

ACUTE TOXICITY TO AQUATIC INVERTEBRATES (DAPHNIA MAGNA)

TEST SUBSTANCE

Identity: A mixture containing perfluorooctanesulfonate, which may also be referred to as PFOS, FC-95 or as a component of FC-201AF. (1-Octanesulfonic acid) (CAS # 2795-39-3).

Remarks: The 3M production lot number was not noted. The test sample is FC-201AF. Current information indicates it is a mixture of 3% PFOS, 18.59% diethylene glycol butyl ether, 37.81% water, 14% ethylene glycol, 8.25% Acrylic foamer, 9% sodium octyl sulfate, 0.3% sodium lauryl sulfate, 3% triethanolamine, 6% sulfonated alkyl ether salts, and 0.05% tolyltriazole.

The following summary applies to a mixture with incompletely characterized concentrations of impurities. Data may not accurately reflect the toxicity of the fluorochemical component of the test sample.

METHOD:

Method: OECD Guideline 202

Type: Acute static

GLP: No

Year completed: 1995

Species: *Daphnia magna*

Supplier: In-house cultures. Originally obtained from U.S. EPA-ERL, Duluth, MN.

Analytical monitoring: Temperature, pH, and dissolved oxygen.

Exposure period: 48-hours

Test organism age: <24 hours old

Statistical methods: Not applicable due to study results.

Test conditions:

Dilution water: Carbon-filtered well water (3M Well #2, St. Paul, MN).

Dilution water chemistry: Not given.

Lighting: Not given.

Stock and test solution preparation: A primary stock solution was prepared by dissolving 1000 mg of test substance in 1000 mL water.

Exposure concentrations were prepared by addition of stock solution to each vessel.

Exposure vessels: 100 mL vessels containing 50 mL exposure solution.

Number of replicates: 4

Number of daphnids per replicate: 5

Number of concentrations: one plus a blank control

Water chemistry during the study:

pH range (0-48 hours):

8.0 – 8.1 (control exposure)

8.0 – 8.1 (1000 mg/L exposure)
Temperature range (0-48 hours): 20.2 – 20.4 °C
Dissolved oxygen range (0-48 hours):
8.3 – 8.4 mg/L (control exposure)
6.9 – 8.4 mg/L (1000 mg/L exposure)

RESULTS

Nominal concentrations: Blank control and 1000 mg/L.

Element values: 48-hour EC₅₀ = >1000 mg/L

Element values based on nominal concentrations.

Remarks: Testing was conducted on a mixture as described in the Test Substance Remarks field. The values reported apply to that mixture and not the fluorochemical proportion alone.

CONCLUSIONS

The test substance 48-hour EC₅₀ was determined to be >1000 mg/L, the highest concentration tested. No mortality was observed.

Submitter: 3M Company, Environmental Laboratory, P.O. Box 33331, St. Paul, Minnesota, 55133

DATA QUALITY

Reliability: Klimisch ranking = 2. This study meets the criteria for quality testing. However, sample purity was not properly characterized and the study lacks analytical confirmation of the amount of fluorochemical proportion in solution.

REFERENCES

This study was conducted by the 3M Company, Environmental Laboratory, St. Paul, MN, Lab Request number N2964, 1995.

OTHER

Last changed: 6/26/00.

LR N2964

DATE TERMINATED: 8/31/95 1540

EC50 (95% CI) μ g/L

7 mL Stock solutions: 1000 mg compound in 1000 mL Carbon-filtered well water. Each at 1 mL / 1 mg
Initial pH of highest concentration tested: 1000 mg/l is 8.3

ANA: 25

000300