

ACUTE TOXICITY TO AQUATIC INVERTEBRATES (DAPHNIA MAGNA)

TEST SUBSTANCE

Identity: Decafluoro(pentafluoroethyl)cyclohexanesulfonate, DEA salt; may be referred to as CS-2070. When dissolved in water may also be referred to or as CS-2151 or FC-90. (DEA salt of perfluoro(ethylcyclohexyl) sulfonate, [C₂F₅-CF(CF₂CF₂)₂CF-SO₃-][H₂N(CH₂CH₂OH)₂+])

Remarks: The 3M production lot number was 3. The test sample is CS-2151, a mixture of CS-2070 in water (approximately 25% test substance and 75% water). All values reported relate to this mixture. No calculations were made to adjust for the actual concentration of the test substance in the test sample. The sample purity was not characterized.

METHOD:

Method: Standard Practice for Conducting Acute Toxicity Tests with Fishes, Macroinvertebrates, and Amphibians (ASTM E729-80)

Type: Acute static

GLP: No

Year completed: 1981

Species: *Daphnia magna*

Supplier: In-house cultures. Originally obtained from Mogul-Ed, Oshkosh, WI.

Analytical monitoring: Temperature, pH, and dissolved oxygen.

Exposure period: 48-hours

Test organism age: 24 hours old

Statistical methods: EC₅₀ values calculated using the probit program and 3M TRAC Computer System.

Test conditions:

Dilution water: Carbon-filtered well water.

Dilution water chemistry: provided for the end of 4th qtr, 1980.

Unclear when the toxicity study was conducted.

Hardness: 260 mg/L as CaCO₃

Alkalinity: 221 mg/L as

pH 7.7

Conductivity: 340 µmhos/cm

Lighting: A daily photoperiod of 16 hours light and 8 hours dark with a 30-minute transition period was maintained throughout the testing period.

Stock and test solution preparation: Not noted.

Exposure vessels: 250 mL beakers containing 200 mL exposure solution.

Number of replicates: 2

Number of daphnids per replicate: 20
Number of concentrations: five plus a blank control
Water chemistry during the study: Not noted.

RESULTS

Nominal concentrations: Blank control, 21.75, 28.75, 38.75, 52.5, and 70 mg/L.

Element value and 95% confidence interval:
48-hour EC₅₀ = 74 (66 – 93) mg/L

Element value based on nominal concentrations.

Remarks: Testing was conducted on the test substance as described in the test substance remarks field. The values reported are based on nominal concentrations of CS-2151.

CONCLUSIONS

The test substance 48-hour EC₅₀ was determined to be 74 mg/L with a 95% confidence interval of 66 to 93 mg/L.

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DATA QUALITY

Reliability: Klimisch ranking = 3. The results are from a summary report and there is no concentration-response data included. There is a lack of characterization of the test sample. Test solutions were not analyzed for test substance concentrations and confirmation of the amount of fluorochemical component in the solution.

REFERENCES

This study was conducted by the 3M Company, Environmental Laboratory, St. Paul, MN, Lab Request number 6457S, 1981.

OTHER

Last changed: 4/1/01