

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 _____

Date Rec'd. Sample: _____

Project No. _____ Prob. No. _____ Code # _____

Analyst: MTEDescription: Rainbow Trout Fish studyY 74 B 15 P 1

Sample Date: _____ Date Needed: _____

Date Completed: 2-23-74

Hold Sample For _____ Days Est. Time: _____ Hrs. _____

Hrs. Spent: 16

Sample Description

Total Hardness, mg/l as CaCO₃Calcium Hardness, mg/l as CaCO₃"P" Alkalinity, mg/l as CaCO₃"M" Alkalinity, mg/l as CaCO₃

pH

Sulfate, mg/l as SO₄Nitrate, 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

Bicassay 96 hour static LC50 X 1,800 X 1,250
PPM PPM

Comments: _____

LABORATORY
BRIEF

Material tested FC-203 Lot #4
Avg. Weight 0.99 Size 15 inch
Date Completed 2-23-74

10:14 AM
Unwashed carbon filter

	48 hrs			72 hrs			96 hrs		
	D.O. ppm	Survival	pH	D.O. ppm	Survival	pH	D.O. ppm	Survival	pH
1	57	100		53	100	15.0	100		47
2	55	100		51	100	14.7	100		44
3	55	100		52	100	15.0	100		41.2
4	54	100		50	100	14.1	100		41.7
5	52	100		50	70	14.7	70		41.5
6	52	80		47	60	14.5	50		42.5
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