

ACUTE TOXICITY TO FISH (RAINBOW TROUT)

TEST SUBSTANCE

Identity: A mixture containing perfluorooctanesulfonate, which may also be referred to as PFOS, FC-95, or as a component of FC-203. (1-Octanesulfonic acid) (CAS # 2795-39-3).

Remarks: The 3M production lot number was 4. The test sample is FC-203. Current information indicates it is a mixture of 1.34% PFOS, 35% diethylene glycol butyl ether, 37.85% water, 20% ethylene glycol, 2.66 % Sultone foamer, 3% sodium octyl sulfate, 0.1% sodium lauryl sulfate, and 0.05% tolyltriazole.

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: 1974

Species: *Salmo gairdneri*

Supplier: Not given.

Analytical monitoring: Temperature, pH, and DO

Exposure period: 96-hours

Statistical methods: Not given.

Test fish age: Juvenile

Length and weight: Average length = 1.5 in
Average weight = 0.9 g (wet)

Loading: Not given.

Pretreatment: None.

Test conditions:

Dilution water: Carbon filtered city water, St. Paul, MN

Dilution water chemistry: Not given.

Lighting: Not given.

Stock and test solution preparation: Not given.

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: five plus a blank control

Water chemistry during the study:

pH range (0-hours only): 7.1 - 7.2

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

Dissolved oxygen range (0-96 hours):

4.7 – 5.7 mg/L (control exposure)

4.2 – 5.2 mg/L (1250 mg/L exposure)

RESULTS

Nominal concentrations: Bk control, 125, 312.5, 625, 937.5, and 1250 mg/L

Element values: 96-hour LC₅₀ = 1250 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 96-hour LC₅₀ for rainbow trout was determined to be 1250 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 and documentation. 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, Lab Request number 2103, 1974.

OTHER

Last changed: 6/27/00

Water and Wastewater

REQUEST FOR LABORATORY WORK

Lab Request No. 2103

TO: ENVIRONMENTAL ENGINEERING LABORATORY - BUILDING 53-6N

Requestor

Lab Personnel

Name: Dale Bacon Request Date _____
 Project No. _____ Prob. No. _____ Code # _____
 Description: Rainbow Trout Fish study
 Sample Date: _____ Date Needed: _____
 Hold Sample For _____ Days Est. Time: _____ Hrs. _____

Date Rec'd. Sample: _____
 Analyst: MTE
 Y 74 B 15 P 15
 Date Completed: 2-23-74
 Hrs. Spent: 16

Sample Description

Total Hardness, mg/l as CaCO₃
 Calcium Hardness, mg/l as CaCO₃
 "P" Alkalinity, mg/l as CaCO₃
 "M" Alkalinity, mg/l as CaCO₃
 pH
 Sulfate, mg/l as SO₄
 Nitrate, mg/l as NO₃
 Chloride, mg/l as Cl
 Silica, mg/l as SiO₂
 Fluoride, mg/l as F
 Ortho Phosphate, mg/l as P
 Total Phosphate, mg/l as P
 Total Chromium, mg/l as Cr
 Hex. Chromium, mg/l as Cr
 Total Cyanide, mg/l as CN
 Ferrocyanide, mg/l as CN
 Iron, mg/l as Fe
 Manganese, mg/l as Mn
 Surfactant, mg/l as LAS
 Phenol, mg/l
 BOD, mg/l
 COD, mg/l (Short, Long, Dilute)
 Total Suspended Solids, mg/l
 Volatile Suspended Solids, mg/l
 Turbidity, mg/l Silica
 Total Solids, mg/l
 Total Volatile Solids, mg/l
 Conductivity, mhos
 Total Bacteria, No./100 ml
 Total Coliform, No./100 ml
 Fecal Coliform, No./100 ml
 Fecal Streptococcus, No./100 ml
 Ammonia Nitrogen, mg/l as N
 Kjeldahl Nitrogen, mg/l as N
 Oil and Grease, mg/l

L-32413 FC-203
Lot #1 Lot #4

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Comments: _____

Date Completed 2-23-74

Carbon filter

	0 hrs	24 hrs	48 hrs	72 hrs	D.O	96 hrs	110
	Survival	pH	Survival	pH	ppm	Survival	pH
51	100		52	100	5.0	100	4.7
55	100		51	100	4.7	100	4.4
55	100		52	100	5.0	100	4.1
54	100		50	100	4.9	100	4.7
52	100		50	70	4.7	70	4.5
52	80		4.7	60	4.5	50	4.2
48			4.9		4.8		4.8

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