

MEMORANDUM

SUBJECT: EPA Reg. No./File Symbol 499-GIL
PT-230 Thi-Die

FROM: William S. Woodrow WSW 3-30-93
Precautionary Review Section
Registration Support Branch
Registration Division (H75-05C)

TO: R. Mountfort / Daphne Wald (PM 10)
Insecticide - Rodenticide Branch
Registration Division (H75-05C)

APPLICANT: Whitman Research Labs., inc.
3568 Tree Court Ind. Blvd.
St. Louis, MO 63122

FORMULATION FROM LABEL:

<u>Active Ingredient(s):</u>	<u>% by wt.</u>
<u>Pyrethrins</u>	<u>0.6</u>
<u>Piperonyl Butoxide, technical</u>	<u>4.8</u>
_____	_____
_____	_____
<u>Inert Ingredient(s):</u>	<u>94.6</u>
Total	100.0%

BACKGROUND

Whitmire Research Labs. submitted six acute toxicity studies to support registration of PT-230 Tri-Die Insecticide. (EPA Reg. NO. 499-916 The MRID NOS. used were 426137-02 through 426137-07. This product is contained in a pressurized spray can; and was tested for eye irritation using the pressurized spray. The remaining five acute tox. studies were evaluated using the product-less the propellant.

RECOMMENDATION

- 1) The six acute toxicity studies submitted by Whitmire Research Labs. are acceptable. The acute oral, acute dermal, acute inhalation and the eye irritation study were graded Core Guideline Data.

The skin irritation study was graded Core Minimum data; as was the dermal sensitization study:

- a. skin irritation - All animals showed irritation throughout the observation

period - which was terminated at 7 days post treatment. Two animals showed eschar within 24 hours after treatment, and continued to show eschar through the 7 day observation period. The animals should have been observed for at least 21 days.

b. sensitization - The Draize scoring scale was used, instead of the Buehler scale.

2) An acute toxicity data profile for NO. 499-G11 follows:

study	Classification	Tox. Category
acute oral $LD_{50} > 5.0 \text{ g/kg}$	Guideline	IV
acute dermal $LD_{50} > 2.0 \text{ g/kg}$	Guideline	III
acute inhalation $LC_{50} > 4.8 \text{ mg/l}$	Guideline	III
eye irritation 3 E.O. scores 14d.	Guideline	II
skin irritation 2 animals eschar \rightarrow 7d. terminated at 7 days	Minimum	I
skin sensitization <u>did</u> sensitize g.p.	Minimum	-

3) No additional acute toxicity studies are required for NO. 499-G11.

LABELING

- 1) Change the product signal word from WARNING to read "DANGER".
- 2) Change the Precautionary Statements to read as follows:

" Corrosive - Causes burns - Causes substantial but temporary eye injury - Do not get in eyes, on skin, or on clothing - Harmful if absorbed through skin - Harmful if inhaled.

~~Wear protective clothing and rubber gloves. Avoid breathing dust (vapor or mist). Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.~~ Wear protective clothing and rubber gloves. Avoid breathing dust (vapor or mist). Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. " E

- 3) Under Statement of Practical Treatment
 - a. Add "Get medical attention" to the IF INHALED statement."
 - b. Add "Get medical attention" to the if on SKIN statement.

- 4) Add the following under Precautionary Statements -

" Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals." 4

- 5) HITS CRP TRIGGER DUE TO SKIN IRRITATION. HITS RESTRICTED USE TRIGGER FOR SAME REASON. PIM TEAM MUST DECIDE IF ALTERNATIVE LABELING IS SUFFICIENT TO OFFSET HAZARD AND THE NEED FOR RESTRICTED USE CLASSIFICATION. E

DATA REVIEW FOR ACUTE ORAL TOXICITY TESTING (§81-1)

Product Manager: (10) 10-16-92 Reviewer: Woodrow M. Waller
 MRID No.: 426137-02 Report Date: 3-25-93
 Testing Facility: Bioscience, Inc. Report No. 92-7607A
 Author(s): D. Gabriel
 Species: Rat, Sprague Dawley
 Age: not given Observation Days (Post Exposure): (14); other ()
 Weight: 201-224 g
 Source: Buckshill Corp. Parkside, PA.
 Test Material: PT-230 Tri-Di Insecticide (less propellant), liquid
 Quality Assurance (40 CFR §160.12): both G.L.P. & Q.A.

Conclusion:

- LD50 (mg/kg): Males = _____; Females = _____; Combined = _____
- The estimated LD50 is > 5.0 g/kg
- Tox. Category: IV. Classification: Guarantee

Procedure (~~Deviations From §81-1~~): Animals acclimated at least 5 days pre-test. One group of 5 MAF rats were deprived of food overnight. These animals were dosed by gavage with 5.0 g/kg. Animals observed frequently during dosing, and daily

DOSAGE (g/kg)	(NUMBER KILLED/NUMBER TESTED)		
	Males	Females	Combined
5.0 g/kg	0/5	0/5	0/10

Symptomology & Gross Necropsy Findings:

to 14 days for toxic signs and mortality. All animals were subjected to gross necropsy examinations. Body weights recorded on weekly basis.
Clinical: All animals appeared normal and gained weight during 14 day observation period.
Necropsy examination: No gross abnormalities observed.

Product Manager: (101) 1016-92 Reviewer: W. J. D. Hall
 MRID No.: 426137-03 Report Date: 3-25-93
 Testing Laboratory: Biosearch, Inc. Report No. 92-7607A
 Author(s): D. Gabriel
 Species: Rabbit, NZ White
 Sex: 5M+5F Wt.: 2.63-2.98
 Test Material: PT-230TKI-Diet Insecticide (Less Propellant)
 Quality Assurance (40 CFR §160.12): both G.L.P. & Q.A.

Summary:

- LD50 (mg/kg): Males = _____; Females = _____; Combined = _____;
- The estimated LD50 is > 2.0 g/kg
- Tox. Category: III. Classification: Guideline

Procedure (~~Deviations From §91.27~~): Animals acclimated at least 5 days prior to test. Approx 24 hrs prior to dosing, fur was clipped from backs of 5M+5F rabbits. 2.0g/kg was applied to clipped backs of each animal, to cover Results: approx 10% of body surface - dose applied to

Reported Mortality

DOSAGE (g/kg)	(NUMBER KILLED/NUMBER TESTED)		
	Males	Females	Combined
2.0 g/kg	0/5	0/5	0/10

Symptomology & Gross Necropsy Findings:

Large, porous gauze patches which were placed on test sites. Treated area was wrapped with occlusive material & secured with elastic tape. 24 hour skin contact sites wiped. Animals observed for toxic signs and mortality to 14 days. Dermal irritation scored according to the Draize System. Body weights recorded at weekly intervals.

Clinical: Well defined erythema - mod. to severe edema 2 animals, necrotic skin for 3 animals at 24 hours. Eschar + slight to mod. edema day 2, for 5 animals. Eschar noted throughout 14 day observation period. Animals (optically healthy leg appearance for 14 days & appeared normal).

Necropsy:

one male - green colored liquid in stomach, fecal staining, light green liquid & gas in stomach of 2nd male.

one female exhibited gas in stomach.

DATA REVIEW FOR ACUTE INHALATION TOXICITY TESTING (S81-3)

Product Manager: (16) 10-14-92 Reviewer: W. Woodrow
 MRID No.: 426137-04 Report Date: 3-25-92
 Testing Laboratory: Bioscience, Inc. Report No. 92-7607A
 Author(s): R. J. Hershman
 Species: Rat, Sprague Dawley
 Sex: 5M/5F Weight: 209-239g
 Source: Buckshie Corp., Port Kersie PA
 Test Material: PT-230 Trl-Die Insecticide (Less Propellant)
 Quality Assurance (40 CFR S160.12): both G.L.P. & Q.A.

Summary:

- LC50 (mg/kg): Males = _____; Females = _____; Combined = _____
- The estimated LC50 is $> 4.78 \text{ mg/L}$
- Mean Concentration: _____
- Tox. Category: III. Classification: Guelbrie

Procedure (~~Deviations From S81-2~~): 5M/5F rats were placed in restraining cages to hold animals separately, and then the group placed into 230 L for 4 hours while being exposed to aerosol of test material.

Results:

Exposure Concentration (mg/L)	Reported Mortality (NUMBER KILLED/NUMBER TESTED)		
	Males	Females	Combined
4.78 mg/L	0/5	0/5	0/10

Symptomology & Gross Necropsy Findings:

Exposed animals observed daily to 14 days for signs of toxicity and/or mortality. Body weights recorded weekly. All animals subjected to gross necropsy examinations.

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The aerosol was generated by a V8 JCO-55 plus SWIA-55 spray nozzle (Spraying Systems), fed by syringe pump. Air was passed through desiccant prior to passing through nozzle. Temp. & humidity recorded every 30 min.

The chamber concentration was measured 4 times during exposure by pulling chamber air through pre-weighed glass fiber filters - increased wt. \div L air sampled = mg/L air. Four sets of tandem midge sampling samples collected at 4 periods during exposure for analytical chemical determination.

Particle size distribution was determined by pulling chamber air samples (4) through a Cascade Impactor. Material collected on each plate (pre-weighed) determined gravimetrically. MMAD & GSD calculated.

RESULTS

particle size	Gravimetric conc.	aver- ages	
AU. of 4 (μ)	Andersen	Filter	analytical
2.93 μ	2.48 mg/L	2.34 mg/L	4.78 mg/L
MMAD = 2.93 μ \pm 0.15			

Note that the analytical (chemical) measurement of chamber concentration was approximately 2x that of the two gravimetric measurements; the tester states that very small particulates or volatile vapor material would not be impinged onto the gravimetric glass fiber filter media; which would account for the difference.

Clinical observations & gross neoplasms:
All animals appeared normal.

All animals gained weight.

Product Manager: (10) 10-14-92
 MRID No.: 426137-05
 Testing Laboratory: Bioscience, Inc.
 Author(s): G. E. Moore

Reviewer: M. Waller
 Report Date: 3-25-93
 Report No. 92-7607A

Species: Rabbit, NZ white
 Sex: 3M & 3 females Weight: not given
 Source: Davidson Mill Farm, Jamesburg NJ
 Dosage: 1 sec. spray from 10 cm
 Test Material: PT-230 TH- Die Insecticide (Pressurized Product)
 Quality Assurance (40 CFR §160.12): both G.C.P. & Q.A.

Summary:

Tox. Category: II Classification: Guideline

Procedure (~~Deviation From §81-4~~): Animals acclimated at least 5 days pre-test. Within 24 hours pre-test, both eyes of 6 rabbits examined for defects using fluorescein dye. One eye - each rabbit: Spray can shaken and test results: sprayed - A one-second spray to each test eye

Observations

	(number "positive"/number tested)								
	Hour	Days							
	1	1	2	3	4	7	14	21	
Cornea Opacity	0/6	1/6	1/6	1/6	0/6	0/6	0/6	0/6	0/6
Iris	0/6	0/6	0/6	0/6	0/6	0/6	0/6	0/6	0/6
Conjunctivae Redness	6/6 ¹⁻³	6/6 ¹⁻³	4/6 ¹⁻³	2/6 ¹⁻³	1/6 ³	1/6 ⁷	1/6 ¹	0/6	
Chemosis	6/6 ¹⁻³	6/6 ¹⁻³	3/6 ¹⁻⁴	2/6 ¹⁻³	1/6 ³	1/6 ³	1/6 ¹	0/6	
Discharge	6/6 ²⁻³	5/6 ¹⁻³	2/6 ¹⁻³	1/6 ³	1/6 ³	1/6 ³	1/6 ¹	0/6	

Comments: (6 eyes sprayed) at a distance of 4 inches, or 10 cm. Lids held together following spray one second. Eyes examined at 1, 24, 48, 72 hours and at 4 and 7 days following installation of test material. All eyes examined also at 14 and 21 days, using Draize system. NOTE: Clearing in 8-21 days for Cat. III, but did not (14d+)

Product Manager: 1101 10-21-92
MRID No.: 426137-06
Testing Laboratory: Blaschich, Inc.
Author(s): G.E. Maize
Species: Rabbit, N2 White

Report Date: 3-25-93
Report No.: 92-7607A

Age: Not given
Sex: 3M + 3F
Weight: (approx) M = 2.0 kg, female = 2.75 kg

Dosage: 0.5 ml
Test Material: PT-230 Tri-Dre Insecticide (Less Propellant), liquid
Quality Assurance (40 CFR §160.12): both G.L.P. + Q.A.

Summary: Observations suspended after 7 days - two animals exhibited eschat at 7 days - scores of 4-0 (in depth

The Primary Irritation Index = _____ injury)

Toxicity Category: 1 should have

Classification: Core Minimum gone to 21 days

Procedure (Deviations From §81.5): Animals acclimated at least

5 days pre-test. A group of six rabbits ^{was} clipped over a wide area on backs approx. 2 hrs before dosing 2.5 ml of test material applied to each test site (6 animals); approx. 6 cm². Gauze patches on tape placed over

Results: treated and adjacent control areas. Semi-occlusive

occlusion wrapped around trunk - secured elastic tapes 4 hr skin contact. Wrapping removed, sites wiped. Treated areas examined for erythema and edema, using Oramp scoring: @ 30-60 min post patch removal, at 24, 48, 72, and at 7 days.

NOTE: Scoring was suspended after recording on (at) 1, 24, 48 + 72 hours and at 7 days

Special Comments: Edema: One animal showed 1.0 scores thru 72 hrs, 3 more animals showed 1.0 readings at 1 hr, Erythema 1 animal + 1.0 scores thru 72 hrs, and other two animals showed 1.0 scores @ 24, 48 + 72 hrs. However 12 two animals exhibited eschat beginning (1 at 24 and 1 at 1 hr), and continuing thru 7 days, when scoring was suspended.

Two animals exhibiting eschar to and through observation period (7 days).

The eschar is considered a Droize score of 4.0. Since it (scoring) was suspended after 7 days, these 4.0 scores are considered toxicity Category I. The registrant should have continued observation of treated sites through 21 days.

DATA REVIEW FOR SKIN SENSITIZATION TESTING (981-0)

Product Manager: (10) 10-14-92 Reviewer: ~~M. D. Miller~~ ^{W. D. Miller}
 MRID No.: 426137-07 Report Date: 3-30-93
 Testing Laboratory: Bioscience, Inc. Report No.: 97-7607A
 Author(s): G. E. Moore
 Species: Guinea pig, Hartley
 Sex: Male Weight: 410-524g
 Source: Davidson Mill Farm, NJ (less propellant)
 Test Material: PT-232 Tri-Dic Insecticide Concentrate
 Positive Control Material: 2,4-dinitrochlorobenzene DNCB
 Quality Assurance (40 CFR §160.12): both G.L.P. & Q.A.

Method: "Modified" Buehler

Summary: Draize scoring scale used, instead of using the Buehler scale

1. This product is not a dermal sensitizer.
2. Classification: Core minimum Data

Procedure (~~Deviation From 981-0~~): Animals acclimated at least 7 days prior to test.

Pilot study to determine "minimally irritating threshold concentration and the highest non-irritating concentration".

Results: Concentrations of 100%, 75%, 50%, 25%, 5% and 10% v/v in mineral oil. Doses remained in skin contact for 24 hours. Based on the pilot study, test animals were induced using 50% v/v in white mineral oil. A 25% v/v dilution in white mineral was used for challenge.

Induction - A group of 10 m g. pigs. ^{was} ~~was~~ clipped free of hair on right sides prior to study start & reprinted as necessary. 0.4 ml of test material applied to gauze patch, which had been placed onto impervious plastic. Patch was applied to skin, and was wrapped snugly around trunk - secured with tape.

24 hour skin contact for application #1, and 6 hour contact for applications 2 thru 9.

Induction applications 3x weekly, to total 9. Patches removed and sites wiped & water. After 9th application, animals rested for two-week period.

Challenge - A challenge application was applied to left flank of induced animals (naive sites). A group of 5 naive animals were also treated at time of challenge & naive control animals). Challenge applications remained in contact for 24 hours.

Results

Average NO.1 induction score was 1.2. The average 24 hour challenge score was 1.8. 1 - 48 hour challenge animals exhibited a score of 1.0, one 24 hr. challenge score showed a 3.0 score, and 7 24 hour challenge scores were 2.06 for erythema.

Naive control animals (5) 24 hour contact. One animal exhibited a 2.0 score, one animal showed a 1.0 score for edema.

The results indicate that the test material did sensitise guinea pigs.

The positive control study did result in
sensitizing guinea pigs with DNFB.

Tox Chem. No.

069001 pyrethroids

067501 pipetonyl butoxide

File Last Updated

Current date

3-30-93

Study/Species/Lab/Study# Date	Material	MRID No.	Results	Tox. Cat.	Core Grade
acute oral LD50, Rat Biosearch, inc	PT-230 Tti-Die Insecticide (less propellant).	426137 -02	LD50 > 5.0 g/kg	IV	Guide line
92-7607A 10-16-92 acute dermal LD50, Rabbit Biosearch, inc	"	426137 -03	LD50 > 2.0g/kg	III	Guide line
92-7607A 10-16-92 acute inhalation LC50, Rat Biosearch, inc	"	426137 -04	LC50 > 4.78 mg/L	III	Guide line
92-7607A 10-14-92 eye irritation, Rabbit Biosearch, inc	PT-230 Tti-Die Insecticide (Pressurized)	426137 -05	3 animals showed 1.0 scores at 14 days	II	Guide line
92-7607A 10-14-92 skin irritation, Rabbit Biosearch, inc	PT-230 Tti-Die Insecticide (less propellant)	426137 -06	observations stopped at 7 days - 2 an. showed eschar - Dose 400	I	Core minim.
92-7607A 10-21-92 skin sensitization, Guinea Pigs Biosearch, inc	"	426137 -07	Test material did sensitize Guinea Pigs	-	Mini- man
97-7607A 10-14-92					