

PFOA and Associated Salts

Environmental Fate and Transport

Title	Laboratory or Author	Completion Date	Type
Technical Report Summary - Assessment of the Bioaccumulative Properties of Ammonium Perfluorooctanate: Static (fish test)	3M Env. Lab	5/31/95	Robust summary, technical report, critique by J. Giesy (MSU)

Ecotoxicity Elements

Title	Laboratory or Author	Completion Date	Type
96-hour acute static toxicity to fathead minnow - FC-143	3M Env. Lab	6/29/74	Robust summary, copy of data sheet
96-hour acute static toxicity to fathead minnow - FC-26	3M Env. Lab	11/10/74	Robust summary, copy of data sheet.
96-hour acute static toxicity to bluegill sunfish - FC-143	3M Env. Lab	4/8/78	Robust summary, copy of data sheet
96-hour acute static toxicity to bluegill sunfish - FC-143	3M Env. Lab	5/27/78	Robust summary, copy of data sheet
Two reports : "The Effects of Continuous Aqueous Exposure to 78.03 on Hatchability of Eggs and Growth and survival of Fry of Fathead Minnow (<u>Pimephales promelas</u>)" and "Summary of Histopathological Examinations of Fathead Minnow (<u>Pimephales promelas</u>) Exposed to 78.03 for 30 Days".	EG&G Bionomics, Wareham, MA	June 1978 and Sept. 1978	Robust summary, copies of two final reports.
Technical Report Summary - Aquatic Toxicity Testing: FC-143 (Lot-37) L.R. 5625 S	3M Env. Lab	5/8/80	Robust summary, technical report
Toxicity to activated sludge - FC-143	3M Env. Lab	6/4/80	Robust summary, copies of data sheets
Technical Report Summary - Multi-Phase Exposure/Recovery Algal Assay Test method (FC-143)	3M Env. Lab	11/16/81	Robust summary, technical report
48-hour acute static toxicity to <i>Daphnia magna</i> - FC-143 (3 studies on diet)	3M Env. Lab	5/5/82, 5/6/82, 6/2/82	Robust summary, copies of data sheets
Chronic Toxicity of Fluorochemicals to <u>Daphnia magna</u> (Water Flea) - FC-143, and statistical analysis of data provided by ASCL Corp., Duluth, MN	3M Env. Lab	8/31/1984, 8/10/98	Robust summary, summary report, letter report
96-hour acute static toxicity to fathead minnow - FX-1001	3M Env. Lab	2/2/85	Robust summary, copy of data sheet.

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Title	Laboratory or Author	Completion Date	Type
Activated sludge respiration inhibition (OECD 209) - FC-126	3M Env. Lab	4/20/87	Robust summary, copy of data sheets.
Microtox test - FC-126	3M Env. Lab	4/29/87	Robust summary, copy of data sheets.
48-hour acute static toxicity to <i>Daphnia magna</i> - FC-126	3M Env. Lab	4/30/87	Robust summary, copy of data sheets.
96-hour acute static toxicity to fathead minnow - FC-126	3M Env. Lab	5/1/87	Robust summary, copy of data sheets.
Activated sludge respiration inhibition (OECD 209) - FX-1003	3M Env. Lab	2/16/90	Robust summary, copies of data sheets
Microtox test - FX-1003	3M Env. Lab	3/7/90	Robust summary, copies of data sheets
Static Acute Toxicity of FX-1003 to the Fathead Minnow, <i>Pimephales promelas</i>	EnviroSystems, Hampton, New Hampshire	3/15/90	Robust summary, final report, protocol
Static Acute Toxicity of FX-1003 to the Daphnid, <i>Daphnia magna</i>	EnviroSystems, Hampton, New Hampshire	4/9/90	Robust summary, final report, protocol
Growth and Reproduction Toxicity Test with N2803-3 and the Freshwater Alga, <i>Selenastrum capricornutum</i>	T.R. Wilbury Laboratories, Inc, Marblehead, MA	1/24/96	Robust summary, final report
Acute Toxicity of N2803-3 to the Fathead Minnow, <i>Pimephales promelas</i>	T.R. Wilbury Laboratories, Inc, Marblehead, MA	1/24/96	Robust summary, final report
Acute Toxicity of N2803-3 to the Daphnid, <i>Daphnia magna</i>	T.R. Wilbury Laboratories, Inc, Marblehead, MA	3/7/96	Robust summary, final report
Microtox test - FC-143	3M Env. Lab	4/24/96	Robust summary, copies of data sheets
Microtox test - FC-118	3M Env. Lab	4/24/96	Robust summary, copies of data sheets
Microtox test - FC-1015-X	3M Env. Lab	4/24/96	Robust summary, copies of data sheets

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Ecotoxicity Elements

Title	Laboratory or Author	Completion Date	Type
Activated Sludge Respiration Inhibition Test - FC-1015-X	3M Env. Lab	4/25/96	Robust summary, copies of data sheets
Acute Toxicity of FC-1015 to the Fathead Minnow, <i>Pimephales promelas</i>	T.R. Wilbury Laboratories, Inc, Marblehead, MA	5/15/96	Robust summary, final report
Growth and Reproduction Toxicity Test with FC-1015 and the Freshwater Alga, <i>Selenastrum capricornutum</i>	T.R. Wilbury Laboratories, Inc, Marblehead, MA	5/15/96	Robust summary, final report
Acute Toxicity of FC-1015 to the Daphnd, <i>Daphnia magna</i>	T.R. Wilbury Laboratories, Inc, Marblehead, MA	5/15/96	Robust summary, final report
Summary Reports			
Title	Laboratory or Author	Completion Date	Type
Technical Report Summary - Final Comprehensive Report: FC 143	3M Env. Lab	3/23/79	Robust summary, technical report

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ACUTE TOXICITY TO FISH

TEST SUBSTANCE

Identity: Perfluorooctanoic acid, ammonium salt; may also be referred to as PFOA ammonium salt, Ammonium perfluorooctanoate, PFO, FC-116, FC-126, FC-169, or FC-143. (Octanoic acid, pentadecafluoro-, ammonium salt, CAS # 3825-26-1)

Remarks: The 3M product lot number was 83. The test sample is FC-143. It's purity was not sufficiently characterized, though current information indicates it is a mixture of 96.5 - 100% test substance and 0 - 3.5% C₆, C₇, and C₉ perfluoro analogue compounds.

METHOD:

Method: Not noted.

Type: Static acute

GLP: No

Year completed: 1977

Species: *Pimephales promelas*

Supplier: Not noted.

Analytical monitoring: Temperature, pH and DO

Exposure period: 96-hours

Statistical methods: Graphed LC₅₀

Test fish age: Not noted.

Length and weight: Average length = 2 inches
Average weight = 1.6 g

Pretreatment: Not noted.

Test conditions:

Dilution water: Carbon-filtered City of St. Paul, MN water.

Dilution water chemistry:

Temperature: Not noted.

Dissolved Oxygen: Not noted

pH: Not noted.

Stock and test solution preparation: Not noted.

Concentrations dosing rate: Once

Stability of the test chemical solutions: Not noted

Exposure vessels: Not noted.

Number of replicates: one

Number of fish per replicate: Not noted.

Loading rate: Not noted.

Number of concentrations: five plus a blank control

Water chemistry during the study:

Dissolved oxygen range (24 - 96 hours):

4.7 - 5.7 mg/L (control exposure)

4.0 - 4.9 mg/L (50 mg/L exposure)

pH range (24 - 96 hours):

7.0 – 7.1 (control exposure)
6.4 – 6.5 (50 mg/L exposure)**
Test temperature (24 – 96 hours): 70 - 72°F

RESULTS

Nominal concentrations: Bk control, 10, 20, 30, 40, and 50 mg/L
Element value: 96-hour LC₅₀ = 70 mg/L (C.I. not calculated)

Element value based on nominal concentrations

CONCLUSIONS

The test sample 96-hour LC₅₀ for fathead minnow was extrapolated to be 70 mg/L.

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

DATA QUALITY

Reliability: Klimisch ranking 3. There is insufficient documentation of the methodology. The LC₅₀ was extrapolated from an insufficient number of data points. The general health and age of the fish are not noted. Sample purity was not properly characterized and it lacks analytical confirmation of test substance concentrations.

REFERENCES

This study was conducted by the 3M Company, Environmental Laboratory, St. Paul, MN, Lab Request number 2340.

OTHER

Last changed: 5/24/00

ENVIRONMENTAL ENGINEERING LABORATORY
 AQUATIC TOXICITY WORK SHEET

L.R. 2340

Type Test 96 hour StaticMaterial Tested FC-143 Lot #83Test Organism Fathead MinnowAvg. Weight 1.6g Avg. Size 2 InchesDate Started 6-25-74Date Completed 6-29-74Time Started 4:00PMPlotted LC₅₀ 70 mg/lDilution Water Carbon filtered-city water**BEST COPY AVAILABLE**

Conc.	24 hrs			48 hrs			72 hrs			96 hrs		
	% Survival	pH	D.O ppm	% Survival	pH	D.O ppm	% Survival	pH	D.O ppm	% Survival	pH	D.O ppm
Control	100	7.0	5.7	100	7.0	5.2	90	7.0	5.0	90	7.1	4.7
10 mg/l	100	7.0	5.2	100	7.0	5.0	100	7.1	4.7	100	7.1	4.5
20	100	6.9	5.2	100	7.0	5.0	100	7.0	4.7	100	7.0	4.5
30	100	6.7	5.0	100	6.7	4.9	100	6.9	4.5	100	6.9	4.2
40	100	6.7	5.0	100	6.7	4.9	100	6.7	4.5	100	6.9	4.2
50	90	6.5	4.9	90	6.4	4.7	80	6.5	4.5	80	6.5	4.0
Average Temperature	72			70			70			70		

Comments: mg/l

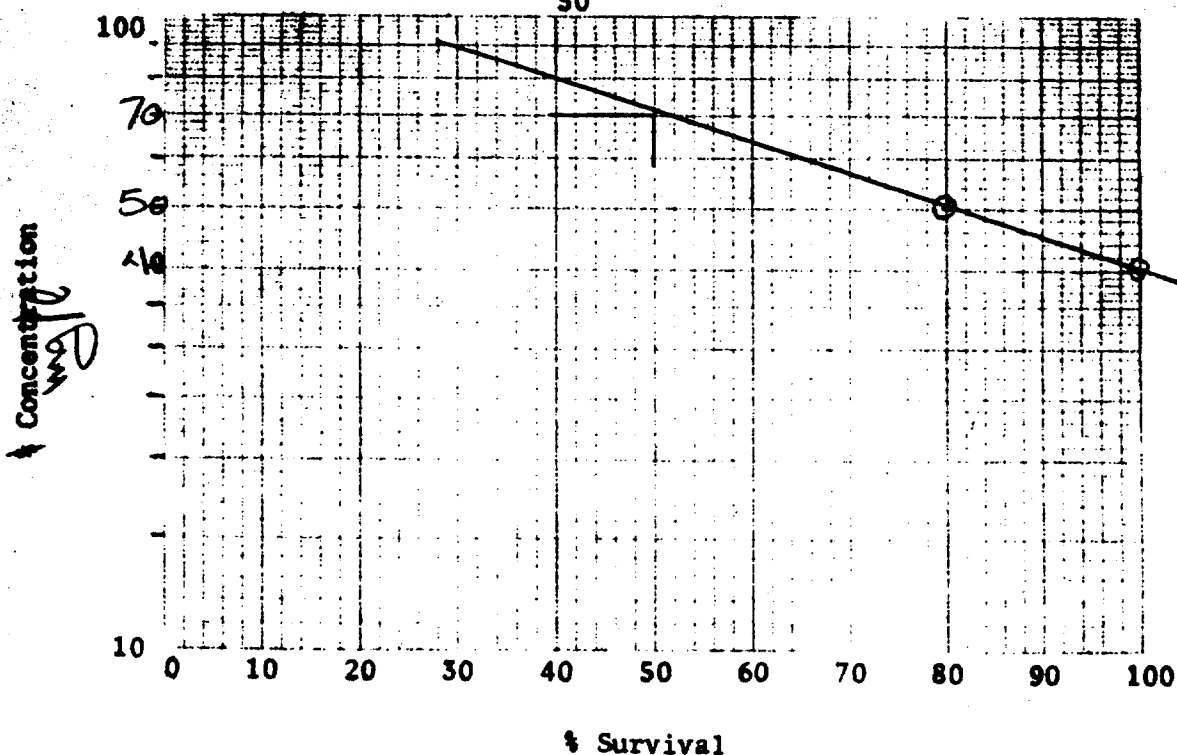
160

320

480

640

800

LC₅₀ Calculation

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