

ACUTE TOXICITY TO FISH (FATHEAD MINNOW)

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: 1980

Species: *Pimephales promelas*

Supplier: Dale Fattig Fish Farm, Brady, NE.

Analytical monitoring: Temperature, pH, and dissolved oxygen.

Exposure period: 96-hours

Statistical methods: LC₅₀ values calculated using the probit program and 3M TRAC Computer System.

Test fish age: Juveniles

Length and weight: Average length = 35 mm
Average weight = 0.3 g (wet)

Loading: 0.4 g/L

Pretreatment: None

Test conditions:

Dilution water: Carbon-filtered well water.

Dilution water chemistry: provided for the end of 3rd qtr, 1980. Uclear when the toxicity study was conducted.

Hardness: 244 mg/L as CaCO₃

Alkalinity: 230 mg/L as

pH 7.7

Conductivity: 380 µmhos/cm

Dilution water chemistry ranges during the study:

Temperature: 19 ± 2°C

pH 7.6 – 8.0

Dissolved oxygen at 96-hours: 5.2 – 5.9 mg/L

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.

Concentrations dosing rate: Once.

Stability of the test chemical solutions: Not noted.

Exposure vessels: All-glass aquaria (35x20x25 cm) containing 16 L of test solution.

Number of replicates: 2.

Number of fish per replicate: 20.

Number of concentrations: five plus a blank control

RESULTS

Nominal concentrations: Blank control, 87, 135, 210, 320, and 490 mg/L

Element values with 95% confidence interval:

96-hour LC₅₀ = 175 (156-195) mg/L

Element values 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 sample 96-hour LC₅₀ for fathead minnow was determined to be 175 mg/L with a 95% confidence interval of 156 to 195 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 components in the solution.

REFERENCES

This study was conducted by the 3M Company, Environmental Laboratory, St. Paul, MN, Lab Request number 6260, 1980.

OTHER

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