

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-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 static

GLP: No

Year completed: 1976

Species: *Pimephales promelas*

Supplier: Not given.

Analytical monitoring: Temperature, pH, and dissolved oxygen.

Exposure period: 72-hours

Statistical methods: Not given.

Test fish age: Juvenile

Length and weight: Average length = 45 mm
Average weight = 1.4 g (wet)

Loading: Not given.

Pretreatment: None.

Test conditions:

Dilution water: Carbon filtered well water (aerated)

Dilution water chemistry: Not given.

Lighting: Not given.

Stock and test solution preparation: Test material amended to black dirt formulated (premixed) used in greenhouse research 1:1, mixed with sand, type silty clay soil.

Concentrations dosing rate: Once

Stability of the test chemical solutions: Not noted.

Exposure vessels: Not given.

Number of replicates: 1

Number of fish per replicate: Not given.

Number of concentrations: four plus soil control and no soil control.

Water chemistry during the study:

pH range (0-72 hours):

7.3 – 7.3 (control exposure)

7.0 – 7.1 (10000 mg/L soil exposure)

Temperature range (0-96 hours): 48 – 49 °F

Dissolved oxygen range (0-96 hours):

7.6 – 8.3 mg/L (control exposure)

5.3 – 7.9 mg/L (10000 mg/L soil exposure)

RESULTS

Nominal concentrations: Blank control, no soil control, 10, 100, 1000, and 10000 mg/L soil.

Element values: None given.

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

No conclusions given.

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DATA QUALITY

Reliability: Klimisch ranking 3. Testing lacks record of methodology used and documentation. 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, 1976.

OTHER

Last changed: 6/28/00

FC-206 lot 501

6-15-76

96-Hour $LC_{50} \rightarrow 1,500 \text{ mg/l}$

48-Hour 30% survival $\rightarrow \underline{2,500 \text{ mg/l}}$

(
24-H $\rightarrow$ 100% survival
48-H $\rightarrow$ 30% "
72-H $\rightarrow$ 0% "
96-H $\rightarrow$ 0% "
)

Soil - Black dirt formulated (Premixed)

Used in greenhouse research (~~1:1~~ 1:1, mixed with sand)

Silty clay soil $\rightarrow$ 0%

% Sand 13

% silt 42

% clay (45)

ENVIRONMENTAL ENGINEERING LABORATORY
AQUATIC TOXICITY WORK SHEETType Test 72 Hours - StaticMaterial Tested ~~Fe 206~~ Lot 501Test Organism Fathead MinnowAvg. Weight 1.49 Avg. Size 4.5cmDate Started 11-3-76Date Completed 11-6-76 RAETime Started 3:00pmPlotted LC₅₀ Dilution Water Carbon Filtered - Well Water (aerated)*

mg/l 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	7.3	8.3	100	7.3	8.0	100	7.3	7.6			
No soil	100	7.2	8.1	60	7.2	7.3	0	7.2	5.2			
10 mg/l soil	100	7.0	8.0	60	7.1	7.3	0	7.2	5.0			
100 mg/l soil	100	7.0	8.0	65	7.0	7.0	0	7.0	5.0			
1,000 mg/l soil	100	7.0	7.9	70	7.0	7.0	0	7.0	4.9			
10,000 mg/l soil	100	7.0	7.9	100	7.1	7.0	50	7.0	5.3	0%		
Average Temperature			20°C	20°C			20°C					

Comments:

- * Initial DO 8.9 mg/l
 ** 2,500 mg/l Fe 206 LC₅₀ Calculation

5-day

