(1)

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

Office of Prevention, Pesticides and Toxic Substances

MEMORANDUM

July 13, 2004

SUBJECT: **Naphthalene Acetates** HED Risk Assessment for Reregistration Eligibility Document (RED) PC Codes: 056001, 056002, 056003, 056004, 056007, 056008; DP Barcode D305347; Revised Assessment of Use of Naphthalene Acetates on Olives

FROM: Becky Daiss
Environmental Health Scientist
Reregistration Branch 4
Health Effects Division (7509C)

THROUGH: Susan V. Hummel
Branch Senior Scientist
Reregistration Branch 4
Health Effects Division (7509C)

TO: Mark Howard
Chemical Review Manager
Reregistration Branch 2
Special Review and Registration Division (7508C)

This provides an assessment of occupational exposure to naphthalene acetates from use on olives at an application rate of 150 mg ai/acre (0.33 lb ai/acre). Potential concerns regarding whether an increased application rate will affect the reassessed tolerance for olives are also addressed.

NOV 1 2004

Occupational Exposure and Risk

Estimates of occupational handler exposure and risk from use of naphthalene acetates on olives at the application rate of 0.033 lb ai/acre are presented below. Occupational exposure scenarios assessed for this use include mixing and loading liquids for aerial spray and airblast application, and spray application using aerial and airblast equipment. Exposure assumptions are the same as those used in the original occupational exposure assessment (B. Daiss, D299297, 3/10/04) with the exception of application rate which is increased from 0.11 to 0.33 lb ai per acre, and use of personal protective equipment. A target margin of exposure (MOE) of 100 for the dermal and inhalation routes is considered adequate for the occupational handler risk assessment. When use of baseline personal protective equipment (PPE) is assumed, MOEs for both dermal and inhalation exposure are above the target MOE of 100 and not of concern for all but one scenario. The dermal MOE for mixing and loading liquids for aerial application assuming baseline PPE is 44. When dermal unit exposure representing long pants, long sleeved shirts, and chemical-resistant gloves (PPE1) is assumed, the dermal MOE increases to 5500, above the level of concern.

Occupational Handler Exposure - NAA, salt, esters, acetamides Applied to Olives at Increased Application Rate

Exposure Scenario (Scenario #)	Dermal Unit Exp (mg/lb ai)[1]	Inhal Unit Exp (ug/lbai)[2]	Crop[3]	Applic Rate[4]	Daily Area Treated[5]	Dermal Dose (mg/kg/day)[6]	Derm MOE[7]	Inhal Dose (mg/kg/day)[8]	Inhal MOE[9]	Agg MOE[10]
Mixer/Loader										
Mixing/Loading Liquids for Aerial application (1a) **Base Line PPE**	2.9	1.2	Olive	0.33 lb ai / acre	500 acres per day	6.8	44	0.0028	18000	44
Mixing/Loading Liquids for Aerial application (1b) **PPE 1**	0.023	1.2	Olive	0.33 lb ai per acre	500 acres per day	0.054	5500	0.0028	18000	4200
Mixing/Loading Liquids for Airblast application (2)	2.9	1.2	Olive	0.33 lb ai per acre	40 acres per day	0.55	550	0.00023	220000	550
Applicator										
Sprays for Aerial application (3) Eng Cont	0.005	0.068	Olive	0.33 lb ai per acre	500 acres per day	0.012	25000	0.00016	310000	23000
Sprays for Airblast application (4)	0.36	4.5	Olive	0.33 lb ai per acre	40 acres per day	0.068	4400	0.00085	59000	4100

[1]Baseline dermal unit exposures represent long pants, long sleeved shirts, shoes, and socks.
PPE1 dermal unit exposures represent long pants, long sleeved shirts, and chemical-resistant gloves. Values are reported in the PHED Surrogate Exposure Guide dated August 1998 or are from data submitted by the Outdoor Residential Exposure Task Force dated May 2000.
[2]Baseline and PPE1 inhalation unit exposures represent no respirator. Values are in the PHED Surrogate Exposure Guide
[3]Crops and use patterns are from labels and information submitted by the olive growers
[4]Application rates are based on maximum values provided by olive growers
[5]Amount treated is based on the area or gallons that can be reasonably applied in a single day for each exposure scenario of concern based on the application method and formulation/packaging type. (Standard EPA/OPP/HED values)

[6]Dermal dose (mg/kg/day) = [unit exposure (mg/lb ai) * Dermal absorption (100%) * Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).
[7]Dermal MOE = dermal NOEL(300 mg/kg/day) / Daily Dermal Dose. Target Dermal MOE is 100.
[8]Inhalation dose (mg/kg/day) = [unit exposure (ug/lb ai) * 0.001 mg/g unit conversion * Inhalation absorption (100%) * Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).
[9]Inhalation MOE = inhalation NOEL (50 mg/kg/day) / Daily Inhalation Dose. Target Inhalation MOE is 100.
[10] Agg MOE =1/(1/inhalMOE + 1/dermMOE) Application rate (lb ai/acre or lb ai/gallon) * Daily area treated (acres or gallons)] / Body weight (70 kg).
[9]Inhalation MOE = inhalation NOEL (50 mg/kg/day) / Daily Inhalation Dose. Target Inhalation MOE is 100.
[10] Agg MOE =1/(1/inhalMOE + 1/dermMOE)

Tolerance Reassessment

Increase of the application rate from 0.11 to 0.33 lb ai per acre will not affect the reassessed tolerance for olives. Residues of NAA ranged from 0.306 to 0.610 ppm in/on olives harvested 102-112 days following the last of two sequential treatments consisting of: (i) a single spot treatment of the 1.15% RTU formulation (NAA ethyl ester) applied to runoff at a rate of 0.14-1.00 lb ai/A to control suckers and sprouting early in the growing season; and (ii) a single broadcast thinning application of the 24.2% SC formulation (NAA-potassium salt) at 0.871-1.13 lb ai/A. Based on this information, the current tolerance of 0.1ppm was reassessed at 0.7 ppm. The applied rates for crop field trials exceed the maximum desired rate of 0.33 lb ai per acre for olives. Therefore, the reassessed tolerances are considered protective for the higher application rate.

13544

R103435

Chemical:	**1-Naphthaleneacetamide; 1-Naphthaleneacetic acid; Potassium 1-naphthaleneacetate; Ammonium 1-naphthaleneacetate; Sodium 1-naphthaleneacetate; Ethyl 1-naphthaleneacetate**
PC Code:	**056001; 056002; 056003; 056004; 056007; 056008**
HED File Code	**14000 Risk Reviews**
Memo Date:	**07/13/2004**
File ID:	**DPD305347**
Accession Number:	**412-05-0036**

HED Records Reference Center
11/02/2004