

Date Out EFB: FEB 01 1985

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Attached please find the environmental fate review of:

Reg./File No.: 359 - 706

Chemical: Aliette

Type Product: F

Product Name: Fosetyl-Al

Company Name: Rhone - Poulenc

Submission Purpose: Provide Applicator Exposure Data

Date in: 10/22/84

ACTION CODE: 336

Date Completed: 29 Jan 85

EFB # 5061

TAIS (level II) Days

62

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Deferrals To:

 Ecological Effects Branch

 Residue Chemistry Branch

 Toxicology Branch

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HE

Aliette Exposure Analysis - Pineapples

Introduction

Aliette is formulated as an 80% wettable powder. The active ingredient is aluminum tris-o-ethyl phosphonate and the common name is Fosetyl-Al. This exposure analysis is for the foliar application of Aliette to pineapples.

Exposure Analysis

This exposure analysis will be based on our existing data base for the ground boom application of pesticides. This data base includes ground boom operations with application rates ranging from 0.23 to 3.2 lbs ai/A. The application rate of aliette for the foliar treatment of pineapples is 3.0 lbs ai/A and thus falls in the range of studies found in our data base.

For this exposure assessment the following assumptions are made:

- Individual workers weigh 70 kg
- Protective clothing is worn as dictated by label
- Inhalation exposure is negligible (This is generally true for exposure assessments and in the case of aliette applicators is more certain because the label requires respirators)
- Results are not corrected for dermal penetration

For purposes of this exposure assessment we assume that the exposure for the mixer/loader for aliette will be proportional to that of a mixer/loader for wettable powders of our data base.

However, the dermal exposure will be reduced due to the protective clothing worn by the mixer/loader. The protective clothing are long pants, long sleeve shirt and water resistant gloves. For the mixer/loader we assume that 90% of the dermal exposure is to the hands and that the protective clothing reduces total dermal exposure by 80% and the dermal exposure to the hands by 90%. Thus we have the following:

Dermal Exposure Mixer/loader = Body Exposure + hand exposure

and Body exposure = .1 (280 mg/hr) - .8 (.1) 280 mg/hr

hand exposure = .9 (280 mg/hr) - .9 (.9) 280 mg/hr

$$\begin{aligned} \text{thus Mixer/loader exposure} &= 6 \text{ mg/hr} + 25 \text{ mg/hr} \\ &= \underline{\underline{31 \text{ mg/hr}}} \end{aligned}$$

Similarly for the applicator we have the following:

$$\begin{aligned} \text{Exposure Applicator} &= (.1) 18.5 \text{ mg/hr} - .8 (.1) 18.5 \\ &+ .9 (18.5) - .9 (.9) 18.5 \\ &= 0.4 + 1.7 \\ &= \underline{\underline{2.1 \text{ mg/hr}}} \end{aligned}$$

The following table summarizes the dermal exposure for aliette applied to pineapples.

Worker	Formulation	Appl. Type	Hourly exposure
Mixer/loader	80% WP	N/A	31 mg/hr
Applicator	80% WP	Ground Boom	2.1 mg/hr

Taken directly from the data provided by Rhone-Poulence we have:

3000 acres treated a year

4 applications year

1 hour is involved in mixing/loading 2000 gallons and 300 gallons treats an acre

12 acres can be sprayed in 1 hour

96 acres sprayed in a single day

$$\text{Thus } 96 \text{ acres} \cdot \frac{300 \text{ gal.}}{\text{acre}} = 28800 \text{ gallons sprayed}$$

$$\text{or } \frac{28800 \text{ gallons}}{2000 \text{ gallons hr}} = 14.4 \text{ hrs for mixer/loaders}$$

and for the applicator to spray 96 acres/day

$$\frac{96 \text{ acres}}{\text{day}} \times \frac{1 \text{ hr}}{12 \text{ acres}} = 8 \text{ hours}$$

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Thus the mixer/loader works 14.4 hours and the applicator 8 hours

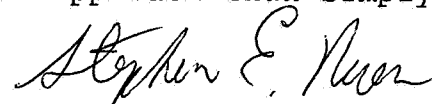
The daily exposures are

$$\text{Mixer/loader} = 14.4 \text{ hours} \cdot \frac{31 \text{ mg}}{\text{hr}} = 440 \text{ mg}$$

$$\text{Applicator} = 8 \text{ hours} \cdot 2.1 \text{ mg/h} = 17 \text{ mg}$$

Discussion

Since our data base is derived from data collected under a variety of use and climatic conditions during actual field operations we feel it valid to use as a basis for our exposure assessment. This is particularly true when provisions are made for protective clothing. The mean values used for calculating mixer/loader and applicator exposure represent a more realistic approach than simply relying on a simple surrogate study.



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