(3-5-75)

Environmental Chemistry Review for [1-Naphthaleneacetamide] and Ethephon [(2-Chloroethyl) phosphonic acid]

Permit No. 264-EXP
Company name: Amchem Products, Inc.
Tank mixture of Ethrel Plant Regulator (264-257) and Rootone #10 (264-129)

I. INTRODUCTION

1-Naphthaleneacetamide has not had an environmental chemistry review. Ethephon has been reviewed and has complied with PR 70-15 requirements. See Ethephon reviews of 10/26/72 and 2/9/73.

Chemical and physical properties of 1-naphthaleneacetamide:

formula - $C_{12}H_{11}NO$

mw - 185

mp - 184°C

physical state and color - white, crystalline powder

solubilities -		
	methanol	1.82 gm/100 gm at 22°C
	acetone	1.57 gm/100 gm at 27°C
	water	0.0039 gm/100 gm at 40°C
	water	0.0072 gm/100 gm at 60°C

Other names for the pesticide: Rootone #10, Amid-Thin W, NAD

Type pesticide: Plant growth regulator.

The proposed use is a tank mix of 1-naphthalene-acetamide and ethephon in slurry form mixed with seeds to be applied aerially over non-crop areas (stripmine spoil areas, roadsides and utility rights of way). The tank mix increases seed germination and promotes root development.

II. DIRECTIONS FOR USE

Mix up to pints of Ethrel (% ai not given) and up to 16 oz of Rootone #10 (0.064 lb ai) per 100 gal. water. Add thickener (and liquid fertilizer if desired). Add about 2 lbs of seed per gallon of spray mixture and apply by helicopter with attachments described on label at 25 gallons of mixture/A.

III. DISCUSSION OF DATA

An old series of reports submitted by Amchen (dated April 1968 and received Sept. 1968) in 1968 was located. It contained residue data of 1-naphthaleneacetamide in apples and plant metabolism data of other insole acids, amides and other derivatives.

A. Investigations Into the Fate of Some C^{14} Labeled Growth Regulators of the Phenoxy and Naphthalenic Type in Apples Tissue (a thesis) (tab 7 of April 1968 submission)

Solutions of C^{14} labeled growth regulators (2,4-D, 2,4,5-T, 1-naphthaleneacetamide and others) were administered to immature apples and apple leaves.

Results:

1) 1-Naphthaleneacetamide was decarboxylated relatively slowly.

2) Four metabolites were found resulting from the plant metabolism. One was identified as 1-naphthaleneacetic acid.

IV. CONCLUSIONS

The 70-15 data previously submitted by Amchen on Ethephon is supportative of the proposed experimental permit.

Because of the low dosage of NAD and the small amount of test acreage, additional 70-15 data will not be needed for the permit.

V. RECOMMENDATIONS

1. RL the experimental permit.

2. The following data are needed to support registration for 1-naphthaleneacetamide only:

a. A soil metabolism study - Pat, attach pages-16-22.

b. An hydrolysis study - Pat, attach page V-33.

c. An anaerobic soil metabolism study - Pat, attach V-22

d. A microorganism study - Pat, attach V-29.

e. A leaching study - Pat, attach V-29-31.

f. A runoff study - Pat, attach V-32.

g. A photodegradation study - Pat, attach V-40-44.

h. A fish accumulation study - Pat, attach V-37-38.

3. The following data is needed for the tank mixture.

a. Laboratory study using cold chemicals applied to two soils as recommended in the proposed use. A light and heavy soil will be adequate.

b. Analysis through two half-lives of each pesticide applied as a mixture and separately. The same soil types are to be used for the comparison of the mixture vs. individually applied chemicals. Sampling depth should be to bottom of container (pot) or 6 inches.

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12/5/74

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