ENVIROMENTAL SAFETY
REVIEW SUMMARY
106401

1-21-74
(1)

Chemical Trade Avenge 2A-5

Common AC 84,777

Chemical 1,2-dimethyl-3,5-diphenylpyrazolium methyl sulfate ~~3H8O4S~~

Company CYANAMID

Submission TEMP PERMIT 241-EXP-X PETITION 4G-1453 REGISTRATION ____

Date submitted 1/15/74 Date received 1/21/74

Type of chemical Herbicide

Use Postemergence control of wild oats in spring planted barley. 502 gallons to treat ≤ 500 A of barley in Ca., Col., Idaho, Minn., Mont., N.D., Ore., S.D., Wash., Wyo., Proposed tolerance 0.5 ppm Avenge in barley straw and 0.05 ppm in barley grain

---

Data submitted for review

Environmental safety:

Mammal LD_{50}	✓
Mammal chronic	✓
Fish	✓
Bird	✓
Shrimp, crab, oyster	____
Other	____

Environmental chemistry (70-15)

Fish, residue	✓
Other	In progress

Chemical — Avenge
Petition — Cyanemid

Req no. ______
Exp permit no. 241-EXP-X
Petition no. 4G1453
Submission date 1/15/74

Accession no

ORGANISM	TEST	LD_{50}	LC_{50} Dietary	LC_{50} Aquatic 24 hr	48 hr	96 hr	TEST MATERIAL
Rat, ♂	acute oral	270 mg/kg					TECHNICAL
Mouse, ♂	acute oral	31 mg/kg					"
Mouse, ♀	acute oral	44 mg/kg					"
Rabbit, ♂	acute oral	470 mg/kg					"
Rabbit, ♂	acute dermal	>3540 mg/kg					"
Bluegill	acute	—		1000 ppm		696 ppm	TECHNICAL NO effect = 28
Rainbow trout	acute	—		1000 ppm		694 ppm	TECHNICAL NO effect = 49
Mallard duck	Dietary	—	10,388 ppm				TECHNICAL
Bobwhite quail	Dietary	—	4,640 ppm				TECHNICAL
bluegill	Acute	NE =	56.0 ppm	111.0		90.4	Avenge 2A-S
rainbow trout	Acute	NE =	75.0 ppm	>140.0 <210.0		>75.0 <100.0	Avenge 2A-S

submitted 10/31/74 w/ Prowl 3E4E 5F1556

Chemical Avenge

Conclusions

1. We have sufficient data to support permit.
2. This product is Not toxic to fish, mammals, or birds.
3. Residue levels in fish cause no concern ($\leq$ 5-10 X).
4. Chronic effects, based on worked completed to date, cause NO environmental concern (rat, dog, rat 3 generation).
5. Chemical appears to be persistent in soil from preliminary reports. Need 70-15 data before environmental significance can be ascertained.
6. Use on barley, one application per season. Applied at at 3-5 leaf stage of the wild oat (pest to be controlled)
7. Both ground and aerial applications.
8. Additional environmental safety may be required when ~~when~~ expanded use/or 70-15 and other studies presently in progress are completed i.e. bird reproductive study.

Recommendations

1. NAC permit.
2.

(New chemical)

Chemical Avenge

Citation Cyanamid

Accession NO

Reg. NO.

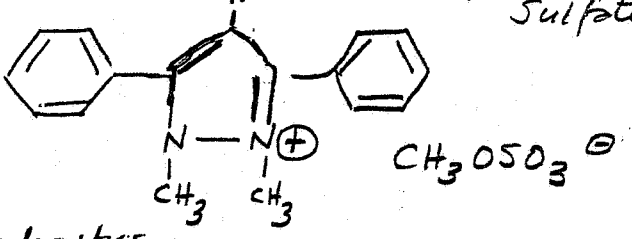
Ekp permit NO. 241-EXP-X

Petition NO. 4G1453

Submission date

Chemistry AC 84,777; CL 84,777

Structure 1,2-dimethyl-3,5-diphenylpyrazolium methyl sulfate



chemical characteristics

1. Molecular wt 360.4
2. Empirical formula $C_{18}H_{20}N_2SO_4$
3. Vapor pressure: NONE
4. Solubility: 76.2% IN water @ 23°C

Formulation(s)

Avenge 2A-5 31.8% active

Use Experimental use on barley.

ENVIRONMENTAL SAFETY
DATA ABSTRACT

J. W. AKERMAN
ECOLOGICAL EFFECTS

Chemical Avenge 2A-S

Citation Cyanamid

Reg. NO. _____

Exp permit 241-EXP-X

Petition 4G1453

Submission DATE 1/15/74

Accession NO.

ORGANISM	DOSE	SYMPTOM/EFFECT	TEST MATERIAL
Rat 3 month (Interim ~~report~~)	100, 500, 2500 ppm	General appearance and behavior, appetite, and elimination pattern Body weight gains and food consumption were within normal limits. No significant differences in gross necropsy or microscopic examinations.	AC 84,777 (TECHNICAL)
Dog 3 months	100, 500, 2500 ppm	Appearance, behavior, body weight, hematological, biochemical, pathological and urinary findings were normal.	AC 84,777 (TECHNICAL)
Rat (3-generation reproduction)	0 500 2500ppm	no signs of systemic toxicity observed; body wts of high dose rats somewhat lower than controls; no reproductive impairment noted; statistically signif. difference (decrease) in wt of weanling ♂'s & ♀ rats in the 2500ppm group was the only consistent, probably compound-related effect.	AC 84,777
Bluegill (Residue)	.01ppm and 1.0 ppm radiolabelled	28 day exposure and 28 day withdrawal. No significant accumulation of CL84,777 in the edible portion. Maximum accumulation of 5.5ppm in viscera (1.0 ppm exposure) and 0.21ppm in viscera (.01ppm exposure). 50% residue dissipation in 7 days in clean water.	CL84,777