8-27-85

(TDR038) DATA EVALUATION RECORD PAGE 1 OF

CASE GS0328 TELONE PM PM# 05/18/84

CHEM 029001 1,3-Dichloropropene

BRANCH EEB DISC 40 TOPIC 05054547

FORMULATION 16 = SOLUTION-READY TO USE

FICHE/MASTER ID 00119186 CONTENT CAT 01

Morrissey, A. (1979) The Acute Toxicity of Vorlex to the Water Flea ...: Flow-through Test: UCES Project No. 11506-74. (Unpublished study received Jun 5, 1979 under 2139-55; prepared by Union Carbide Corp., submitted by Nor-Am Agricultural Products, Inc., Naperville, IL; CDL:238635-A)

SUBST. CLASS = M; OTHER CHEMS: 068103

DIRECT RVW TIME = 2 hrs (MH) START-DATE 8/9/85 END DATE 8/9/85

REVIEWED BY: Richard R. Stevens
TITLE: Biologist
ORG: EEB/HED
LOC/TEL:
SIGNATURE: Richard R. Stevens DATE: 8/9/85

APPROVED BY:
TITLE:
ORG:
LOC/TEL:
SIGNATURE: H T Craven DATE: 8/27/85

DATA EVALUATION RECORD

1. Chemical: 1,3-Dichloropropene

2. Formulation: Vorlex, Batch 2410 (% active unknown)

3. Study Type: Aquatic invertebrate 48-hour acute toxicity. Daphnia magna

4. Citation: Morrissey, A. (1979) The Acute Toxicity of Vorlex to the Water Flea...: Flow-through Test: UCES Project No. 11506-74. (Unpublished study received June 5, 1979, under 2139-55; prepared by Union Carbide Corp., submitted by Nor-Am Agricultural Products, Inc., Naperville, IL; CDL:238635-A) (00119186).

5. Reviewed by: Richard R. Stevens
Biologist
EEB/HED
Signature: [signature]
Date: 8/23/85

6. Approved by: Harry Craven
Head, Section IV
EEB/HED
Signature: H.T Craven
Date: 8/27/85

7. Conclusions:

This study, as reported, is not scientifically sound. The percent active ingredient of the test compound is not specified. With a 48-hour LC_{50} of 3.56 (2.02-4.51) mg/ℓ, vorlex is moderately toxic to daphnids.

Invalid Study

8. Materials and Methods:

Test Procedures -

"This 48-hour flow-through study was conducted at the request of NOR-AM Agricultural Products, Inc. to determine the acute toxicity of vorlex to the water flea, Daphnia magna Straus. The test was performed by Union Carbide Environmental Services (UCES) at its toxicity laboratory in Tarrytown, New York. Vorlex is a green, acetone-soluble liquid.

"Daphnia magna used in this test came from a UCES laboratory stock culture, the original population having been obtained from the National Water Quality Laboratory in Duluth, Minnesota. Stock cultures are maintained at 19 to 21 °C in 350 liter stainless steel tanks. Twenty hours before starting the test, adults with full brood chambers were isolated into UCES well water; next morning the newly released instars, less than 20 hours old, were carefully removed with a wide bore pipette and transferred to a separate holding vessel. One hour before the test they were fed, and no additional food was administered thereafter.

"Dilution water for the test was obtained from a well on the Tarrytown site; since first instar daphnids readily survived in water from the same source for 48 hours without feeding, its quality was judged acceptable for bioassay purposes. The water, stored in a 95 liter glass reservoir, was vigorously aerated before use and determined by analysis to have a pH of 7.99, total hardness of 226 mg/l as $CaCO_3$, total alkalinity of 151 mg/l as $CaCO_3$, and specific conductance of 600 µmhos/cm. Hardness and alkalinity were ascertained by standard analytical procedures (American Public Health Association, 1976), pH with an ORION pH Meter, conductivity with a YSI Conductivity Bridge and dissolved oxygen with a YSI Oxyten Meter.

"Test practices followed those recommended by the Committee on Methods for Toxicity Tests with Aquatic Organisms (1975). A stock solution of the test material in reagent grade acetone, 9.9 mg/ml, was prepared by weight to a precision of 0.1 mg, and brought to a final volume of 1 liter in volumetric glassware. A range-finding test was then conducted in disposable, 250 ml polypropylene beakers. Three concentrations, control and solvent control were tested in duplicate, with five instars per container. The level of acetone in the solvent control equalled the amount in the highest concentration of test material.

"A glass proportional diluter of the Mount and Brungs (1967) design, with a dilution factor of 0.5, was employed, delivering vorlex to twenty-four 2.7-liter (maximum volume) glass battery jars. The diluter system was split to feed four replicate test vessels per toxicant concentration via glass delivery tubes. Each container received a separate stream of water from the toxicant diluter. An LKB 10200 Perpex peristaltic pump, gear ratio 1:200, delivered toxicant to the diluter mixing chamber via latex tubing, 1.1 mm ID, at a rate of 1.0 ml toxicant per 14.6 minute diluter cycle. Five hundred mls of test water was distributed equally among four replicates per concentration each cycle period (Appendix 1).

"The glass battery jars, 19 cm high and 13.5 cm inner diameter, had a U-shaped notch cut in the upper lip which was covered with No. 405 Nitex screening to maintain a constant water level without losing test animals. Radially ribbed, 6-inch diameter watch glasses with a central opening covered each test chamber to lessen disturbances to the daphnids imposed by the rate of influent test water.

"Five organisms were randomly introduced into each of the 20 test and 4 control chambers. Total exposure volume of toxicant solution was approximately 2.4 liters per test chamber. The test was conducted in a 122 x 244 cm stainless steel water bath, at a constant temperature of 22.0 $\pm$ 0.5 °C.

"Dissolved oxygen and pH were determined initially and at 48 hours for all test concentrations and the controls."

Statistics -

"Daphnid mortalities were recorded at 24 and 48 hours. The concentration of test material lethal to 50 percent of the test population (LC_{50}, the Median Lethal Concentration) and 95 percent confidence limits were determined for the 24- and 48-hour exposure periods by the Spearman-Karber Estimator (Finney, 1971). LC_{50} calculations were based on nominal concentrations of the test material in hard well water. The no-effect level was determined, by observation, at 48 hours."

9. Reported Results:

The study authors found that the 48-hour LC_{50} was 3.56 (2.02-4.51) mg/ℓ. The no-effect level was observed to be 0.63 mg/ℓ. Percent mortality data are presented in attached table.

1,3 - DICHLOROPROPENE

Page_____ is not included in this copy.

Pages 5 through 6 are not included.

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 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.

X FIFRA registration data.

____ The document is a duplicate of page(s) _____.

____ The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.

10. Reviewer's Evaluation:

Validation Category: Invalid.

Rationale: Incomplete description of test material.

Repairability: If the above can be supplied, the study will be reevaluated and may be upgraded.