UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
CHEMICAL SAFETY AND
POLLUTION PREVENTION

MEMORANDUM:

To: Clayton Myers, RM Reviewer

From: Clayton Myers, Entomologist **Date**: July 16, 2012 7-16-12

Subject: PRODUCT PERFORMANCE DATA EVALUATION RECORD

DP barcode:	400655
Decision no.:	459860
Submission no:	910076
Action code:	R310
Product Name:	TC-311
EPA Reg. No or File Symbol:	499-LAU
Formulation Type:	Dry Pressurized Aerosol

Ingredients statement from the label with PC codes included: Fipronil, 0.005%, PC: 129121
Application rate(s) of product and each active ingredient (lbs. or gallons/1000 square feet or per acre as appropriate; and g/m^2 or mg/cm^2 as appropriate): For use in galleries and wall voids—dispersal of 1-10 seconds depending upon the size of the void.

I. Action Requested: Data was submitted to support claims against various termite species for a new product. aeorsol dust formulation of fipronil, for use in voids and insect galleries.

II. Background: The registrant seeks to register a new fipronil (dry aerosol) product, to be applied as a RTU aerosol with a B&G nozzle attachment, for use in wall voids, insect galleries, and other unexposed voids/surfaces within trees, outdoor structures, and transport equipment infested by termites. The registrant has submitted data in support of claims against Arboreal, Drywood, and Subterranean (*Coptotermes, Reticulitermes, Heterotermes, and Zootermopsis*) species.

III. MRID Summaries: (Primary Reviews attached)

a. MRID 48680902

(1) Non-GLP

(2) A laboratory study was conducted to evaluate the efficacy of 3 fipronil RTU products (a 0.005% dust, a 0.5% dust, and a 0.005% foam) and an untreated control against Formosan subterranean termites, *Coptotermes formosanus*. For each treatment 5 replicates (40 termites each) of petri dishes were used for the evaluations. Petri dishes were paired with connective tubing, where one dish was to be treated and the other untreated. Both dishes were provisioned with filter paper and water to maintain the termites. One side was treated through a sealed hole in the lid, with a 1 second burst of product, as described on the label. Prior to release of termites, tubing was sealed to prevent contamination of the connecting tube or the other untreated dish. For untreated controls, both dishes were untreated. After treatment, dishes were kept in a fume hood for 24 hours to dry. Filter paper was moistened for termite placement, and then 40 worker termites were placed in the center of each untreated dish. Dishes were maintained in an incubator

and monitored for termite location and mortality, with moisture being replenished as needed. Location assessments were done at 2, 4h and 1, 2, 3, and 5 days after treatment. Mortality assessments were done at 1, 2, 3, 5, 7, and 10 days after treatment. Mean mortality and intoxication were recorded.
(3) Authors conclude that mortality was 90.0% at 10 days for the 0.005% fipronil dry formulation.
(4) The primary reviewer correctly indicated that Abbott's formula was not properly applied to the data and that with the 8.5% mortality observed in the control leads to the the corrected mortality for the product being 89%. Given that this product is utlized as a kill-only product, with no expectation of structural protection, these data (when combined with what is known about fipronil termite killing efficacy in general) are adequate to support formosan termite claims as listed on the submitted product label. This study is rated as partially acceptable and the killing/control claims are supported for Formosan termites.

b. MRID 48680903

(1) Non-GLP
(2) A laboratory choice study was conducted to evaluate the efficacy of 3 fipronil RTU products (a 0.005% dust, a 0.5% dust, and a 0.005% foam) and an untreated control against Eastern subterranean termites, *Reticulitermes flavipes*. For each treatment 5 replicates (40 termites each) of petri dishes were used for the evaluations. Petri dishes were paired with connective tubing, where one dish was to be treated and the other untreated. Both dishes were provisioned with filter paper and water to maintain the termites. One side was treated through a sealed hole in the lid, with a 1 second burst of product, as described on the label. Prior to release of termites, tubing was sealed to prevent contamination of the connecting tube or the other untreated dish. For untreated controls, both dishes were untreated. After treatment, dishes were kept in a fume hood for 24 hours to dry. Filter paper was moistened for termite placement, and then 40 worker termites were placed in the center of each untreated dish. Dishes were maintained in an incubator and monitored for termite location and mortality, with moisture being replenished as needed. Location assessments were done at 2, 4h and 1, 2, 3, and 5 days after treatment. Mortality assessments were done at 1, 2, 3, 5, 7, and 10 days after treatment. Mean mortality and intoxication were recorded.
(3) Authors conclude that mortality was 93.5% at 5 days for the 0.005% fipronil dry formulation.
(4) The primary reviewer correctly indicated that Abbott's formula was not properly applied to the data and that with the 7.5% mortality observed in the control leads to the the corrected mortality for the product being 93% for day 5. Thus, the data are adequate to support eastern subterranean termite claims as listed on the submitted product label.

c. MRID 48680904

(1) Non-GLP
(2) A laboratory study was conducted to evaluate the efficacy of 3 fipronil RTU dry products and an untreated control against Western drywood termites, *Incisitermes minor*. For each treatment 4 replicates (20 termites each) of choice bioassay chambers for the evaluations. Chambers were constructed using spruce lumber (2" x 2") that was free of cracks, checks, and sap. Blocks were cut (3.5 x 1.6 x 27.5 cm). A channel, approximately 1.15cm wide by 0.4 cm deep by 25 cm long was cut along one 3.5 cm face of each block, terminating before the end of the block. Blocks were then cut in half lengthwise, with each half numbered for rejoining after treatment. One half of each block was prepared to house termites, while the corresponding half was prepared for randomly assigned treatments. Plexiglass panels were cut and secured to the top halves of the blocks to secure termites. A second panel was cut and secured to the bottom side, securing half the length. This panel was placed so that half of the length extended past the end of the channel opening. 20 termite nymphs (3rd instar or higher) were inserted into the open chamber end of each block. Treated chambers had the test product applied for 2 seconds through the covered channel (controls received water only applied with a 10cc syringe). All treated chambers were dryed for 24 hours. Following acclimation, seals were removed from each channel housing termites and treated halves of the bioassay chambers were slipped into place with the corresponding halves and taped together after aligning channels. Chambers were placed horizontally in a growth chamber

and daily counts were made of live and dead nymphs for 28 days (or until 100% mortality was achieved).

(3) Authors conclude that mortality was 92.5% at 5 days and 100% thereafter for the 0.005% fipronil dry formulation. Control mortality was 0% throughout the study.

(4) The primary concludes that data are acceptable for support of claims against Western drywood termites. Thus, the data are adequate to support Western drywood termite kill/control claims as listed on the submitted product label.

d. MRID 48680905

(1) Non-GLP

(2) A laboratory study was conducted to evaluate the efficacy of 3 fipronil RTU products (a 0.005% dust, a 0.5% dust, and a 0.005% foam) and untreated controls against Eastern subterranean termites, *Reticulitermes flavipes*. For each treatment 5 replicates (40 termites each) of petri dishes were used for the evaluations. Dishes were provisioned with filter paper and water to maintain the termites. Treatments were applied from 12 inches above for approximately l second. After treatment, dishes were kept in a fume hood for 48 hours to dry. Filter paper was moistened for termite placement, and then 40 worker termites were placed in the center of each dish. Dishes were maintained in an incubator and monitored for termite location and mortality, with moisture being replenished as needed. Mortality assessments were done at 1, 2, 4, 8, 24, and 72 hours after treatment. Mean mortality and intoxication were recorded.

(3) Authors conclude that mortality was 73.5% at 8 h, 94% at 24 h, and 100% at 72 h for the 0.005% fipronil dry formulation.

(4) The primary reviewer correctly indicated that Abbott's formula was not properly applied to the data and that the 2% mortality observed in the control at 72 leads to the the corrected mortality for the product being less than 100%, but still greater than 90%. The data are adequate to support Eastern subterranean termite claims as listed on the submitted product label. Killing/control claims are supported for Eastern subterranean termites.

e. MRID 48680906

(1) Non-GLP

(2) A laboratory study was conducted to evaluate the efficacy of 3 fipronil RTU products (a 0.005% dust, a 0.5% dust, and a 0.005% foam) and untreated controls against Formosan subterranean termites, *Coptotermes formosanus*. For each treatment 5 replicates (40 termites each) of petri dishes were used for the evaluations. Dishes were provisioned with filter paper and water to maintain the termites. Treatments were applied from 12 inches above for approximately l second. After treatment, dishes were kept in a fume hood for 48 hours to dry. Filter paper was moistened for termite placement, and then 40 worker termites were placed in the center of each dish. Dishes were maintained in an incubator and monitored for termite location and mortality, with moisture being replenished as needed. Mortality assessments were done at 1, 2, 4, 8, 24, and 72 hours after treatment. Mean mortality and intoxication were recorded.

(3) Authors conclude that mortality was 99.5% at 24 h, and 100% at 72 h for the 0.005% fipronil dry formulation.

(4) The primary reviewer correctly indicated that Abbott's formula was not properly applied to the data and that the 2% mortality observed in the control at 72 leads to the the corrected mortality for the product being less than 100%, but still greater than 90%. The data are adequate to support formosan termite claims as listed on the submitted product label. Killing/control claims are supported for Formosan termites.

IV. RECOMMENDATIONS:

(1) Labeling:

(a) What pests and site/pest combinations may be added as follows to the label based on the submitted or cited data?

Termites (including arboreal, drywood, and subterranean)

(b) What pests and site/pest combinations must be removed from the label?

None

(c) List changes to the directions for use:

None

(d) List changes to the optional marketing claims:

Not Applicable, as no marketing claims were present

TASK 2 DATA EVALUATION RECORD

STUDY TYPE: Product Performance

MRID 486809-02. Jones, C.E. 2011. Bioactivity of Termidor Dry Pressurized (TC-311, 0.005% Fipronil), Termidor Dry (TC-328, BAS 350 HJ I, 0.5% Fipronil) and Termidor Foam (TC-335, 0.005% Fipronil) Against Formosan Subterranean Termites (*Coptotermes formosanus*) Via Indirect Contact Assays (DIMeS 1887b).

OCSPP 810.3500 [Premises Treatments]
OCSPP 810.3600 [Structural Treatments]

Product Name: TC-335

EPA Reg. No.: 499-LAG

Decision number: 459858

DP number: 400663

Prepared for
Registration Division (7505)
Office of Pesticide Programs
U.S. Environmental Protection Agency
Washington, DC 20460

Prepared by
Summitec Corporation
Task Order No.: 2-62

Primary Reviewer: Dennis M. Opresko, Ph.D.	Signature: [signature] Date: JUL 10 2012
Secondary Reviewers: Gene Burgess, Ph.D.	Signature: Gene Burgess, AE Date: JUL 10 2012
Robert H. Ross, M.S. Program Manager	Signature: Robert H. Ross Date: JUL 10 2012
Quality Assurance: Jennifer Goldberg, B.S.	Signature: [signature] Date: JUL 10 2012

Disclaimer

This review may have been altered subsequent to the contractors' signatures above.
Summitec Corp. for the U.S. Environmental Protection Agency under Contract No. EP-W-11-014

DATA EVALUATION RECORD

[EPA Primary Reviewer's Name]

STUDY TYPE:	PRODUCT PERFORMANCE [OCSPP 810.3500; 810.3600]
MRID:	486809-02. Bioactivity of Termidor Dry Pressurized (TC-311, 0.005% Fipronil), Termidor Dry (TC-328, BAS 350 HJ I, 0.5% Fipronil) and Termidor Foam (TC-335, 0.005% Fipronil) Against Formosan Subterranean Termites (*Coptotermes formosanus*) Via Indirect Contact Assays (DIMeS 1887b). Jones, C.E. 2011.
DP BARCODE:	400663
DECISION NO:	459858
SUBMISSION NO:	910069
SPONSOR:	BASF Corporation.
TESTING FACILITY:	APR/IB Advanced Testing II, Non-crop.
STUDY DIRECTOR:	S. Thompson, Ph.D., APR/IB Advanced Testing II, Non-crop.
SUBMITTER:	D.M. Thomas, BASF Corporation
STUDY COMPLETED:	06/10/2011
CONFIDENTIALITY CLAIMS:	None
GOOD LABORATORY PRACTICE:	"This study was not conducted in compliance with Good Laboratory Practice standards as described by EPA (40 CFR Parts 160 and 792), and was never intended for that purpose."
TEST MATERIAL:	PRODUCT NAME: TC-335 EPA REGISTRATION NUMBER: 499-LAG ACTIVE INGREDIENT NAME: Fipronil CHEMICAL NAME: [5-amino-1-(2,6-dichloro-4-(trifluoromethyl)phenyl)-4-((1,R,S)-(trifluoromethyl)sulfinyl)-1-H-pyrazole-3-carbonitrile]

A.I. %: 0.005%
PC CODE: 129121
CAS NO.: 120068-37-3
FORMULATION TYPE: Pressurized foam.
PRODUCT APPLICATION RATE(S): Not quantified.
ACTIVE INGREDIENT APPLICATION RATE(S): Not reported.

PROPOSED LABEL MARKETING CLAIMS: "Kills termites (including subterranean, drywood, dampwood, and arboreal)…"

STUDY REVIEW

Purpose: To evaluate the efficacy of Termidor® Dry Pressurized (TC-311, 0.005% Fipronil), Termidor Dry (TC-328, BAS 350 HJ I, 0.5% Fipronil) and Termidor Foam (TC-335, 0.005% Fipronil) against Formosan subterranean termites (*Coptotermes formosanus*) via indirect contact assays.

MATERIALS AND METHODS

Test Location: Not reported.

Test Material(s): Termidor® foam (TC-335; 0.005% fipronil), Termidor® Dry (TC-328, 0.5% fipronil); Termidor® Dry Pressurized insecticide (TC-311, 0.005%). Termidor® foam (TC-335) is identical to the substance listed under EPA Reg. No. 499-LAG.

Test Species Name, Life Stage, Sex and Age: Formosan subterranean termites (*Coptotermes formosanus*)

Describe test containers, chambers and/or apparatus (include site description and location) and how experiment was conducted: A single hole (0.75 cm in diameter) was drilled into the sides of two Petri dishes (100 x 20 mm). Sections of clear Tygon® tubing were inserted into the holes connecting the two dishes linearly and secured in place with silicone adhesive. The entrance to the tubing on the dish to be treated was sealed with tape. Both Petri dishes were supplied with filter paper as a substrate for the termites. Termidor® Foam was applied through a single hole in the center of the Petri dish lid. The lid was secured in place with tape. Sufficient material was applied for approximately 2 seconds so that the entire inside surface of the Petri dish and lid was covered. A small piece of tape was used to cover the hole in the lid after treatment. The dishes were weighed before and after treatment. After treatment, the lids were replaced and the covered Petri dishes were kept in a fume hood at ambient laboratory temperatures for 24 hr. After 24 hr, the lids were removed and the treatments were allowed to dry for at least an additional 24 hr. After drying, the tape was removed from the hole in the treated dishes, and the filter paper was moistened. Forty worker termites (beyond third instar) were placed in the center of each untreated dish. Dishes were maintained at 26°C and ca. 80% RH in a darkened incubator, except during evaluations. Moisture was replenished as needed. Location of the termites was assessed at 2 and 4 hr as well as 1, 2, 3, and 5 days. Mortality and intoxication were assessed at 1, 2, 3, 5, 7 and 10 days.

List the treatments including untreated control: Average amount of Termidor® Foam dispensed per dish across the 5 replicates was 4.26 g. Controls were untreated.

Number of replicates per treatment: 5.

Number of individuals per replicate: 40.

Length of exposure to treatment: Variable.

Were tested specimens transferred to clean containers? No.

Experimental conditions: 26°C and 80% RH in a darkened incubator.

Data or endpoints collected/recorded: Location of termites and number of dead and intoxicated.

Data analysis: Mean percent mortality and mean percent intoxicated. No other data analysis.

RESULTS

Replicate data are included in the study report. There was no mention of protocol amendments or deviations. Data were not corrected using Abbott's Formula. Summary results for Termidor® Foam (TC-335; label formulation) are shown in Table 1, together with the results for the other materials tested and the controls.

Table 1. Bioactivity of Termidor Dry and Foam Formulations on Subterranean Termites (C. formosanus).

Treatment	% fipronil	Mean % mortality/intoxication days after exposure											
		1		2		3		5		7		10	
		d-m	intox	d-m	intox	d-m	intox	d-m	intox	d-m	intox	d-m	intox
[redacted]	0.005	36.5	0.0	48.5	0.0	53.5	0.0	83.0	0.0	86.5	0.0	90.0	0.0
Termidor Dry TC 328	0.5	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0
Termidor Foam TC 335	0.005	79.0	0.0	95.0	0.0	97.5	0.0	100.0	0.0	100.0	0.0	100.0	0.0
UTC	-	1.5	0.0	4.5	0.0	7.5	0.0	7.5	0.0	7.5	0.0	8.5	0.0

Bioassays initiated 26 September 2011

[redacted]

[1] Means based on 5 replicates per treatment

[2] Formula code 237- 036; Lab code 237-051; BAS 350 HKI; 0.005% fipronil

[3] Formula and Lab code 237-056; BAS 350 HJI; 0.5% fipronil

[4] Formula and Lab code 237-048; BAS 350 HLI, 0.005% fipronil

Note: Intoxification was not defined by the study authors.

STUDY AUTHOR'S CONCLUSIONS

Mortality of Formosan termites exposed indirectly to Termidor® Foam (TC-335) was 95% by Day 2.

REVIEWER'S CONCLUSIONS

Control mortality was 4.5% at Day 2, and mortality of termites indirectly exposed to Termidor® Foam was 95% by Day 2. Data support the conclusions of the study author.

REVIEWER'S RECOMMENDATIONS

Acceptable. Data can be used to support a label claim that the product kills Formosan subterranean termites (*Coptotermes formosanus*).

TASK 2 DATA EVALUATION RECORD

STUDY TYPE: Product Performance

MRID 486809-03. Jones, C.E. 2011. Bioactivity of Termidor Dry Pressurized (TC-311, 0.005% Fipronil), Termidor Dry (TC-328, BAS 350 HJ I, 0.5% Fipronil) and Termidor Foam (TC-335, 0.005% Fipronil) Against Eastern Subterranean Termites (*Reticulitermes flavipes*) Via Indirect Contact Assays (DIMeS 1887a).

OCSPP 810.3500 [Premises Treatments]
OCSPP 810.3600 [Structural Treatments]

Product Name: TC-335

EPA Reg. No.: 499-LAG

Decision number: 459858

DP number: 400663

Prepared for
Registration Division (7505)
Office of Pesticide Programs
U.S. Environmental Protection Agency
Washington, DC 20460

Prepared by
Summitec Corporation
Task Order No.: 2-62

Primary Reviewer:
Dennis M. Opresko, Ph.D.

Signature: [signature]
Date: JUL 10 2012

Secondary Reviewers:
Gene Burgess, Ph.D.

Signature: Gene Burgess, AE
Date: JUL 10 2012

Robert H. Ross, M.S. Program Manager

Signature: Robert H. Ross
Date: JUL 10 2012

Quality Assurance:
Jennifer Goldberg, B.S.

Signature: [signature]
Date: JUL 10 2012

Disclaimer

This review may have been altered subsequent to the contractors' signatures above.
Summitec Corp. for the U.S. Environmental Protection Agency under Contract No. EP-W-11-014

DATA EVALUATION RECORD

[EPA Primary Reviewer's Name]

STUDY TYPE:	PRODUCT PERFORMANCE [OCSPP 810.3500; 810.3600]
MRID:	486809-03. Bioactivity of Termidor Dry Pressurized (TC-311, 0.005% Fipronil), Termidor Dry (TC-328, BAS 350 HJ I, 0.5% Fipronil) and Termidor Foam (TC-335, 0.005% Fipronil) Against Eastern Subterranean Termites (*Reticulitermes flavipes*) Via Indirect Contact Assays (DIMeS 1887a). Jones, C.E. 2011.
DP BARCODE:	400663
DECISION NO:	459858
SUBMISSION NO:	910069
SPONSOR:	BASF Corporation.
TESTING FACILITY:	APR/IB Advanced Testing II, Non-crop.
STUDY DIRECTOR:	S. Thompson, Ph.D., APR/IB Advanced Testing II, Non-crop.
SUBMITTER:	D.M. Thomas, BASF Corporation
STUDY COMPLETED:	06/10/2011
CONFIDENTIALITY CLAIMS:	None
GOOD LABORATORY PRACTICE:	"This study was not conducted in compliance with Good Laboratory Practice standards as described by EPA (40 CFR Parts 160 and 792), and was never intended for that purpose."
TEST MATERIAL:	PRODUCT NAME: TC-335 EPA REGISTRATION NUMBER: 499-LAG ACTIVE INGREDIENT NAME: Fipronil CHEMICAL NAME: [5-amino-1-(2,6-dichloro-4-(trifluoromethyl)phenyl)-4-((1,R,S)-(trifluoromethyl)sulfinyl)-1-H-pyrazole-3-carbonitrile] A.I. %: 0.005% PC CODE: 129121

CAS NO.: 120068-37-3
FORMULATION TYPE: Pressurized foam
PRODUCT APPLICATION RATE(S): Not quantified.
ACTIVE INGREDIENT APPLICATION RATE(S)g/m^2: Not reported

PROPOSED LABEL MARKETING CLAIMS: "Kills termites (including subterranean, drywood, dampwood, and arboreal)…"

STUDY REVIEW

Purpose: To evaluate the efficacy of Termidor® Dry Pressurized (TC-311, 0.005% Fipronil), Termidor® Dry (TC-328, BAS 350 HJ I, 0.5% Fipronil) and Termidor® Foam (TC-335, 0.005% Fipronil) against eastern subterranean termites (*Reticulitermes flavipes*) via indirect contact assays.

MATERIALS AND METHODS

Test Location: Not reported.

Test Material(s): Termidor® foam (TC-335; 0.005% fipronil); Termidor® Dry (TC-328, 0.5% fipronil); Termidor® Dry Pressurized insecticide (TC-311, 0.005%). Termidor® foam (TC-335) is identical to the substance listed under EPA Reg. No. 499-LAG.

Test Species Name, Life Stage, Sex and Age: Eastern subterranean termites (*Reticulitermes flavipes*), workers (beyond third instar).

Describe test containers, chambers and/or apparatus (include site description and location) and how experiment was conducted: A single hole (0.75 cm in diameter) was drilled into the sides of two Petri dishes (100 x 20 mm). Sections of clear Tygon® tubing were inserted into the holes connecting the two dishes linearly and secured in place with silicone adhesive. The entrance to the tubing on the dish to be treated was sealed with tape. Both Petri dishes were supplied with filter paper discs as a substrate for the termites. Termidor® Foam was applied through a single hole in the center of the Petri dish lid. The lid was secured in place with tape. Sufficient material was applied for approximately 2 seconds so that the entire inside surface of the Petri dish and lid was covered. A small piece of tape was used to cover the hole in the lid after treatment. The dishes were weighed before and after treatment. After treatment, the lids were replaced and the covered Petri dishes were kept in a fume hood at ambient laboratory temperatures for 24 hr. After 24 hr, the lids were removed and the treatments were allowed to dry for at least an additional 24 hr. After drying, the tape was removed from the hole in the treated dishes, and the filter paper was moistened. Forty worker termites (beyond third instar) were placed in the center of each untreated dish. Dishes were maintained at 26°C and ca. 80% RH in a darkened incubator, except during evaluation. Moisture was replenished as needed. Location of the termites was assessed at 2 and 4 hr as well as 1, 2, 3, and 5 days. Mortality and intoxication were assessed at 1, 2, 3, 5, 7 and 10 days.

List the treatments including untreated control: Average amount of Termidor® Foam dispensed per dish across the 5 replicates was 6.24 g. Controls were untreated.

Number of replicates per treatment: 5.

Number of individuals per replicate: 40.

Length of exposure to treatment: Variable.

Were tested specimens transferred to clean containers? No.

Experimental conditions: 26°C and 80% RH in a darkened incubator.

Data or endpoints collected/recorded: Location of termites and number of dead and intoxicated.

Data analysis: Mean percent mortality and mean percent intoxicated. No other data analysis.

RESULTS

Replicate data are included in the study report. There was no mention of protocol amendments or deviations. Data were not corrected using Abbott's Formula. Summary results for Termidor® Foam (TC-335; label formulation) are shown in Table 1, together with other materials tested and controls.

Table 1. Bioactivity of Termidor Dry and Foam Formulations on Subterranean Termites (*R. flavipes*).

		Mean % mortality/intoxication days after exposure											
	%	1		2		3		5		7		10	
Treatment	fipronil	d-m	intox	d-m	intox	d-m	intox	d-m	intox	d-m	intox	d-m	intox
[redacted]	0.005	69.0	0.0	80.0	0.0	88.0	0.0	93.5	0.0	96.0	0.0	100.0	0.0
Termidor Dry TC 328	0.5	77.0	0.0	82.0	0.0	90.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0
Termidor Foam TC 335	0.005	77.0	0.0	87.5	0.0	94.0	0.0	94.5	0.0	95.5	0.0	100.0	0.0
UTC	-	5.5	0.0	7.5	0.0	7.5	0.0	7.5	0.0	7.5	0.0	7.5	0.0

Bioassays initiated 26 September 2011

Water not easily absorbed by filter paper

[1] Means based on 5 replicates per treatment

[2] Formula code 237- 036; Lab code 237-051; BAS 350 HKI; 0.005% fipronil composition

[3] Formula and Lab code 237-056; BAS 350 HJI; 0.5% fipronil composition

[4] Formula and Lab code 237-048; BAS 350 HLI, 0.005% fipronil composition

STUDY AUTHOR'S CONCLUSIONS

Mean percent mortality of termites exposed indirectly to Termidor® Foam (TC-335) was 94% by Day 3.

REVIEWER'S CONCLUSIONS

Control mortality was 7.5% at Day 2 and mean percent mortality of termites indirectly exposed to Termidor® Foam was 94% by Day 3. Using Abbott's Formula, mean percent mortality of the treated group corrected for control mortality is:

$$\frac{94\% \text{ (treated)} - 7.5\% \text{ (control mortality)}}{[100 - 7.5\% \text{ (control mortality)}]} \times 100 = 93.5\%$$

Data support the conclusions of the study author.

REVIEWER'S RECOMMENDATIONS

Acceptable. Data support the label claim that the product kills subterranean termites.

TASK 2 DATA EVALUATION RECORD

STUDY TYPE: Product Performance

MRID 486809-04. Lee, M.D. 2011. Efficacy Evaluation of Selected Insecticide Products on *Incisitermes minor* (Hagen) (Western Drywood Termite) in a Choice Laboratory Bioassay.

OCSPP 810.3500 [Premises Treatments]
OCSPP 810.3600 [Structural Treatments]

Product Name: TC-335

EPA Reg. No.: 499-LAG

Decision number: 459858

DP number: 400663

Prepared for
Registration Division (7505)
Office of Pesticide Programs
U.S. Environmental Protection Agency
Washington, DC 20460

Prepared by
Summitec Corporation
Task Order No.: 2-62

Primary Reviewer:
Dennis M. Opresko, Ph.D.

Signature: [signature]
Date: JUL 10 2012

Secondary Reviewers:
Gene Burgess, Ph.D.

Signature: Gene Burgess, PE
Date: JUL 10 2012

Robert H. Ross, M.S. Program Manager

Signature: Robert H. Ross
Date: JUL 10 2012

Quality Assurance:
Jennifer Goldberg, B.S.

Signature: [signature]
Date: JUL 10 2012

Disclaimer

This review may have been altered subsequent to the contractors' signatures above.
Summitec Corp. for the U.S. Environmental Protection Agency under Contract No. EP-W-11-014

DATA EVALUATION RECORD

[EPA Primary Reviewer's Name]

STUDY TYPE:	PRODUCT PERFORMANCE [OCSPP 810.3500; 810.3600]
MRID:	486809-04. Efficacy Evaluation of Selected Insecticide Products on *Incisitermes minor* (Hagen) (Western Drywood Termite) in a Choice Laboratory Bioassy. Lee, M.D. 2011.
DP BARCODE:	400663
DECISION NO:	459858
SUBMISSION NO:	910069
SPONSOR:	BASF Corporation
TESTING FACILITY:	Entomology Consultants, LLC., 598 Canyon Point Road, Las Cruces, NM 88011.
STUDY DIRECTOR:	M. D. Lee, Entomology Consultants, LLC.
SUBMITTER:	D.M. Thomas, BASF Corporation
STUDY COMPLETED:	11/09/2011
CONFIDENTIALITY CLAIMS:	None
GOOD LABORATORY PRACTICE:	"This study was not conducted in compliance with Good Laboratory Practice standards as described by EPA (40 CFR Parts 160 and 792), and was never intended for that purpose."
TEST MATERIAL:	PRODUCT NAME: TC-335 EPA REGISTRATION NUMBER: 499-LAG ACTIVE INGREDIENT NAME: Fipronil CHEMICAL NAME: [5-amino-1-(2,6-dichloro-4-(trifluoromethyl)phenyl)-4-((1,R,S)-(trifluoromethyl)sulfinyl)-1-H-pyrazole-3-carbonitrile] A.I. %: 0.005% PC CODE: 129121 CAS NO.: 120068-37-3 FORMULATION TYPE: Pressurized foam PRODUCT APPLICATION RATE(S): Not quantified.

	ACTIVE INGREDIENT APPLICATION RATE(S): Not reported
PROPOSED LABEL MARKETING CLAIMS:	"Kills termites (including subterranean, drywood, dampwood, and arboreal)…"

STUDY REVIEW

Purpose: To determine the efficacy of insecticide ready-to-use pressurized formulations containing selected active ingredients on drywood termites using a standardized laboratory testing procedure.

MATERIALS AND METHODS

Test Location: Las Cruces, NM

Test Material(s): BAS 350 HL I (formula code 237-048, pressurized foam); BAS 350 HKI (formula code 237-036, pressurized dry); BAS 350 HJI (formula code 235-056, non-pressurized dry). The active ingredients in the test products were not identified in the study report. Information supplied in MRID 486809-06 indicates that BAS 350 HL I is equivalent to TC-335 and contains 0.005% fipronil; therefore, it is considered identical to the substance listed under EPA Reg. No. 499-LAG.

Test Species Name, Life Stage, Sex and Age: Western drywood termites (*Incisitermes minor*), field collected in Mesilla, NM; four individual colonies.

Describe test containers, chambers and/or apparatus (include site description and location) and how experiment was conducted: Choice bioassay chambers were constructed using spruce, 3.5 x 3.5 (2 in x 2 in) dimensional lumber that was free of cracks, checks and sap. The wood was cut into blocks measuring 3.5 x 1.6 x 27.5 cm. A channel, approximately 1.15 cm wide x 0.4 cm deep x 25 cm long was cut along one 3.5 cm face of each block using a hemispherical router bit. The channel terminated before either end of the block. The blocks were then cut in half (perpendicular to the long face of the wood) with each half numbered in order to be rejoined after the treatments were applied. One half of each block was prepared to house termites during the acclimation period, while the corresponding half was prepared for randomly assigned treatments. Plexiglass panels measuring 3.5 x 27.5 x 0.25 cm were cut and secured to the top halves to house the termites during acclimation. A second Plexiglass panel measuring 3.5 x 15 x 0.25 cm was cut and fastened to the bottom side of the half to house the termites. This panel was placed so that approximately one half of the length extended past the end of the channel opening and secured. Twenty drywood termite nymphs (at least third instar) were inserted into the open chamber end of each block. Pieces of Handi Tak® were used to temporarily seal the termites in the chamber. An acclimation period of three days was conducted to ensure survivability of the insects. The chamber halves scheduled to be treated with foam insecticides were covered with a piece of Plexiglass, 3.5 x 13.75 x 0.25 cm. A single hole was drilled 2 cm from the closed end of the channel, directly centered to accept the tip of the foam can. Foam was applied to completely fill the channel to the point of exit, with the chamber remaining flat in position. The Plexiglass cover

was removed to allow the foam filed chamber to dry for a period of 24 hr. New Plexiglass covers were used for each treatment. The chamber receiving water only as a treatment was conducted by using a 10 cc syringe, made through a hole in the Plexiglass cover as previously described, applying water into the chamber to the point of run-off. All treated chambers were allowed to dry for 24 hr before introducing the termites.

Following the acclimation period, the Handi Tak seal was removed from each channel housing the termites. The treated halves of the bioassay chambers were quickly slipped into place with their corresponding half. Chamber halves were taped into place after aligning the channels. Chambers were placed on a shelf inside a treatment room in their horizontal position. Daily counts of live and dead nymphs were recorded until 100% mortality was reached or up to 28 days after treatment.

List the treatments including untreated control: The amount of foam applied to the wood chamber was not quantified. Controls received a treatment with water alone.

Number of replicates per treatment: Four.

Number of individuals per replicate: 20.

Length of exposure to treatment: Continuous, for up to 13 days.

Were tested specimens transferred to clean containers? N/A

Experimental conditions: 85 ±3°F with a 12:12 photoperiod. Humidity not reported.

Data or endpoints collected/recorded: Daily counts of live and dead nymphs were recorded.

Data analysis. Collected mean percent mortalities analyzed by ANOVA and general linear model (SAS Institute, 1989) with means separated using Student-Newman-Keuls test at $P<0.05$.

RESULTS

Results for each replicate were not presented in the study report. There were no reported protocol amendments or deviations. Data were not corrected using Abbott's Formula. Summary results for BAS 350 HL I (TC-335; label formulation) are shown in Table 1, together with other materials tested and controls.

Table 1: Mean[1] percent mortality of termites per bioassay chamber at specific days after treatment.

TREATMENT	DAYS AFTER TREATMENT								
	1	2	3	4	5	6	7	8	9
BAS 350 HKI Form. Code: 237-036	0.0	0.0	0.0	2.5 b	92.5 b	100.0 a	100.0 a	100.0 a	100.0 a
BAS 350 HL I Form Code: 237-048	0.0	0.0	0.0	0.0 b	0.0 c	0.0 b	0.0 b	0.0 b	0.0 b
BAS 350 HJ I Form. Code: 235-056	0.0	0.0	0.0	85.0 a	100.0 a	100.0 a	100.0 a	100.0 a	100.0 a
PREMISE FOAM	0.0	0.0	0.0	0.0 b	0.0 c	0.0 b	0.0 b	0.0 b	0.0 b
WATER CONTROL	0.0	0.0	0.0	0.0 b	0.0 c	0.0 b	0.0 b	0.0 b	0.0 b
F value	--	--	--	139.87	347.81	Infty	Infty	Infty	Infty
Significance Level[3]	--	--	--	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Table 1 continued: Mean[1] percent mortality of termites per bioassay chamber at specific days after treatment.

TREATMENT	DAYS AFTER TREATMENT			
	10	11	12	13
BAS 350 HKI Form. Code: 237-036	100.0 a	100.0a	100.0 a	100.0 a
BAS 350 HL I Form Code: 237-048	0.0 b	93.75 a	100.0 a	100.0 a
BAS 350 HJ I Form. Code: 235-056	100.0 a	100.0 a	100.0 a	100.0 a
PREMISE FOAM	0.0 b	8.75 b	85.0 b	100.0 a
WATER CONTROL	0.0 b	0.0 b	0.0 c	0.0 b
F value	Infty	150.87	260.31	Infty
Significance Level[3]	0.0001	0.0001	0.0001	0.0001

1. Each mean based on a total of 80 individual termites (20 termites per bioassay chamber x 4 replications).
2. Letters following each mean represent significant differences based on Student-Newman-Kuels means separation test (P<0.05)
3. ANOV model

STUDY AUTHOR'S CONCLUSIONS

None

REVIEWER'S CONCLUSIONS

Control mortality was zero at all time intervals up to 13 days. Mean percent mortality of the group treated with BAS 350 HL I was zero up to Day 10; 93.75% on Day 11; and 100% on Day 13. No information was provided as to the location of the termites (i.e., in the treated or untreated chamber) during the course of the 13-day test period, and whether a repellent action of the test substance kept the termites from moving into the treated chamber.

REVIEWER'S RECOMMENDATIONS

Acceptable. Data can be used to support a label claim that the product kills Western drywood termites (*Incisitermes minor*), although questions remain concerning a possible repellent action of the test substance.

TASK 2 DATA EVALUATION RECORD

STUDY TYPE: Product Performance

MRID 486809-05. Jones, C.E. 2011. Bioactivity of Termidor Dry Pressurized (TC-311, 0.005% Fipronil), Termidor Dry (TC-328, BAS 350 HJ I, 0.5% Fipronil) and Termidor Foam (TC-335, 0.005% Fipronil) Against Eastern Subterranean Termites (*Reticulitermes flavipes*) Via Direct Contact Assays (DIMeS 1886a).

OCSPP 810.3500 [Premises Treatments]
OCSPP 810.3600 [Structural Treatments]

Product Name: TC-335

EPA Reg. No.: 499-LAG

Decision number: 459858

DP number: 400663

Prepared for
Registration Division (7505)
Office of Pesticide Programs
U.S. Environmental Protection Agency
Washington, DC 20460

Prepared by
Summitec Corporation
Task Order No.: 2-62

Primary Reviewer:
Dennis M. Opresko, Ph.D.

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Robert H. Ross, M.S. Program Manager

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Date: JUL 10 2012

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Signature: [signature]
Date: JUL 10 2012

Disclaimer

This review may have been altered subsequent to the contractors' signatures above.
Summitec Corp. for the U.S. Environmental Protection Agency under Contract No. EP-W-11-014

DATA EVALUATION RECORD

[EPA Primary Reviewer's Name]

STUDY TYPE:	PRODUCT PERFORMANCE [OCSPP 810.3500; 810.3600]
MRID:	486809-05. Bioactivity of Termidor Dry Pressurized (TC-335, 0.005% Fipronil), Termidor Dry (TC-328, BAS 350 HJ I, 0.5% Fipronil) and Termidor Foam (TC-335, 0.005% Fipronil) Against Eastern Subterranean Termites (*Reticulitermes flavipes*) Via Direct Contact Assays (DIMeS 1886a). Jones, C.E. 2011.
DP BARCODE:	400663
DECISION NO:	459858
SUBMISSION NO:	910069
SPONSOR:	BASF Corporation.
TESTING FACILITY:	APR/IB Advanced Testing II, Non-crop.
STUDY DIRECTOR:	S. Thompson, Ph.D., APR/IB Advanced Testing II, Non-crop.
SUBMITTER:	D.M. Thomas, BASF Corporation
STUDY COMPLETED:	31/07/2011
CONFIDENTIALITY CLAIMS:	None
GOOD LABORATORY PRACTICE:	"This study was not conducted in compliance with Good Laboratory Practice standards as described by EPA (40 CFR Parts 160 and 792), and was never intended for that purpose."
TEST MATERIAL:	PRODUCT NAME: TC-335 EPA REGISTRATION NUMBER: 499-LAG ACTIVE INGREDIENT NAME: Fipronil CHEMICAL NAME: [5-amino-1-(2,6-dichloro-4-(trifluoromethyl)phenyl)-4-((1,R,S)-(trifluoromethyl)sulfinyl)-1-H-pyrazole-3-carbonitrile] A.I. %: 0.005% PC CODE: 129121

	CAS NO.: 120068-37-3 FORMULATION TYPE: Pressurized foam PRODUCT APPLICATION RATE(S): Not quantified. ACTIVE INGREDIENT APPLICATION RATE(S): Not reported
PROPOSED LABEL MARKETING CLAIMS:	"Kills termites (including subterranean, drywood, dampwood, and arboreal)…"

STUDY REVIEW

Purpose: To evaluate the efficacy of Termidor® Dry Pressurized (TC-311, 0.005% Fipronil), Termidor® Dry (TC-328, BAS 350 HJ I, 0.5% Fipronil) and Termidor® Foam (TC-335, 0.005% Fipronil) against eastern subterranean termites (*Reticulitermes flavipes*) via direct contact assays.

MATERIALS AND METHODS

Test Location: Not reported.

Test Material(s): Termidor® Foam (TC-335; 0.005% fipronil,), Termidor® Dry (TC-328, 0.5% fipronil); Termidor® Dry Pressurized insecticide (TC-311, 0.005%). Termidor® Foam (TC-335) is identical to the substance listed under EPA Reg. No. 499-LAG.

Test Species Name, Life Stage, Sex and Age: Eastern subterranean termites (*Reticulitermes flavipes*); workers (beyond third instar).

Describe test containers, chambers and/or apparatus (include site description and location) and how experiment was conducted: A single piece of 125 mm diameter Whatman #2 filter paper was placed at the bottom of each 150 x 25 mm Petri dish. A hole was drilled in the center of the lid and the lid was secured in place with tape. Sufficient Termidor® Foam was applied (approximately 3 second release of trigger) to cover the entire inside surface of the Petri dish and lid. A small piece of tape was used to cover the hole in the lid. Petri dishes were weighed before and after spraying. After treatment the lids were replaced and the covered Petri dishes were kept in a fume hood at ambient laboratory temperatures for 24 hr. After 24 hr the lids were removed and the treatments were allowed to dry for at least an additional 24 hr. After drying, 40 worker termites (beyond third instar) were placed in the center of each dish and the dishes were maintained at 26°C and 80% RH in a darkened incubator, except during evaluation. Moisture was replenished as needed. Mortality and intoxication were assessed at 1, 2, 4, 8, 24 and 72 hours.

List the treatments including untreated control: Average amount dispensed across the 5 replicates was 6.67 g. Controls were "Termidor® Foam blanks" as well as untreated groups.

Number of replicates per treatment: 5.

Number of individuals per replicate: 40.

Length of exposure to treatment: Up to 72 hours.

Were tested specimens transferred to clean containers? No.

Experimental conditions: 26°C and 80% RH in a darkened incubator.

Data or endpoints collected/recorded: Number dead and intoxicated.

Data analysis: Mean percent mortality and mean percent intoxicated. No other data analysis.

RESULTS

Replicate data are included in the study report. There was no mention of protocol amendments or deviations. Data were not corrected using Abbott's Formula. Summary results for Termidor® Foam (TC-335; label formulation) are shown in Table 1, together with the results for the other materials tested and the controls.

Table 1. Bioactivity of Termidor® Dry and Foam Formulations on Subterranean termites (*R. flavipes*).

Treatment	Mean % mortality/intoxication at hours after exposure (HAE)[1]											
	1 HAE		2 HAE		4 HAE		8 HAE		24 HAE		72 HAE	
	d-m	intox	d-m	intox	d-m	intox	d-m	intox	d-m	intox	d-m	intox
Termidor Dry pressurized TC-311, 0.005% fipronil[2]	0.0	0.0	0.0	0.5	21.5	0.0	73.5	0.0	94.0	6.0	100.0	0.0
Termidor Dry TC 328, 0.5% fipronil[3]	0.0	0.5	33.5	0.0	76.5	0.0	93.0	0.5	100.0	0.0	100.0	0.0
Termidor Foam TC 335, 0.005% fipronil[4]	0.0	0.0	50.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0
Termidor Foam Blank[5]	0.0	0.0	1.0	0.0	4.5	0.0	8.5	0.0	8.5	0.0	8.5	0.0
Termidor Dry blank[6]	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	2.0	0.0	2.0	0.0
UTC	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	2.0	0.0	2.0	0.0

Bioassays initiated 28 July 2011

[1] Means based on 5 replicates per treatment

[2] Formula code 237- 036; Lab code 237-051; BAS 350 HKI; 0.005% fipronil disposition

[3] Formula and Lab code 237-056; BAS 350 HJI; 0.5% fipronil disposition

[4] Formula and Lab code 237-048; BAS 350 HLI, 0.005% fipronil disposition

[5] Formula and Lab code 238-039

[6] Formula and Lab code 238-038

Note: Intoxification was not defined by the study authors.

STUDY AUTHOR'S CONCLUSIONS

Mean percent mortality of the termites treated with Termidor® Foam (TC-335) was 100% by 4 hours.

REVIEWER'S CONCLUSIONS

Mean percent mortality of the groups exposed to the Termidor® Foam "blanks" was 4.5% at 4 hours; that of the untreated controls was 0%. Mean percent mortality was 100% at 4 hr for the group treated with Termidor® Foam (TC-335). The data support the conclusions of the study author.

REVIEWER'S RECOMMENDATIONS

Acceptable. Data can be used support a label claim that the product kills eastern subterranean termites (*Reticulitermes flavipes*).

TASK 2 DATA EVALUATION RECORD

STUDY TYPE: Product Performance

MRID 486809-06. Jones, C.E. 2011. Bioactivity of Termidor Dry Pressurized (TC-311, 0.005% Fipronil), Termidor Dry (TC-328, BAS 350 HJ I, 0.5% Fipronil) and Termidor Foam (TC-335, 0.005% Fipronil) Against Formosan Subterranean Termites (*Coptotermes formosanus*) Via Direct Contact Assays (DIMeS 1886b).

OCSPP 810.3500 [Premises Treatments]
OCSPP 810.3600 [Structural Treatments]

Product Name: TC-335

EPA Reg. No.: 499-LAG

Decision number: 459858

DP number: 400663

Prepared for
Registration Division (7505)
Office of Pesticide Programs
U.S. Environmental Protection Agency
Washington, DC 20460

Prepared by
Summitec Corporation
Task Order No.: 2-62

Primary Reviewer: Dennis M. Opresko, Ph.D.	Signature: [signature] Date: JUL 10 2012
Secondary Reviewers: Gene Burgess, Ph.D.	Signature: Gene Burgess, AE Date: JUL 10 2012
Robert H. Ross, M.S. Program Manager	Signature: Robert H. Ross Date: JUL 10 2012
Quality Assurance: Jennifer Goldberg, B.S.	Signature: [signature] Date: JUL 10 2012

Disclaimer

This review may have been altered subsequent to the contractors' signatures above.
Summitec Corp. for the U.S. Environmental Protection Agency under Contract No. EP-W-11-014

DATA EVALUATION RECORD

[EPA Primary Reviewer's Name]

STUDY TYPE:	PRODUCT PERFORMANCE [OCSPP 810.3500; 810.3600]
MRID:	486809-06. Bioactivity of Termidor Dry Pressurized (TC-311, 0.005% Fipronil), Termidor Dry (TC-328, BAS 350 HJ I, 0.5% Fipronil) and Termidor Foam (TC-335, 0.005% Fipronil) Against Formosan Subterranean Termites (*Coptotermes formosanus*) Via Direct Contact Assays (DIMeS 1886b). Jones, C.E. 2011.
DP BARCODE:	400663
DECISION NO:	459858
SUBMISSION NO:	910069
SPONSOR:	BASF Corporation.
TESTING FACILITY:	APR/IB Advanced Testing II, Non-crop.
STUDY DIRECTOR:	S. Thompson, Ph.D., APR/IB Advanced Tsting II, Non-crop.
SUBMITTER:	D.M. Thomas, BASF Corporation
STUDY COMPLETED:	30/07/2011
CONFIDENTIALITY CLAIMS:	None
GOOD LABORATORY PRACTICE:	"This study was not conducted in compliance with Good Laboratory Practice standards as described by EPA (40 CFR Parts 160 and 792), and was never intended for that purpose."
TEST MATERIAL:	PRODUCT NAME: TC-335 EPA REGISTRATION NUMBER: 499-LAG ACTIVE INGREDIENT NAME: Fipronil CHEMICAL NAME: [5-amino-1-(2,6-dichloro-4-(trifluoromethyl)phenyl)-4-((1,R,S)-(trifluoromethyl)sulfinyl)-1-H-pyrazole-3-carbonitrile] A.I. %: 0.005% PC CODE: 129121

CAS NO.: 120068-37-3
FORMULATION TYPE: Pressurized foam
PRODUCT APPLICATION RATE(S): Not quantified.
ACTIVE INGREDIENT APPLICATION RATE(S): Not reported

PROPOSED LABEL MARKETING CLAIMS: "Kills termites (including subterranean, drywood, dampwood, and arboreal)…"

STUDY REVIEW

Purpose: To evaluate the efficacy of Termidor® Dry Pressurized (TC-311, 0.005% fipronil), Termidor® Dry (TC-328, BAS 350 HJ I, 0.5% fipronil) and Termidor® Foam (TC-335, 0.005% fipronil) against Formosan subterranean termites (*Coptotermes formosanus*) via direct contact assays.

MATERIALS AND METHODS

Test Location: Not reported.

Test Material(s): Termidor® Foam (TC-335; 0.005% fipronil,), Termidor® Dry (TC-328, 0.5% fipronil); Termidor® Dry Pressurized insecticide (TC-311, 0.005%). Termidor® Foam (TC-335) is identical to the substance listed under EPA Reg. 499-LAG.

Test Species Name, Life Stage, Sex and Age: Formosan subterranean termites (*Coptotermes formosanus*), workers (beyond third instar).

Describe test containers, chambers and/or apparatus (include site description and location) and how experiment was conducted: The treatments were conducted in Petri dishes (150 x 25 mm). A single piece of 125 mm diameter Whatman #2 filter paper was placed at the bottom of each Petri dish. A hole was drilled in the center of the lid and the lid was secured in place with tape. Sufficient Termidor® Foam was applied (approximately 3 second release of trigger) to cover the entire inside surface of the Petri dish and lid. A small piece of tape was used to cover the hole in the lid after treatment. Petri dishes were weighed before and after spraying. After treatment the lids were replaced and the covered Petri dishes were kept in a fume hood at ambient laboratory temperatures for 24 hr. After 24 hr, the lids were removed and the treatments were allowed to dry for at least an additional 24 hr. After drying, 40 worker termites (beyond third instar) were placed in the center of each dish and the dishes were maintained at 26°C and 80% RH in a darkened incubator, except during evaluation. Moisture was replenished as needed. Mortality and intoxication were assessed at 1, 2, 4, 8, 24 and 72 hours.

List the treatments including untreated control (express application rate as g/m^2): Average amount dispensed across the 5 replicates was 7.65 g. Controls were "Termidor® Foam blanks," and untreated groups.

Number of replicates per treatment: 5.

Number of individuals per replicate: 40.

Length of exposure to treatment: Up to 72 hours.

Were tested specimens transferred to clean containers? No.

Experimental conditions: 26°C and 80% RH in a darkened incubator.

Data or endpoints collected/recorded: Number dead and intoxicated.

Data analysis: Mean percent mortality and mean percent intoxicated. No other data analysis.

RESULTS

Replicate data are included in the study report. There was no mention of protocol amendments or deviations. Data were not corrected using Abbott's Formula. Summary results for Termidor® Foam (TC-335; label formulation) are shown in Table 1, together with the results for the other materials tested and the controls.

Table 1. Bioactivity of Termidor® Dry and Foam Formulations on Subterranean Termites (*C. formosanus*).

Treatment	Mean % mortality intoxication at hours after exposure (HAE)[1]											
	1 HAE		2 HAE		4 HAE		8 HAE		24 HAE		72 HAE	
	d-m	intox	d-m	intox	d-m	intox	d-m	intox	d-m	intox	d-m	intox
Termidor Dry pressurized TC-311 0.005% fipronil[2]	0.0	0.0	0.0	0.0	8.5	1.5	76.5	1.0	99.5	0.5	100.0	0.0
Termidor Dry TC 328, 0.5% fipronil[3]	0.0	0.5	7.5	1.0	74.5	3.5	95.0	0.0	100.0	0.0	100.0	0.0
Termidor Foam TC 335, 0.005% fipronil[4]	2.5	0.0	4.0	24.5	92.0	3.5	99.0	1.0	100.0	0.0	100.0	0.0
Termidor Foam Blank[5]	1.5	0.0	1.5	0.0	2.0	0.0	2.0	0.0	4.5	0.0	6.5	0.0
Termidor Dry blank[6]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	2.0	0.0
UTC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.5	0.0

Bioassays initiated 27 July 2011

[1] Means based on 5 replicates per treatment

[2] Formula code 237- 036; Lab code 237-051; BAS 350 HKI; 0.005% fipronil disposition

[3] Formula and Lab code 237-056; BAS 350 HJI; 0.5% fipronil disposition

[4] Formula and Lab code 237-048; BAS 350 HLI, 0.005% fipronil disposition

[5] Formula and Lab code 238-039

[6] Formula and Lab code 238-038

Note: Intoxification was not defined by the study authors.

STUDY AUTHOR'S CONCLUSIONS

Mean percent mortality of termites treated with Termidor® Foam (TC-335) was 92% by 4 hours.

REVIEWER'S CONCLUSIONS

Mean percent mortality of termites treated with the Termidor® Foam "blank" was 2% by 4 hours; mortality of the untreated controls was 0%. Termidor® Foam achieved an acceptable level of termite mortality (>90%) by 4 hours. The data support the conclusions of the study author.

REVIEWER'S RECOMMENDATIONS

Acceptable. Data can be used to support a label claim that the product kills Formosan subterranean termites (*Coptotermes formosanus*).