

ACUTE TOXICITY TO FISH (BLUEGILL SUNFISH)

TEST SUBSTANCE

Identity: A mixture containing perfluorooctanesulfonate, which may also be referred to as PFOS, FC-95, or as a component of FC-206 or L-3243. (1-Octanesulfonic acid) (CAS # 2795-39-3).

Remarks: The 3M production lot number was 501. The test sample is FC-206. Current information indicates it is a mixture of 0.67% PFOS, 17.5% diethylene glycol butyl ether, 78.91% water, 1.33% Sultone foamer, 1% sodium octyl sulfate, 0.04% sodium lauryl sulfate, 0.5% polyoxyethylene monoethylphenyl ether, and 0.05% benzotriazole.

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

METHOD:

Method: Not given.

Type: Acute flow-through

GLP: No

Year completed: 1978

Species: *Lepomis macrochirus*

Supplier: Commerical supplier in Brady, NE.

Analytical monitoring: Temperature, pH, and dissolved oxygen.

Exposure period: 24-hours

Statistical methods: Not given.

Test fish age: Juveniles

Length and weight: Average length = 30 mm
Average weight = 0.25 g (wet)

Loading: 0.31 g/L

Pretreatment: None

Test conditions:

Dilution water: Carbon-filtered well water

Dilution water chemistry: Not given.

Lighting: Not given.

Stock and test solution preparation: Not given

Diluter Flow rate: Not given.

Concentrations dosing rate: Continuous.

Stability of the test chemical solutions: Not noted.

Exposure vessels: Vessels containing 16 L test solution.

Number of replicates: 1

Number of fish per replicate: 20.

Number of concentrations: five plus a blank control

Water chemistry during the study:

pH range (0-24 hours):

7.9 – 8.0 (control exposure)

8.0 – 8.0 (2000 mg/L exposure)

Temperature range (0-24 hours): 18 °C

Dissolved oxygen range (0-24 hours):

7.3 – 9.0 mg/L (control exposure)

7.0 – 9.0 mg/L (2000 mg/L exposure)

RESULTS

Nominal concentrations: Blank control, 300, 600, 1200, 1800, and 2000 mg/L

Element values: 24-hour LC₅₀ (FC-206 only)= >2000 mg/L

Element values based on nominal concentrations.

Remarks: Testing was conducted on the 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 sample 24-hour LC₅₀ for bluegill sunfish was determined to be >2000 mg/L.

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

DATA QUALITY

Reliability: Klimisch ranking 3. Testing lacks record of methodology used. The 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, 1978.

OTHER

Last changed: 6/28/00

Type Test 24-H Flowthrough Material Tested FC-206 Lot # 501
Test Organism Bluegill Sunfish Vendor Brady, Neb. Date Rec'd 10-17-78 Batch No #8, 1978
Avg. Wt. 0.25 grams Avg. Size 3.0 cm.
Test Solution Volume 16 Liters/Tank No. Organisms per dose 20
Time Started 10:30 AM Date Started 11-10-78 Date Completed 11-11-78
Dilution Water Carbon filtered well (Temp. 18 °C., D.O. 9.0 ppm, pH 8.0)
Investigator M.T. Elmes ^{water} LC 50 (95% Confidence Limits) _____
(Full Signature)

Conc. mg/l.	Total Amount Added	24-Hours			48-Hours			72-Hours			96-Hours		
		Total No. Dead	pH	D.O. ppm	Total No. Dead	pH	D.O. ppm	Total No. Dead	pH	D.O. ppm	Total No. Dead	pH	D.O. ppm
Control	<u>ms</u>	0	7.9	7.3									
300mg/l	4800	0	7.9	7.2									
600	9600	0	8.6	7.2									
1200	19200	0	8.0	7.0									
1800	28800	0	8.0	7.1									
2400	48000	0	8.6	7.0									
Test Temp. °C		18°											
Signature & Date													

Comments: _____

EC50

Conc. mg/l	Symptoms or Reactions	Total No. Affected			
		24-Hr.	48-Hr.	72-Hr.	96-Hr.
Control					
Signature & Date					

Comments: _____