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

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: EPA Reg. No./File Symbol 51036-RAU
Azinphosmethyl 50W

FROM: William S. Woodrow WSW 6-19-89
Precautionary Review Section
Registration Support Branch
Registration Division (H75-05C)
E 6/19/89

TO: Edwards / Jenkins (PM 12)
Insecticide-Rodenticide Branch
Registration Division (TS-767C)

APPLICANT: Micro Flo Co.
P. O. Box 5948
Lakeland, Florida 33807

FORMULATION FROM LABEL:

	% by wt.
Active Ingredient(s):	
O,O-Dimethyl S-[(4-oxo-1,2,3-benzotriazin-3(4H)-yl) methyl] phosphorodithioate	50.0
Inert Ingredient(s):	50.0
Total	100.0%

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BACKGROUND:

The Micro-Flow Co. submitted acute oral, dermal, inhalation, primary eye and dermal irritation, and dermal sensitization studies, to support registration of Azinphosmethyl 50W. MRID NOS. 41051302 through 41051307.

RECOMMENDATION:

The acute toxicity studies subbmitted by Micro-Flo are acceptable to RSB/PRS. The acute inhalation study was graded Core Minimum; an aerosol generating device should have been used to produce a more uniform, more concentrated cloud.

LABELING:

1) The DANGER label signal word is appropriate
2) Change Precautionary Statements as follows; after .... breathe vapor, dust or spray mist, add, "Wear a mask or pesticide respirator jointly approved by the Mining Enforcement and Safety Administration and the National Institute for Occupational Safety and Health. Corrosive. Causes irreversible eye damage. Wear goggles, face shield or safety glasses." Following .... Soap and water before eating or smoking, add, "Remove contaminated clothing and

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wash before reuse.

3) The Statements of Practical Treatment are acceptable.

4) On the label front panel, in immediate proximity to the word poison, the skull and cross bones must appear.

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

Product Manager: (12) Reviewer: Woodrow ~~M. Walter~~
MRID No.: 410513-02 Report Date: 6-15-89
Testing Facility: Stillmeadow, Inc. Report No. 5918-89
Author(s): J. O. Kuhn
Species: Rat, Harlan Sprague Dawley
Age: young adult Observation Days (Post Exposure): (14); other ( )
Weight: M 198-255, F 176-227 g.
Source: Harlan Sprague-Dawley, Inc.
Test Material: Azinphos Methyl 50 WP (powder)
Quality Assurance (40 CFR §160.12): acceptable
CMC = carboxy methyl cellulose
Conclusion:

1. LD_{50} (mg/kg): Males = 19.03 (14.82-24.85) mg/kg; Females = 10.99 (7.59-15.91) mg/kg; Combined = 14.39 (11.56-17.91) mg/kg
2. The estimated LD_{50} is 14.39 (11.56-17.91) mg/kg.
3. Tox. Category: I. Classification: Guidelines

Procedure ~~(Deviations From §81-1)~~: Test material: 1.0% W/V conc. in 0.5% W/V CMC (4 lowest levels), & 10% W/V conc. in 0.5% CMC (highest dose levels). Oral intubation - Observed for mortality & toxic signs 3X at treatment, 1x daily to 14 days & gross necropsies. B. wts. @ 0, 7 & 14 days.

Results:

Reported Mortality

DOSAGE (mg/kg)	(NUMBER KILLED/NUMBER TESTED) Males	Females	Combined
10 mg/kg	0/5	2/5	2/10
15 "	0/5	4/5	4/10
20 "	5/5	5/5	10/10
30 "	4/5	—	4/5
50 "	5/5	5/5	10/10
100 "	5/5	5/5	10/10

Symptomology & Gross Necropsy Findings:

Beginning @ 2M & 5F - 20 mg/kg, Time of death (including higher doses), Was usually ½ hour - clinical signs included lacrimation, salivation, Rasibes, Cloudy tan liquid in stomach, yellow mucoid material in small intestine; green/brown paste in large intestine (upper doses).

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DATA REVIEW FOR ACUTE DERMAL TOXICITY TESTING (§81-2)

Product Manager: (12)
MRID No.: 410513-03
Testing Laboratory: Stillmeadow, Inc.
Author(s): J.O. Kuhn
Species: Rabbit, NZ white
Sex: 5M+5F
Test Material: Azinphos methyl WP ; powder
Quality Assurance (40 CFR §160.12): acceptable

Reviewer: ~~H. Walton~~ (Woodrow)
Report Date: 6-[illegible]-89
Report No. 5919.89

Wt.: M 2.3-2.875, F 2.625-2.575 kg

Summary:

1. LD_{50} (mg/kg): Males = ____; Females = ____; Combined = ____;
2. The estimated LD_{50} is >2020 mg/kg.
3. Tox. Category: III. Classification: Guidelines

Procedure (~~Deviations From §81-2~~): 5M+5F rabbits treated @ 2,020 mg/kg test materials to clipped dorsal area (10% of body surface) moistened @ 0.2 ml saline. Surgical gauze / non-irritating tape / trunks wrapped. 24 hr contact, remove wrapping, wipe sites, observe for mortality/toxicity @ ½, 3, 6 hrs, daily to 14 days + gross necropsies. Bd. wts.

Results:

Reported Mortality

DOSAGE (mg/kg)	(NUMBER KILLED/NUMBER TESTED) Males	Females	Combined
2020 mg/kg	0/5	0/5	0/10

Symptomology & Gross Necropsy Findings:

One male & 1 female lost weight. Gross necropsy for the male that lost weight included: signs of diarrhea, emaciation, small & large intestine empty. No abnormalities noted for remaining animals. Clinical-toxicity, beginning day 5 included decreased defecation, small feces, diarrhea, activity decrease.

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

Product Manager: (12) Reviewer: W. Woodrow
MRID No.: 41053-04 Report Date: 6-15-89
Testing Laboratory: Stillmeadow, Inc. Report No. 5923-89
Author(s): Mark S. Wolbert
Species: Rat, HSD
Sex: 25M & 25F Weight: M218-314, F196-285 g.
Source: Harlan Sprague Dawley
Test Material: Azinphosmethyl 50 WP Powder
Quality Assurance (40 CFR §160.12): acceptable

Summary: Tester should ~~use~~ have used ~~an~~ aerosol generating device capable of delivering more uniform, more concentrated cloud.

1. LC_{50} (mg/kg): Males = —; Females = —; Combined = —
2. The estimated LC_{50} is 0.0821S mg/L
3. Mean Concentration: —
4. Tox. Category: II. Classification: Core Minimum

Procedure ~~(Deviations From §81-2)~~: ~~5M+5F/group, 5 groups, separately~~ exposed to "fine powder" for 4 hr periods each. 200L exposure chamber. Observed for mortality & toxicity daily to termination at 14 days. Body weights. Terminal gross necropsies.

Results:

Reported Mortality

Exposure Concentration (mg/L)	(NUMBER KILLED/NUMBER TESTED) Males	Females	Combined
0.075 mg/L	0/5	0/5	0/10
0.096 "	5/5	5/5	10/10
0.116 "	5/5	5/5	10/10
0.353 "	5/5	5/5	10/10
0.550 "	5/5	5/5	10/10

~~Symptomology & Gross Necropsy Findings:~~

Aerosols generated by "passing a stream of dry air through 1 or more glass flasks containing test material & suspension then diluted & dried air & passed into exposure chamber. Chamber air flow through critical orifice (to maintain flow). Gravimetric Concentration — air sample through pre-weighed filter.

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wt. ÷ by liters of air/sample. Particle sizing could not be made for lowest exposure level, due to gravimetric sampling. Particle sizing by Andersen cascade impactor.

Results: Dead/Tested Gravimetric wt. (mass) mg/L

Dose (mg/L)	M	F	M + F	
0.075	0/5	0/5	0/10	0.075
0.090	5/5	5/5	10/10	0.090
0.116	5/5	5/5	10/10	0.116
0.353	5/5	5/5	10/10	0.353
0.550	5/5	5/5	10/10	0.550

Clinical signs: activity decrease, ataxia, body tremor, constricted pupils, dilated pupils, epistaxis, gasping, lacrimation. Necropsies: chromodacryorrhea, lacerations, nasal discharge, pilo-erection, salivation.

µ particle size	% of particles collected
<= 0.81	5
<= 1.39	16
<= 3.23	50
<= 7.49	84
<= 12.88	95

Particles were respirable

Combined LC_{50} (M+F) = 0.08215 mg/L (undefined confidence limits)

Females LC_{50} = 0.08215 (undefined confidence limits)

Males LC_{50} = 0.08215 (undefined confidence limits).

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DATA REVIEW FOR ACUTE EYE IRRITATION TESTING (§81-4)

Product Manager: (12)
Reviewer: Woodrow ~~M. Waller~~
MRID No.: 410512-05
Report Date: 6-19-89
Testing Laboratory: Stillmeadow, Inc.
Report No. 5920-89
Author(s): J. O. Kuhn
Species: Rabbit, NZ white
Sex: 6M, 3F
Weight: not given
Source: Ray Nichols Rabbitry, TX
Dosage: 100 mg
Test Material: Zinphosmethyl 50W, powder
Quality Assurance (40 CFR §160.12): acceptable

Summary:

Tox. Category: I
Classification: Guidelines

Procedure (~~Deviation From §81-4~~): 100 mg to conjunctival sac of 6M & 3F rabbits; (1 eye each). Lids gently held 1 sec. 3/9 eyes washed 1 min. 30 sec after treatment, remaining eyes unwashed. Eyes examined & scored @ 1, 24, 48, 72 hrs, & 4, 7, 10, 14, & 21 days post treatment.

Results:

	Observations (number "positive"/number tested)							
	Hour	Days						
	1	1	2	3	4	7	14	21
Cornea Opacity	0/9	1/9	0/9	0/9	0/9	0/9	0/9	0/9
Iris	9/9	2/9	2/9	2/9	1/9	0/9	0/9	0/9
Conjunctivae Redness	9/9	9/9	8/9	7/9	6/9	5/9	2/9	1/9
Chemosis	9/9	9/9	6/9	6/9	3/9	1/9	1/9	1/9
Discharge	9/9	8/9	6/9	6/9	9/9	2/9	1/9	1/9

Comments: 3 treated/washed eyes showed less severe irritation - 1/9 animals showed minimal opacity at 1 period only (24 hrs) - Irritation through 21 days.

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DATA REVIEW FOR SKIN IRRITATION TESTING (§81-5)

Product Manager: (12)
MRID No.: 41053-06
Testing Laboratory: Stillmeadow, Inc.
Author(s): J. O. Kubin
Species: Rabbit, N.Z. White
Age: Young adult
Sex: 3M+3F
Weight: Not given
Dosage: 500 mg, moistened
Test Material: Azinphosmethyl 50W, powder
Quality Assurance (40 CFR §160.12): Acceptable

Reviewer: H. Waller (Goodrow)
Report Date: 6-19-89
Report No.: 5921-89

Summary:

The Primary Irritation Index = not calculated (a slight irritant)

Toxicity Category: III

Classification: Guidelines

Procedure (~~Deviations From §81-5~~): 500mg test material moistened ē 0.5ml saline placed beneath gauze patch (2.5cm²), 1 each of 3M+3F rabbits (Clipped free of hair-2 areas). Area of ē tape/bandage wrapped ē semi-permeable dressing after contact, sites wiped, test sites scored @ 1, 24, 48, 72 hrs + at 7 day. (max. of 8.0 score possible.)

Results:

Irritation scores (overall/time period of examination):

1 hr	1.8 (score)
24 hrs	1.0
48 hrs	0.5
72 hrs	0.2
7 days	0.0

Irritation persisted through 72 hrs, absent by day 7.

Practically not an irritant (0.2) at 72 hrs

Special Comments:

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DATA REVIEW FOR SKIN SENSITIZATION TESTING (§81-6)

Product Manager: (12)
Reviewer: ~~M. Waller~~ Woodrow
MRID No.: 410513-07
Report Date: 6-19-89
Testing Laboratory: Stillmeadow, Inc.
Report No. 5922-89
Author(s): J. O. Kuhn
Species: Guinea pigs / Hartley
Sex: Male
Weight: 305-375 g
Source: Harlan Sprague-Dawley
Test Material: Azinphos methyl 50WP powder
Positive Control Material: 2-4, dinitrochlorobenzene (DNCB)
Quality Assurance (40 CFR §160.12): Acceptable

Method: Buehler

Summary:
1. This product is / (is not a dermal sensitizer.)
2. Classification: Guidelines

Procedure ~~(Deviation From §81-6):~~ A pilot study determination indicated 50mg T. mat. moistened ~ 0.075ml water. Body wt. Range 0 d 35.

Induction: 50mg test mat. moistened ~ 0.075 ml water beneath 3.8 x 5cm gauze pad secured ~ tape adhesive, to clipped backs of 10 male g.p. Backs wrapped ~ 4 mil polyethylene. 6 hr. Contact. 10 additional g.p. treated ~ a 0.06% w/v sol. of DNCB (+control) in ethanol; doses secured as for the test animals. Both test and + control animals treated (induction) on Days 1, 3, 6, 8, 10, 13, 15, 17 ± 20, (22) (10 induction applications).

All animals clipped prior to treatment. The same test sites were used for all induction applications. Following the last induction applications, all animals rested 14 days.

Challenge: At challenge, all animals treated as before, using the same test sites (14 days after last induction), and also a virgin test site was clipped. Observations for skin reactions made 24 hrs after each treatment. Also, dermal reactions scored

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after induction treatments, and the challenge treatment at 48 hours.

Results	study day	Group	original test site	Virgin test site
Treatment				
initial	1	I	0.0	—
challenge	36	I	4.3	1.2
initial	1	II	0.0	—
challenge	36	II	0.0	0.0

Sensitizing reaction was produced in guinea pigs. The test material induction nor challenge treatments produced any irritation.

Test material did not sensitize guinea pigs.

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