40. There were no test substance-related body weight or body weight gain differences from the control group in F_1 males and females in the 0.1 and 0.5 mg/kg/day groups.

Delays in the attainment of balanopreputial separation and vaginal patency were noted in the F_1 males and females in the 5 mg/kg/day group when compared to the control group. However, these delays were attributed to the effects on mean body weight noted in this group during the pre-weaning period and not considered to be a direct effect of

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test substance administration. No test substance-related effects were observed on F_0 reproductive performance (mating, fertility, or copulation indices, and mean days between pairing and coitus), mean gestation length, the process of parturition, mean numbers of implantation sites, or unaccounted-for sites. Mean numbers of F_1 pups born, live litter size, percentage of males at birth, postnatal survival, and the general physical condition of the F_1 pups were unaffected by test substance administration at all dosage levels.

A slight increase in the incidence of gross white areas in liver in the 5 mg/kg/day F_0 females correlated with microscopic focal necrosis. There were no test substance-related gross findings in the F_0 males and females in the 0.1 and 0.5 mg/kg/day groups or in the F_0 males in the 5 mg/kg/day group. F_1 necropsy findings did not indicate any correlation to test substance administration.

Microscopic examination of the reproductive organs of both males and females revealed no test substance-related effects at any dose level tested. Microscopically, minimal to moderate hepatocellular hypertrophy was present in both sexes of F_0 adults at dose levels of 0.5 and 5 mg/kg/day. A corresponding increase in liver weight parameters was observed at both dose levels. Hepatocellular hypertrophy was characterized by cytoplasmic eosinophilic stippling that is consistent with peroxisome proliferation. In the 5 mg/kg/day F_0 males and females, other liver lesions included increases in single cell necrosis, mitotic figures, lipofuscin pigment, and focal necrosis (females only). A low incidence of single cell necrosis was also present in the 0.5 mg/kg/day male group. Microscopic examination of the kidneys of all F_0 adults revealed a minimal increase in non-adverse tubular cell hypertrophy in males given 0.5 and 5 mg/kg/day. This finding correlated with an increase in mean absolute kidney weight in both sexes given 5 mg/kg/day.

The mean maternal plasma concentrations of test substance measured two hours after dosing on day 21 of lactation were 903, 4966, and 36420 ng/ml in the 0.1, 0.5, and 5 mg/kg/day dose groups, respectively. In postnatal day 4 F_1 pups, mean plasma levels were lower (approximately 2- to 4-fold) than the lactation day 21 maternal values. In postnatal day 21 F_1 pups, mean plasma levels of test substance in all dose groups were markedly less (approximately 40- to 60-fold lower) than the respective lactation day 21 maternal values. In the F_1 offspring samples on postnatal day 40 that had been directly dosed since weaning on postnatal day 21, mean plasma levels of test substance were similar to those of the respective maternal dose groups sampled at postnatal day 21.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

S. Satheesh Anand, Ph.D., DABT
Senior Research Toxicologist

SSA/SMM: clp
(302) 366-5314

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