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

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

MAY 27 1986

SUBJECT: EPA File Symbol 7969-AO
Metam Fluid Manufacturers Concentrate

FROM: Deloris F. Graham
Technical Support Section
Fungicide-Herbicide Branch
Registration Division (TS-767C)

TO: Henry M. Jacoby, PM 21
Fungicide-Herbicide Branch
Registration Division (TS-767C)

APPLICANT: BASF Wyandotte Corporation
Agricultural Chemicals Group
100 Cherry Hill Road
Parsippany, NJ 07054

ACTIVE INGREDIENT:
780 Sodium methyldithiocarbamate 42%
INERT INGREDIENTS: 58%

BACKGROUND:

Submitted two acute oral, acute dermal, two acute intraperitoneal, acute inhalation, primary dermal irritation, and eye irritation studies. Studies conducted by BASF Laboratoruin Fur Pharmakologie and Toxikologie, Hamburg. Data under Accession Number 259658. Method of support not indicated.

RECOMMENDATION:

1. FHB/TSS finds all studies except acute oral toxicity study in rabbits acceptable to support conditional registration of this product.

2. A Dermal Sensitization Study was not submitted and one must be submitted or data to support waiver.

3. The appropriate signal word is WARNING.

LABEL:

1. Precautionary statements must be revised similar to the following: "WARNING. May be fatal if swallowed, inhaled or absorbed through skin."

2. Statement of Practical Treatment must be revised similar to the following: "If swallowed, drink one or two glasses of water and induce vomiting by touching back of throat with finger. Get medical attention. Never give anything by mouth to unconscious person. If inhaled remove victim to fresh air and get medical attention. If on skin wash with plenty of soap and water, get medical attention."

3. Additional labeling may be necessary upon submission of dermal sensitization study.

REVIEW:

(1) Acute Oral Toxicity Study In Rats: BASF; June 24, 1977.

PROCEDURE:

Six groups consisting of ten male and ten female rats each were dosed orally with one of the following doses: 0.825, 1.000, 1.210, 1.470, 1.780, and 2.150 ml/kg. Observations made for 4 weeks postdosing. Necropsy performed on all animals.

RESULTS:

At 1.210 ml/kg, 1/10 M died; at 1.470 ml/kg, 3/10 M and 4/10 F died; at 1.780 ml/kg, 6/10 M and 8/10 F died; at 2.150 ml/kg, 10/10 M and 10/10 F died. Toxic signs reported included slight sedation, comatose, exitus, ataxia, abdominal position, ptosis, dyspnea, lateral position, agonal spasms, tonoclonic spasms. No abnormalities reported at necropsy. LD_{50} for males reported to be 1.550 ml/kg (0.226 g/kg) with confidence limits between 1.360 and 1.767 ml/kg (0.198 and 0.258 g/kg). LD_{50} for females reported to be 1.580 ml/kg (0.231 g/kg) with confidence limits between 1.423 and 1.801 ml/kg (0.164 and 0.263 g/kg).

STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: II - WARNING.

(2) Acute Oral Toxicity Study in Rabbits: BASF; June 24, 1977.

PROCEDURE:

Seven groups consisting of three male and three female rabbits each received one of the following doses orally: 0.261, 0.316, 0.383, 0.464, 0.562, 0.681, and 0.825 ml/kg. Observations made for 4 weeks postdosing. Necropsy performed on all animals.

RESULTS:

At 0.464 ml/kg, 1/3 M died, at 0.562 ml/kg, 2/3 M and 1/3 F died; at 0.681 ml/kg, 2/3 M and 2/3 F died; at 0.825, 3/3 M and 3/3 F died. Toxic signs reported included sedation, ataxia, reduced food intake, abdominal position, dyspnea, vomiting, increased salivation, comatose condition, exitus, comatose, agonal convulsions. No abnormalities reported at necropsy. LD_{50} for males reported to be 0.520 ml/kg (0.076 g/kg) with confidence limits between 0.433 and 0.624 ml/kg (0.063 and 0.091 g/kg). LD_{50} for females reported to be 0.550 ml/kg (0.080 g/kg) with confidence limits between 0.440 and 0.688 ml/kg (0.064 and 0.100 g/kg).

STUDY CLASSIFICATION:

Core Supplementary Data. At least five animals per sex per dose must be used.

(3) Acute Intraperitoneal Toxicity Study In Mice: BASF; June 24, 1977.

PROCEDURE:

Nine groups consisting of ten male and ten female mice each received one of the following doses administered into abdominal cavity: 0.215, 0.261, 0.316, 0.383, 0.464, 0.562, 0.681, 0.825, or 1.0 ml/kg. Observations made for 4 weeks posttreatment. Necropsy performed on all animals.

RESULTS:

At 0.316 ml/kg, 1/10 M died; at 0.383 ml/kg, 1/10 M and 1/10 F died; at 0.464 ml/kg, 4/10 M and 2/10 F died; at 0.562 ml/kg, 5/10 M and 4/10 F died; at 0.681 ml/kg, 8/10 M and 8/10 F died; at 0.825 ml/kg, 9/10 M and 9/10 F died; at 1.0 ml/kg, 10/10 M and 10/10 F died. Toxic signs reported included sedation, abdominal position, ptosis, reduced food intake, comatose, convulsions, tremors, miosis, exitus,

slight agonal convulsions. Necropsy report revealed slight peritonitis in animals that died during study. No abnormalities reported in surviving animals at necropsy. LD_{50} (intraperitoneally) for males reported to be 0.510 ml/kg (0.074 g/kg) with confidence limits between 0.436 and 0.597 ml/kg (0.064 and 0.087 g/kg). LD_{50} (intraperitoneally) for females reported to be 0.535 ml/kg (0.078 g/kg) with confidence limits between 0.469 and 0.610 ml/kg (0.068 and 0.089 g/kg).

STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: II - WARNING.

(4) Acute Intraperitoneal Toxicity Study In Rats: BASF; June 24, 1977.

PROCEDURE:

Seven groups consisting of ten male and ten female rats each received one of the following doses administered into abdominal cavity: 0.464, 0.562, 0.681, 0.825, 1.000, 1.210, or 1.470 ml/kg. Observations made for 4 weeks postdosing. Necropsy performed on all animals.

RESULTS:

At 0.681 ml/kg, 2/10 M and 3/10 F died; at 0.825 ml/kg, 3/10 M and 3/10 F died; at 1.0 ml/kg, 4/10 M and 4/10 F died; at 1.210 ml/kg, 6/10 M and 6/10 F died; at 1.470 ml/kg, 10/10 M and 10/10 F died. Toxic signs reported include sedation, abdominal position, ptosis, miosis, reduced food intake, comatose, lateral position, dyspnea, exitus, agonal tonoclonic convulsions. Necropsy report revealed slight peritonitis in animals that died during study. No abnormalities reported at necropsy of surviving animals. LD_{50} (intraperitoneally) for males reported to be 0.940 ml/kg (0.137 g/kg) with confidence limits between 0.862 and 1.025 ml/kg (0.126 and 0.150 g/kg). LD_{50} (intraperitoneally) for females reported to be 0.920 ml/kg (0.134 g/kg) with confidence limits between 0.844 and 1.003 ml/kg (0.123 and 0.146 g/kg).

STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: II - WARNING.

(5) Acute Dermal Toxicity Study: BASF; June 24, 1977.

PROCEDURE:

Three groups consisting of ten male and ten female rats each were treated with one of the following doses dermally at intact skin sites: 1.59, 2.00, or 2.52 ml/kg. Treated sites placed under occlusive wrap for 24-hour exposure period. Observations made for 14 days posttreatment. Necropsy performed on all animals.

RESULTS:

No mortalities or abnormalities at necropsy reported. Erythema, edema, exsiccation of the cutin with subsequent necrosis of the epidermis, shedding of necrotic layers, renewed epithelialization was reported. LD_{50} reported to be greater than 2.52 ml/kg (0.368 g/kg) for males and females.

STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: II - WARNING.

(6) Acute Inhalation Toxicity Study: BASF; June 24, 1977.

PROCEDURE:

Three groups were exposed for 7 hours to one of the following concentrations: 16.2, 20.8, or 25.0 ppm (mg/l). Chamber temperature reported to be 24 $\pm$ 2 °C and room temperature 24.0 $\pm$ 0.5 °C and relative humidity 60 $\pm$ 3%. Observations made for 21 days postexposure. Necropsy performed on all animals.

RESULTS:

No mortalities, abnormalities at necropsy or toxic signs reported. LC_{50} reported to be greater than 25.6 ppm (25.6 mg/l) for males and females.

STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: II - WARNING.

(7) Primary Dermal Irritation Study: BASF; June 25, 1977.

PROCEDURE:

Twelve rabbits (six male and six female) were treated with 0.5 ml of the test material undiluted, 50%, 25%, 12.5%, and 6.25% concentration in aqua destillata using the patch method. Six animals had intact skin sites and the other six

had abraded skin sites. The patches were covered with plastic foil and a rubberized bandage for 24-hour exposure period. Observations made for a 168 hours (7 days) posttreatment.

RESULTS:

At 24 hours, 6/6 animals with intact skin and 6/6 animals with abraded skin had slight to well-defined erythema and moderate to severe edema (erythema scores of 1 and 2, edema scores of 3.2 to 4.8); exsiccation of the cutis with subsequent necrosis and shedding of the epidermis noted in animals treated at undiluted test material, 50%, and 25% concentrations. Slight to well-defined erythema noted at sites treated with undiluted test material, and moderate to severe edema at sites treated with 6.25, 12.5, 25, 50% concentrations and undiluted test material. At 72 hours, slight to well-defined erythema and moderate to severe edema present in all animals at all treatment sites. Irritation persisted through 7 days with edema increasing in severity (scores of 3.1 to 5.5).

STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: II - WARNING.

(8) Eye Irritation Study: BASF; June 24, 1977.

PROCEDURE:

Three groups consisting of six rabbits each received 0.1 ml applications of the following concentrations in one eye each: undiluted test material, 50% in aqua destillata or 25% in aqua destillata. Observations made for 96 hours posttreatment.

RESULTS:

At 1 hour posttreatment, 3/6 of undiluted group had discharge (3/6 = 1); at 50%, 3/6 had discharge (3/6 = 1); no irritation produced at 25% concentration. Irritation had cleared within 2 hours posttreatment.

STUDY CLASSIFICATION: Core Guideline Data.

TOXICITY CATEGORY: IV - CAUTION.

Metam-sodium toxicology review

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