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

APR 7 1994

MEMORANDUM

OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

SUBJECT: OCCUPATIONAL AND RESIDENTIAL EXPOSURE ASSESSMENT AND
RECOMMENDATIONS FOR THE DIFENZOQUAT METHYL SULFATE
REREGISTRATION ELIGIBILITY DOCUMENT (RED)

FROM: Jeff Evans, Biologist
Reregistration Section
Occupational and Residential Exposure Branch
Health Effects Division (H7509C)

TO: Jane Smith, Chemical Coordinator
Chemical Coordination Branch
Health Effects Division (H7509C)

THRU: Alan P. Nielsen, Section Head
Reregistration Section
Larry C. Dorsey, Chief
Occupational and Residential Exposure Branch
Health Effects Division (H7509C)

Please find the OREB review of

DP Barcode: D187015

Pesticide Chemical Codes: 106401

EPA Reg. No.: N/A

EPA MRID No.: N/A

Review Time: 5 days

PHED: No

This memorandum presents the OREB science chapter review for the Difenzoquat Methyl Sulfate Reregistration Eligibility Document (RED). Occupational and residential exposure data requirements to support the reregistration of Difenzoquat Methyl Sulfate (difenzoquat) are discussed in this chapter. Precautionary label language recommendations regarding personal protective equipment (PPE) are also provided.

Occupational and Residential Exposure

Postapplication/reentry and mixer/loader/applicator exposure data are required when both toxicity and exposure criteria are met. Difenzoquat is a postemergence herbicide used to control wild oats in barley and wheat (alfalfa seed crop in California). This chemical is applied by aerial and broadcast ground equipment when wild oats are in the 5 to 6 leaf stage (tillering). This timing is also when wheat and barley are tillering, or, prior to the tillering stage.

Mixer/Loader/Applicator (Handler) Exposure

Mixer/loader/applicator (i.e., handler) exposure issues are addressed by Subdivision U of the Pesticide Assessment Guidelines. Mixer/loader/applicator exposure monitoring data were not required in the *Guidance for the Reregistration of Pesticide Products Containing Difenzoquat, Methyl Sulfate as the Active Ingredient*.¹ Handler exposure data monitoring are not required to support the reregistration of difenzoquat based on its low acute toxicity and lack of other adverse effects with the exception of primary eye irritation. Because difenzoquat is in toxicity category I for primary eye irritation, protective eyewear are required for mixer/loader/applicators using this chemical.

Postapplication/Reentry Exposure (Workers):

Postapplication/reentry data were not required in the *Guidance for the Reregistration of Pesticide Products Containing Difenzoquat Methyl Sulfate as the Active Ingredient*¹ based on no anticipated human exposure following its use. Furthermore, difenzoquat does not meet the Agency's toxicity criteria for requiring reentry data. Because difenzoquat is in toxicity category I for primary eye irritation, OREB recommends retaining the 48 hour restricted entry interval (REI) imposed by the Worker Protection Standard (WPS).

CONCLUSIONS:

Restricted Entry Interval (REI):

Because difenzoquat is in toxicity category I for primary eye irritation, a 48 hour REI is recommended.

Personal Protective Equipment (PPE) Requirements:

Refer to the Active Ingredient Worksheet, parts one and two attached to this chapter. Briefly, protective eyewear and chemical resistant gloves are required PPE for handlers using this chemical.

Data Requirements

Mixer/loader/applicator and postapplication/reentry data are not required to support the reregistration of difenzoquat. The PPE and REI's provided by the WPS will adequately mitigate exposure resulting from the use of this chemical.

References:

1. U.S. EPA. 1988. Guidance for the Reregistration of Pesticide Products Containing Difenzoquat Methyl Sulfate as the Active Ingredient.

cc: J. Evans, OREB
F. Chow, CCB
E. Saito, CCB
W. Waldrop, SRRD
V. Eagle, SRRD
Correspondence File
Chemical File (106401)

ACTIVE INGREDIENT WORKSHEET - PART ONE

This two-page Worksheet lists possible label statements to require based on the characteristics of the a.i.

Uses Covered by Worksheet

ACTIVE INGREDIENT: WPS NonWPS Both Home Use

PERSONAL PROTECTIVE EQUIPMENT

(Fill in sections A and B for an active ingredient ONLY if unusual risk concern, such as delayed-effect or sensitization. PPE requirements for each end-use product will be set based on the acute toxicity of that product.)

A APPLICATOR PPE

Applicators and other handlers must wear:

(except mixers, loaders, and others exposed to the concentrate) (Choose this insert if Section B is filled in.)

Choose one item (or none) from each grouping:

- 16 Chemical-resistant protective suit EXT
- 16 Coveralls over long-sleeved shirt and long pants
- 17 Coveralls over short-sleeved shirt and short pants
- 18 Long-sleeved shirt and long pants

- 20 Chemical-resistant gloves, such as _____

- 21 Chemical-resistant footwear plus socks
- 21 Shoes plus socks

- 24 Goggles
- 24 Protective Eyewear

- 23 Chemical-resistant headgear for overhead exposure

- 19 Chemical-resistant apron when cleaning equipment, a (Select insert if not checked below in B) mixing, or loading

- 26 Respirator (specify type in section C)

B MIXER AND LOADER PPE

Mixers and loaders must wear:

(and others exposed to the concentrate) (Choose this insert if all persons exposed to the concentrate must wear the PPE and not the PPE selected in section A.)

Choose one item (or none) from each grouping:

- 16 Chemical-resistant protective suit EXT
- 16 Coveralls over long-sleeved shirt and long pants
- 17 Coveralls over short-sleeved shirt and short pants
- 18 Long-sleeved shirt and long pants

- 20 Chemical-resistant gloves, such as _____

- 21 Chemical-resistant footwear plus socks
- 21 Shoes plus socks

- 24 Goggles
- 24 Protective Eyewear

- 23 Chemical-resistant headgear for overhead exposure

- 19 Chemical-resistant apron when mixing or loading

- 26 Respirator (specify type in section C)

C TYPE OF RESPIRATOR

(Select respirator type(s) for each active ingredient in category I or II for acute inhalation toxicity OR if respirator chosen in A or B. See Appendix B for instructions about selecting respirator type(s).)

- In enclosed areas only
- 26 a A supplied-air respirator (MSHA/NIOSH approval number prefix TC-19C) OR (b) a self-contained breathing apparatus (SCBA) (MSHA/NIOSH approval number prefix TC-13F).
- In enclosed areas only OR In outdoor areas only
- 27 a A respirator with either an organic-vapor-removing EXT cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14C).
- In enclosed areas only OR In outdoor areas only
- 29 a A dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C).

D REDUCE PPE WHEN ENGINEERING CONTROLS USED

(Already allowed in WPS; Select to allow for NonWPS use)

- 31 When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

E USER SAFETY STATEMENTS

(See Appendix F in the GUIDE for other user safety requirements to consider for special situations.)

REQUIREMENTS:

- 40 Follow manufacturer's instructions for cleaning/ ALL WPS maintaining PPE. If no such instructions for washable, use detergent and hot water. Keep and wash PPE separately from other laundry.

(Consider the statement below if delayed- or allergic-effect concerns AND formulated as a concentrate.)

- 40 Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

RECOMMENDATIONS:

- 39 Users should wash hands before eating, drinking, ALL chewing gum, using tobacco, or using the toilet.
 - 39 Users should remove clothing immediately if pesticide ALL gets inside. Then wash thoroughly and put on clean clothing.
 - 39 Users should remove PPE immediately after handling ALL this product. As soon as possible, wash thoroughly and change into clean clothing.
- (Select this insert if gloves are required PPE.)

ACTIVE INGREDIENT WORKSHEET - PART TWO

Uses Covered by Worksheet

ACTIVE INGREDIENT: WPS NonWPS Both

F ENGINEERING CONTROLS

(See Appendix E if considering mandatory engineering controls, such as closed systems, enclosed cabs, or shrouds.)

G APPLICATION RESTRICTIONS

(See p. 46 in the Guide for other application restrictions, such as setback restrictions, to consider for special situations.)

45 Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

✓ WPS uses This is a WPS requirement.

All NonWPS uses All NonWPS uses, except: Consider for most nonWPS uses, other than wide-area mosquito control, insect repellents, etc.)

H ENTRY RESTRICTIONS

48 WPS ENTRY RESTRICTIONS

(Set one REI for whole product OR different REI's for different uses. If subpart K data are not available, use acute toxicity of active ingredients to set REI. If delayed-effect concern, consider raising REI one level.)

Choose this item if only one REI for entire product:

✗ Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of a

- _____ days. NOT WPS, EPA SET
- 72 hours. NOT WPS, EPA SET
- ✗ 48 hours. I-D/S/EYE
- 24 hours. II-D/S/EYE
- 12 hours. III/IV-D/S/EYE

Choose this item if two REI's for product:

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of _____ hours days, except for _____ (crop with different REI). The REI for _____ (crop with different REI) is _____ hours days.

Choose this item if more than two REI's for product:

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI).
 _____ hours days REI for _____ (specify uses)
 _____ hours days REI for _____ (specify uses)
 _____ hours days REI for _____ (specify uses)
 _____ hours days REI for _____ (specify uses)

58 Longer REI for organophosphates in arid areas:

Each 48-hour REI is increased to 72 hours I-D/S/EYE-OP in outdoor areas where average annual rainfall is less than 25 inches a year.

48 NON-WPS ENTRY RESTRICTIONS

(See p. 50 in the Guide for entry restrictions, ventilation criteria, and notification requirements to consider for nonWPS uses.)

I EARLY ENTRY PPE

(Use the acute toxicity of active ingredients, then adjust if delayed-effects, allergic-effects, or other special concerns.)

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is: WPS

PPE required for early entry to treated areas that involves contact with anything that has been treated is: NonWPS

Choose one item (or name) from each grouping:

- 16 Chemical-resistant protective suit EXT
- 16 Coveralls over long-sleeved shirt and long pants I-D/S
- 17 Coveralls over short-sleeved shirt and short pants II-D/S
- 17 Coveralls III/IV-D/S
- 18 Long-sleeved shirt and long pants NonWPS Only (WPS requires at least coveralls for early entry.)
- 20 Chemical-resistant gloves, such as _____ III/III/IV-D/S
- 21 Chemical-resistant footwear plus socks I/II-D/S
- 21 Rubber plus socks III/IV-D/S
- 24 Goggles EXT
- 24 Protective Eyewear I/II-EYE
- 23 Chemical-resistant headgear for overhead exposure I/II-D/S
- 26 Respirator (specify type in section C) NonWPS Only or EXT (WPS allows only handlers (not early-entry workers) to enter during an REI if inhalation is a concern. See p. 14 in the Guide.)

J NOTIFICATION

- 63 WPS Only: (WPS requires oral warning OR treated area posting for all WPS uses -- select this statement to require both.)
 Notify workers of the application by warning them orally and by posting warning signs at entrances to treated areas. I-D/E
- 62 NonWPS: (Do not select the above statement-- a custom statement is required.)

KEY TO PESTICIDE WORKSHEETS

- = Insert shaded text here, if selected
- Text must be selected or crossed out
- I, II, III, IV = Toxicity Categories
- 1, 2, 3, etc = Page numbers where discussed in GUIDE
- ALL = Consider for all products
- D = Acute Dermal Toxicity (oral=surrogate)
- EXT = Extraordinary PPE (heat/stress concern)
- EYE = Eye Irritation Potential
- INH = Acute Inhalation Toxicity (oral=surrogate)
- NonWPS = Uses outside Worker Protection Standard
- NonWPS only = Select for NonWPS only; not for WPS
- OP = Organophosphate Pesticide
- S = Skin Irritation Potential
- WPS = Uses under Worker Protection Standard