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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 279-GNTR
Cynoff 2 EC Insecticide

FROM: William S. Woodrow WSW 7-25-89
Precautionary Review Section E 7/26/89
Registration Support Branch
Registration Division (H75-05C)

TO: LaRocca / Heyward (PM 15)
Insecticide - Rodenticide Branch
Registration Division (TS-767C)

APPLICANT: EMC Corporation
Agricultural Chemical Group
2000 Market St.
Philadelphia, PA 19103

FORMULATION FROM LABEL:

Active Ingredient(s):	% by wt.
<u>Cypermethrin: α (\pm)-cyano-(3-phenoxyphenyl)</u>	<u> </u>
<u>methyl (\pm)-cis, trans-3-(2,2-dichloroethyl)</u>	<u> </u>
<u>-2,2-dimethylcyclopropane carboxylate</u>	<u>24.8</u>
<u>Inert Ingredient(s):</u>	<u>75.2</u>
Total	100.0%

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BACKGROUND:

EMC Corporation submitted an acute inhalation toxicity study to support Cynoff 2 EC Insecticide. The PMID NO. used was 411162-01. Woodrow (5-17-89) previously reviewed acute oral (Tox. Cat. III), acute dermal (Tox. Cat. III), eye irritation (Tox. Cat. III), skin irritation (Tox. Cat. IV), and dermal sensitization studies for the Cynoff 2 EC product.

RECOMMENDATION:

The acute inhalation study submitted by EMC Corp. is acceptable to RSB/PRS.

LABELING:

- 1) The CAUTION label signal word is acceptable.
- 2) The precautionary and statements of practical treatment are acceptable (these designations include all six acute toxicity studies).

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

Product Manager: (151) Reviewer: W. Woodrow
 MRID No.: 411152-01 Report Date: 7-25-89
 Testing Laboratory: Emc. Tox. Lab., NY. Report No. A87-2547
 Author(s): Laurence B. Reddick
 Species: Rat, Sprague Dawley
 Sex: 15M & 15F Weight: M257-499, F202-253g
 Source: Taconic Farms, NY
 Test Material: Cypermethrin (Cynoff) 2.0g
 Quality Assurance (40 CFR 5160.121): acceptable

Summary:

- LC₅₀ (mg/kg): Males = 1.8 mg/L (0.0-3.7); Females = 1.7 (0.1-3.4) mg/L; Combined = 1.8 (0.9-2.7) mg/L
- The estimated LC₅₀ is 1.8 (0.9-2.7) mg/L
- Mean Concentration: _____
- Tox. Category: III. Classification: Quaternary

Procedure (Deviations From S81-3): Undiluted test material. Aerosol generated using an FM1 fluid mixing pump - to a Vent Spray Nozzle atomizer. Compressed air to atomizer - aerosol to exposure chamber - 100 liter stainless steel & jiliflyer

Results:

Exposure Concentration (mg/L)	Reported Mortality (NUMBER KILLED/NUMBER TESTED)		
	Males	Females	Combined
3.2 mg/L (wet gravim)	3/5	5/5	
2.0 mg/L "	3/5	2/5	
0.3 mg/L "	0/5	0/5	

~~Symptomology & Gross Necropsy Findings:~~

Chamber - 22 air changes/hr. 4 hours exposures. Test material flows weighed before and after exposure, - passed air, to give nominal mg/L conc. Chamber air samples collected on 37 mm glass fiber filters at 1 hr intervals, to determine actual concentration, using Model #201 Aeris cascade impactor

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at 3.0 l/minute. Aerosol particle size distribution determined by wet of material/interacted stage & subsequent wet of MMAD & geometric std. deviation (also analyzed chemically). Animals observed for toxicity & mortality frequently during exposure, 2x daily to 14 days. Body weights day 0, 1, 2, 4, 7 & 14. Necropsy on dead animals and survivors.

	Gravimetric mg/L (dry wt.)	Analyzed mg/L Gas Chem. on A.T.	Formulation	Nominal mg/L
dose	2.1 ± 0.24	0.57 ± 0.042	2-1	30-1
levels	1.2 ± 0.24	0.33 ± 0.013	1-2	13.6
	0.1 ± 0	0.05 ± 0.005	0-2	4.6

Wet weight gravimetric weights: 3.2, 2.0 ± 0.3 mg/L.

Particle size distribution =

Conc. (mg/L)	MMAD (μ)	GSD (μ)	% < 10 μ
3.2	1.60	2.18	96.0%
	1.42	2.18	96.5%
2.0	1.43	2.17	97.6%
	1.45	2.17	97.5%
0.3	1.62	2.15	98.4%
	1.12	2.06	99.6%

NOTE: Analytical (from gas film filter) more accurate, however, unknown precision due to delayed analysis and loss; therefore the wet gravimetric values were used to determine the actual aerosol concentration. As shown above, the particle sizes were respirable.

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Clinical signs: Abdomino-pelvic staining, dyspnea, hypersensitive to touch, lacrimation, lacrimation, nasal discharge, wet fec.

Body wt: A significant mean body weight loss 1 day post exposure. Mean weight loss at high dose 2 days post exposure. Lower dosing rates produced less pronounced body weight differences; compared to untreated animals.

Necropsies: Bleed in intestines of 1 male at the high dose (3.2 mg/L), and also for 1 female at the (2 mg/L) middle dose. Both animals found dead 1 day post exposure.

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