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

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OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

MAY - 4 1987

SUBJECT: EPA File Symbol 10182-REN
Surefire Herbicide

FROM: Deloris F. Graham *DGF 5/12/87*
Technical Support Section
Fungicide-Herbicide Branch
Registration Division (TS-767C)

TO: Robert J. Taylor, PM 25
Fungicide-Herbicide Branch
Registration Division (TS-767C)

E 5/12/87

APPLICANT: ICI Americas, Inc.
Agricultural Chemicals Division
Concord Pike & New Murphy Road
Wilmington, DE 19897

ACTIVE INGREDIENTS:

34 Paraquat dichloride (1,1-dimethyl-4,4'-bipyridinium dichloride)	29.42%
Diuron	10.66%
INERT INGREDIENTS:	59.92%

BACKGROUND:

Submitted Acute Oral, Acute Dermal, Acute Inhalation, Eye Irritation, Skin Irritation, and Dermal Sensitization Studies. Studies conducted by ICI Central Toxicology Laboratory and Food & Drug Research Laboratories, Inc. Data under EPA MRID Nos. 400775-01, 400775-02, 400775-03, 400775-04, 400775-05, and 400775-06. Method of support not indicated.

RECOMMENDATION:

1. FHB/TSS finds the Acute Dermal, Acute Inhalation, Skin Irritation, and Dermal Sensitization Studies acceptable to support conditional registration of this product.

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2. The acute oral study must be conducted on the formulation not on active alone.
3. The eye irritation must be conducted on the formulation not a dilution.
4. Based on data submitted the appropriate signal word is DANGER.

LABEL:

All precautionary statements must precede Directions For Use.

REVIEW:

- (1) Acute Oral Toxicity Study: ICI Central Toxicology Lab.; Lab ID CTL/P/1661; November 3, 1986; EPA MRID No. 400775-01.

PROCEDURE:

Three groups consisting of five male and five female rats each were dosed with one of the following doses of paraquat ion/kg: 80, 120, or 160 mg/kg. Observations made up to day 15. Necropsy performed on all animals.

RESULTS:

At 80 mg/kg of paraquat ion; 1/5 M died; at 120 mg/kg, 1/5 M and 1/5 F died; at 160 mg/kg, 5/5 M and 5/5 F died. Toxic signs reported include diarrhea, chromodacryorrhea, cyanosed, dehydrated hypothermia, piloerection, salivation, sides pinched in, stained around mouth and nose, ungroomed, upward curvature of spine, labored breathing, increased breathing depth, whistling, pale, and urinary incontinence. No abnormalities at necropsy reported. LD₅₀ for males reported to be 119 mg paraquat ion/kg and females 129 mg paraquat ion/kg.

STUDY CLASSIFICATION:

Core Supplementary Data. See Item #2 in Recommendations.

- (2) Acute Dermal Toxicity Study: Food and Drug Research Labs.; FDRL Study No. 1-9328D; February 6, 1987; EPA MRID No. 400775-02.

PROCEDURE:

Six groups consisting of five male and five female rabbits with intact skin each received one of the following doses dermally: 76, 100, 132, 173, 228, or 300 mg/kg. Treated sites were placed under occlusive wrap for 24-hour exposure period. Observations made through day 15. Necropsy performed on all animals.

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RESULTS

At 76 mg/kg, 1/5 M died; at 100 mg/kg, 3/5 M and 3/5 F died; at 132 mg/kg, 4/5 M and 5/5 F died; at 173 mg/kg, 5/5 M and 4/5 F died; at 228 mg/kg, 5/5 M and 5/5 F died; at 300 mg/kg, 5/5 M and 5/5 F died. Toxic signs reported include anorexia, ataxia, blood in litter tray, convulsions, emaciation, decreased activity, lacrimation, loss of muscle control, nasal discharge, respiratory irregularity, salivation, tremors, dark material around nose and mouth, hypothermia, mucus in litter tray, nasal discharge, and soft stools. Necropsy report revealed liver blanched and lungs bright and/or dark red. LD₅₀ for males reported to be 97 (with 95% confidence limits between 75 and 199) mg/kg. LD₅₀ for females reported to be 108 (77-140) mg/kg. LD₅₀ for males and females combined reported to be 100 (80-121) mg/kg.

STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: I - DANGER.

(3) Acute Inhalation Toxicity Study: ICI Central Toxicology Lab.; Report Nos. CTL/P/1654 and CTL/P/1654S; EPA MRID No. 400775-03.

PROCEDURE:

Four groups consisting of five male and five female rats each were exposed nose only to one of the following gravimetrically determined concentrations of the test material: 0.00, 0.43, 1.25, or 1.76 ug/L with respect to paraquat ion concentration of 0.0, 0.247, 0.554, and 1.133 ug/L. Observations made through 15 days posttreatment. Necropsy performed on all animals. Mass median aerodynamic diameter reported to be less than 2.5 um. Temperature reported to range between 19.7 and 20.2 °C and relative humidity 13.9 to 56.3 percent.

RESULTS:

At 1.25 ug/L, 4/5 M and 5/5 F died; at 1.76 ug/L, 5/5 M and 4/5 F died. Toxic signs reported include piloerection, chromodacryorrhea, gasping, abnormal respiration, red stain around nose, wet fur, hunched, increased response to touch, sides pinched in, diarrhea, ptosis, reduced righting reflex, subdued, thin and tiptoe gait. Necropsy report revealed thymus - red spots, right lobe only; thymus - red spots, both lobes; lung - dark red, not fully deflated, blotchy; trachea - exuded froth; thoracic cavity - excess watery fluid. LD₅₀ for males reported to be 0.733 ug/L; for females 0.844 ug/L and for males and females combined 0.787 ug/L.

STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: I - ~~DANGER~~

- (4) Eye Irritation Study: ICI Central Toxicology Lab.; Lab ID CTL/P/1729; January 9, 1987; EPA MRID No. 400775-04.

PROCEDURE:

Six rabbits each received 0.1 ml applications of a 1:40 dilution of the test material in one eye each. Observations made for 24 days posttreatment.

RESULTS:

At day 1 posttreatment, 6/6 rabbits had conjunctive redness (5/6 = 1, 1/6 = 2) and discharge (4/6 = 1, 1/6 = 2, 1/6 = 3) and 5/6 chemosis (5/6 = 1). At day 7, 1/6 redness (1/6 = 1) and 2/6 discharge (1/6 = 2, 1/6 = 3). At day 21, 2/6 had discharge (2/6 = 3). At day 24, 1/6 discharge (1/6 = 3).

STUDY CLASSIFICATION:

Core Supplementary Data. See Item #3 in Recommendations.

- (5) Skin Irritation Study: ICI Central Toxicology Lab.; Lab ID CTL/P/1671; October 30, 1986; EPA MRID No. 400775-05.

PROCEDURE:

Six rabbits with intact skin sites each received 0.5 ml applications of the test material under occlusive wrap for 4-hour exposure period. Observations made for 7 days posttreatment.

RESULTS:

At day 1, 6/6 rabbits had moderate to severe erythema (1/6 = 3, 5/6 = 4) and edema (6/6 = 4). At day 3, moderate to severe edema (2/6 = 3, 4/6 = 4) and severe erythema (6/6 = 4). Erythema and edema persisted through day 7. Necrosis in 2/6 animals at such severity they were killed on day 4.

STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: I - DANGER.

- (6) Skin Sensitization Study: ICI Central Toxicology Lab.; Lab ID CTL/P/1687; November 3, 1986; EPA MRID No. 400775-06.

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PROCEDURE:

Twenty male guinea pigs received three (1 per week) 0.4 ml applications of a 10% (w/v) suspension of the test material in deionized water during the induction phase. Two weeks after final induction phase application a challenge dose was applied. Observations made at 24 and 48 hours after each application. A group of 10 male guinea pigs were treated in a similar manner as previous group except only deionized water was used. Sensitization response was determined based on the percentage of test animals that responded minus number of control animals at challenge.

RESULTS:

Mild to moderate redness noted in 13/20 animals in test group and 4/10 in control group following challenge with a 3% (w/v) suspension of the test material in deionized water. The net percentage response reported to be 25 percent, thereby indicating a mild sensitization response. At challenge with a 1 percent suspension, no response produced in test or control group, thereby indicating that the 1 percent suspension did not produce a sensitization response.

STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: Sensitizer.

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DIURON SCIENTIFIC REVIEWS

Page _____ is not included in this copy.

Pages 6 through 7 are not included in this copy.

The material not included contains the following type of information:

- ☐ Identity of product inert ingredients
 - ☐ Identity of product impurities
 - ☐ Description of the product manufacturing process
 - ☐ Description of product quality control procedures
 - ☐ Identity of the source of product ingredients
 - ☐ Sales or other commercial/financial information
 - ☒ A draft product label
 - ☐ The product confidential statement of formula
 - ☐ Information about a pending registration action
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 - ☐ The document is a duplicate of page(s) _____
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