

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-206CE. (1-Octanesulfonic acid) (CAS # 2795-39-3).

Remarks: The 3M production lot number was 502. The test sample is FC-206CE (2/16/89). Current information indicates it is a mixture of 0.92% PFOS, 15% diethylene glycol butyl ether, 76.09% water, 4% urea, 1.28% Sultone foamer, 1.55% sodium octyl sulfate, 1.05% polyoxyethylene mono-octylphenyl ether, 0.06% sodium lauryl sulfate, 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 Method 202 and U.S. EPA Method EG-1

Type: Acute static

GLP: No

Year completed: 1989

Species: *Daphnia magna*

Supplier: In-house cultures. Initial brood stock from Aquatic Bio Systems, Inc, Fort Collins, CO.

Analytical monitoring: Temperature, pH, and DO

Exposure period: 48-hours

Test organism age: <24 hours old

Statistical method: Not given.

Test conditions:

Dilution water: Carbon-filtered well water

Dilution water chemistry:

Temperature: 20 °C

Dissolved oxygen: 9.6 mg/L

pH: 8.0

Lighting: Not given.

Stock and test solution preparation: The test material was added directly to the dilution water on a weight/volume basis.

Exposure vessels: 250 mL Pyrex glass beakers containing 200 mL of test solution and a water depth of 6 cm.

Number of replicates: 2

Number of daphnids per replicate: 10

Number of concentrations: one plus a blank control

Water chemistry during the study:

pH range (0-48 hours):

8.0 – 8.2 (control exposure)

7.9 – 8.1 (1000 mg/L exposure)

Temperature range (0-48 hours): 20 - 21 °C

Dissolved oxygen range (0-48 hours):

8.5 – 9.6 mg/L (control exposure)

4.5 – 9.6 mg/L (1000 mg/L exposure)

RESULTS

Nominal concentrations: Blank control and 1000 mg/L

Element values: 48-hour EC₅₀ = >1,000 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 FC-206CE 48-hour EC₅₀ was determined to be >1000 mg/L.

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

DATA QUALITY

Reliability: Klimisch ranking 2. Testing 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 the solution.

REFERENCES

This study was conducted by the 3M Company, Environmental Laboratory, St. Paul, MN, Lab Request number G1358-2, 1989.

OTHER

Last changed: 6/26/00

ENVIRONMENTAL LABORATORY
DAPHNIA TOXICITY DATA SHEET

LR 91358-2

TEST TYPE 48 Hr Acute Static CHEMICAL TESTED EC 2010 CE 2/14/89 LOT 5021
TEST ORGANISM Daphnia magna SOURCE Aquatic Bio Systems, Inc., Fort Collins, Co. DATE REC'D 11/16/88
AGE OF TEST ORGANISMS: 424 hrs. old instars (neonates) NO. ORGANISMS PER TREATMENT 10
TEST VESSEL: 250 ml Pyrex^R glass beaker TEST SOLUTION VOLUME: 200 ml WATER DEPTH: 6 cm
TIME STARTED 1:00 pm DATE STARTED 5/11/89 DATE COMPLETED 5/13/89
DILUTION WATER Carbon-filtered well water (Temp. 20 °C, D.O. 9.6 mg/L, pH 8.0)
ANALYST Rockelle Rabidou EC₅₀ (95% Confidence Limits) >1000 mg/L

Test Vessel No.	Initial Conc. mg/L	Total Amount Added mg	24 Hours			48 Hours		
			Total No. Dead	pH	D.O. mg/L	Total No. Dead	pH	D.O. mg/L
I	Control	—	0			0	8.2	8.5
II	Control	—	0			0	8.2	8.5
1	1000	200 *	0			0	8.1	4.8
2	1000	200	0			0	8.1	4.5
Test Temp. °C			21			21		
Initials & Date			R3 5/12/89			R3 5/13/89		

Comments: *Individual weights Test material appearance: clear yellow,
foamy liquid; miscible with water. Initial pH of 1000 mg/L,
7.9.

Test methodology conforms with the following two test protocols:

- (1) OECD #202 "Daphnia sp., Acute Immobilization Test and Reproduction Test".
- (2) US-EPA #EG-1 "Daphnid Acute Toxicity Test".

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