AR226-0500

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 production 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% C_6, C_7, and C_9 perfluoro analogue compounds.

METHOD:

Method: Not noted.
Type: Static acute
GLP: No
Year completed: 1978
Species: Bluegill sunfish (*Lepomis machrochirus*)
Supplier: Not noted.
Analytical monitoring: Temperature, pH and DO
Exposure period: 96-hours
Statistical methods: Not noted
Test fish age: Not noted.
Length and weight: Average length = 3.0 cm
Average weight = 1.2 g
Pretreatment: Not noted.
Test conditions:
Dilution water: Carbon-filtered well water.
Dilution water chemistry:
Temperature: 19°C
Dissolved Oxygen: 9.9 ppm
pH: 7.6
Stock and test solution preparation: Not noted
Concentrations dosing rate: Once
Stability of the test chemical solutions: Not noted
Exposure vessels: Tanks containing 16 liters test solution.
Number of replicates: one
Number of fish per replicate: 20
Loading rate: 1.5 g/L
Number of concentrations: five plus a blank control
Water chemistry during the study:
Dissolved oxygen range (24 – 96 hours):
5.6 – 6.5 mg/L (control exposure)
4.9 – 5.9 mg/L (750 mg/L exposure)*
pH range (24 – 96 hours):

7.8 (control exposure)
7.6 – 7.8 (750 mg/L exposure)*

* 750 mg/L test group (third highest concentration) data given because total mortality occurred in the highest test concentrations within 48 hours.

Test temperature (24 – 96 hours): 19-20°C

RESULTS

Nominal concentrations: Bk control, 420, 560, 750, 1000, and 1350 mg/L
Element value: 96-hour LC50 = 569 (500 – 636) mg/L

Element value based on nominal concentrations

CONCLUSIONS

The test sample 96-hour LC_{50} for bluegill sunfish was determined to be 569 mg/L with a 95% confidence interval of 500 to 636 mg/L.

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

DATA QUALITY

Reliability: Klimisch ranking 3. Testing lacks information on the method followed. No information on stock or test solution preparations. 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 3844.

OTHER

Last changed: 5/24/00

L.R. 3894

ENVIRONMENTAL ENGINEERING LABORATORY
AQUATIC TOXICITY DATA SHEET

Type Test 96-Hour Static Material Tested FC-193, Lot 83

Test Organism Bluegill Sunfish Avg. Wt. 1.2 grams Avg. Size 3.0 cm

Test Solution Volume 16 Liters/Tank No. Organisms per dose 20

Time Started 3:00 pm Date Started 5-23-78 Date Completed 5-27-78

Dilution Water Carbon Filter - Well Water (Temp. 19°C., D.O. 9.9 ppm, pH 7.6)

Investigator M.T. Elnabarawy LC 50 (95% Confidence Limits) ~~284~~ 569
L ~~240~~
U ~~329~~ L 506
U 636

mg/l Conc.	No. Organisms Exposed	24 Hrs. No. Dead	pH	D.O. ppm	48 Hrs. No. Dead	pH	D.O. ppm	72 Hrs. No. Dead	pH	D.O. ppm	96 Hrs. No. Dead	pH	D.O. ppm
Control	20	0	7.8	6.5	1	7.8	6.3	1	7.8	6.0	1	7.8	5.6
420	20	0	7.8	6.5	2	7.8	6.0	3	7.8	5.9	4	7.8	5.6
560	20	2	7.8	5.9	2	7.7	5.6	8	7.6	5.6	10	7.7	5.3
750	20	5	7.8	5.9	7	7.6	5.3	11	7.7	5.0	14	7.7	4.9
1,000	20	15	7.7	5.8	20	7.7	5.0	20	—		20	—	
1,350	20	18	7.7	5.7	20	7.7	5.0	20	—		20	—	
Temp.		19°C			20°C			19°C			19°C		

Comments: