

ACUTE TOXICITY TO FISH (FATHEAD MINNOW)

TEST SUBSTANCE

Identity: A mixture containing perfluorooctanesulfonate, which may also be referred to as PFOS, FC-95, or as a component of FC-600. (1-Octanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-, potassium salt, CAS # 2795-39-3)

Remarks: The 3M production lot number was 628. The test sample is FC-600 (US). Current information indicates it is a mixture of 1.0% PFOS, 81.20% water, 12.00% diethylene glycol butyl ether, 1.00% sodium octyl sulfate, 2.00% propane Sultone foamer, 1.00% sodium decyl sulfate, 0.85% xanthan gum, 0.1% N-(3-chloroallyl) hexaminium chloride, 0.80% starch, and 0.05 % benzotriazole.

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

METHOD:

Method: Not noted.

Test type: Acute static (Range-finding)

GLP: No

Year Completed: 1983

Species: *Pimephales promelas*

Supplier: Commercial supplier in Brady, Nebraska

Analytical monitoring: Temperature, pH, DO

Exposure period: 96-hours

Statistical methods: Not applicable. No mortality at highest concentration tested.

Test fish age: Juveniles

Average Length and weight: Length = 3.6 cm
Weight = 0.39 grams

Loading: 0.65 g/L

Pretreatment: Not noted.

Test conditions:

Dilution water: Carbon-filtered well water, St. Paul, MN.

Dilution water chemistry:

pH: 8.2
Dissolved Oxygen: 9.6 mg/L
Temperature range: 18°C

Lighting: Not noted

Stock and test solution preparation: Test solutions were created by direct weights additions.

Concentrations dosing rate: Once

Stability of the test chemical solution: Not noted

Exposure vessels: Wide-mouth one gallon glass jars containing 3 liters of test solution.

Number of replicates: One

Number of fish per replicate: 5

Number of concentrations: Four plus two blank controls

Water chemistry during the study:

pH range (0 – 96 hours):

7.9 – 8.2 (control exposures)

7.7 – 8.2 (1,000 mg/L exposure)

Dissolved Oxygen range (0 – 96 hours):

5.8 – 9.6 mg/L (control exposures)

0.7 – 9.6 mg/L (1,000 mg/L exposure)

Temperature range (0 – 96 hours):

18 – 21°C

RESULTS

Nominal concentrations: 2 blank controls, 1, 10, 100, and 1,000 mg/L

Element value: 96-hour LC₅₀ = >1,000 mg/L

Element value based on nominal concentrations.

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

CONCLUSIONS

The FC-600 96-hour LC₅₀ for *Pimephales promelas* was determined to be >1,000 mg/L.

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

DATA QUALITY

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

REFERENCES

This study was conducted by 3M Company, Environmental Laboratory, St. Paul, MN, Lab Request number 8875, 1983.

OTHER

Last changed: 6/28/00

ENVIRONMENTAL LABORATORY
AQUATIC TOXICITY DATA SHEET
EXPLORATORY (RANGE-FINDING TEST)

LR 8875

Type Test 96HR WHITE STATIC Material Tested EC 600 (LS) Lot 628
Test Organism FATHEAD MINNOW Source BRADY, NEB Date Rec'd. 10/13/82 Batch No. 1-83
Avg. Wt. 0.39 grams Avg. Size 3.6 CM No. Organisms per dose 5
Test Solution Volume 3 Liters/All-Glass Tank Tank Dimensions: WIDE-MOUTH 1 GALLON GLASS JAR
Time Started 3:45 PM Date Started 2/6/83 Date Completed 2/10/83
Dilution Water Carbon-filtered well water (Temp. 18 °C., D.O. 9.6 ppm, pH 8.2)
Investigator WTE, R3 LC₅₀ (95% Confidence Limits) N=2 >1000 mg/l
(Full Signature)

Tank No.	Init. 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
I	Control	—	0	8.1	6.9	0	8.1	6.5	0	8.0	6.3	0	8.0	6.0
II	Control	—	0	8.1	6.9	0	8.1	6.4	0	8.0	6.1	0	7.9	5.8
-1	1	3	0	8.2	6.5	0	8.1	5.9	0	8.0	5.8	0	8.0	5.2
-2	10	30	0	8.2	6.7	0	8.1	6.4	0	8.0	5.1	0	8.0	5.2
-3	100	300	0	8.1	6.4	0	8.0	5.5	0	7.9	4.7	0	7.9	3.7
-4	1000	3000	0	8.2	6.9	0	7.7	0.7	0	7.7	1.8	0	7.8	3.9

Test Temp. °C.

19°C

20°C

20°C

21°C

Initials & Date

R3 2/11/83

R3 2/8/83

R3 2/9/83

R3 2/10/83

Comments: * INDIVIDUAL WEIGHTS.

Effects other than Mortality

EC₅₀

Tank No.	Symptoms or Reactions	Total No. Affected			
		24-Hr.	48 Hr.	72-Hr.	96-Hr.
Control I		NONE	NONE	NONE	NONE
Control II		NONE	NONE	NONE	NONE
-1		NONE	NONE	NONE	NONE
-2		NONE	NONE	NONE	NONE
-3		NONE	NONE	NONE	NONE
-4	SURFACING	NONE	5	5	NONE

Comments:

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