

ACUTE TOXICITY TO FISH

TEST SUBSTANCE

Identity: Perfluorooctanesulfonylamido(ethyl)acetate; may also be referred to as PFOSAA, FC-128 or as the major component of FC-127, FC-129, FC-109, or FC-109-X. (Glycine, N-ethyl-N-[(heptadecafluorooctyl)sulfonyl]-, potassium salt, CAS # 2991-51-7)

Remarks: The test sample is FC-128. Current information indicates it is a mixture of 86% test substance and 14% C₄-C₇ fluoroalkyl carboxylate compounds.

METHOD:

Method: Not noted.

Type: Static acute

GLP: No

Year completed: 1974

Species: *Pimephales promelas*

Supplier: Not noted.

Analytical monitoring: pH and DO

Exposure period: 96-hours

Statistical methods: Graphed

Test fish age: Not noted.

Length and weight: Average length = 2 inches
Average weight = 1.5 g

Pretreatment: Not noted.

Test conditions:

Dilution water: Carbon Filtered city water

Dilution water chemistry: Not noted.

Stock and test solution preparation: Individual weights

Concentrations dosing rate: Once

Stability of the test chemical solutions: Not noted

Exposure vessels: Type not noted. 16L volume.

Number of replicates: one

Number of fish per replicate: Not noted

Number of concentrations: five plus a negative control

Water chemistry during the study:

Dissolved oxygen range (24 – 96 hours):

5.0 – 6.1 mg/L (control exposure)

4.0 – 5.7 mg/L (40 mg/L exposure)*

pH range (24 – 96 hours):

7.0 – 7.1 (control exposure)

6.7 – 7.0 (40 mg/L exposure)*

* 40 mg/L test group data given because total mortality occurred in the 50 mg/L test group by 72 hours and all data was not collected.

Test temperature (24 – 96 hours): 72 to 74°F

RESULTS

Nominal concentrations: Bk control, 10, 20, 30, 40, and 50 mg/L

Element value: 96-hour LC₅₀ = 34 mg/L (C.I. not calculated)

All element values based on nominal concentrations

CONCLUSIONS

The test sample 96-hour LC₅₀ for fathead minnow was determined to be 34 mg/L.

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

DATA QUALITY

Reliability: Klimisch ranking 3. This study lacks documentation and information on the methodology. Sample purity was not properly characterized.

REFERENCES

This study was conducted by the 3M Company, Environmental Laboratory, St. Paul, MN, completed on May 18, 1974.

OTHER

Last changed: 5/18/00

cc: LAB REQUEST BOOK - 42-5W

File: _____

Water and Wastewater

REQUEST FOR LABORATORY WORK

Lab Request No. 2254

TO: ENVIRONMENTAL ENGINEERING LABORATORY - BUILDING 53-6N

Requestor

Lab Personnel

Name: D. Bacon Request Date _____
 Project No. _____ Prob. No. _____ Code # _____
 Description: FC-128 powder
 Sample Date: _____ Date Needed: _____
 Hold Sample For _____ Days Est. Time: _____ Hrs.

Date Rec'd. Sample: _____
 Analyst: MTE
 Y _____ B _____ P Bio-Assay
 Date Completed: 5-18-74
 Hrs. Spent: 10

Sample Description

FC-128Total 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

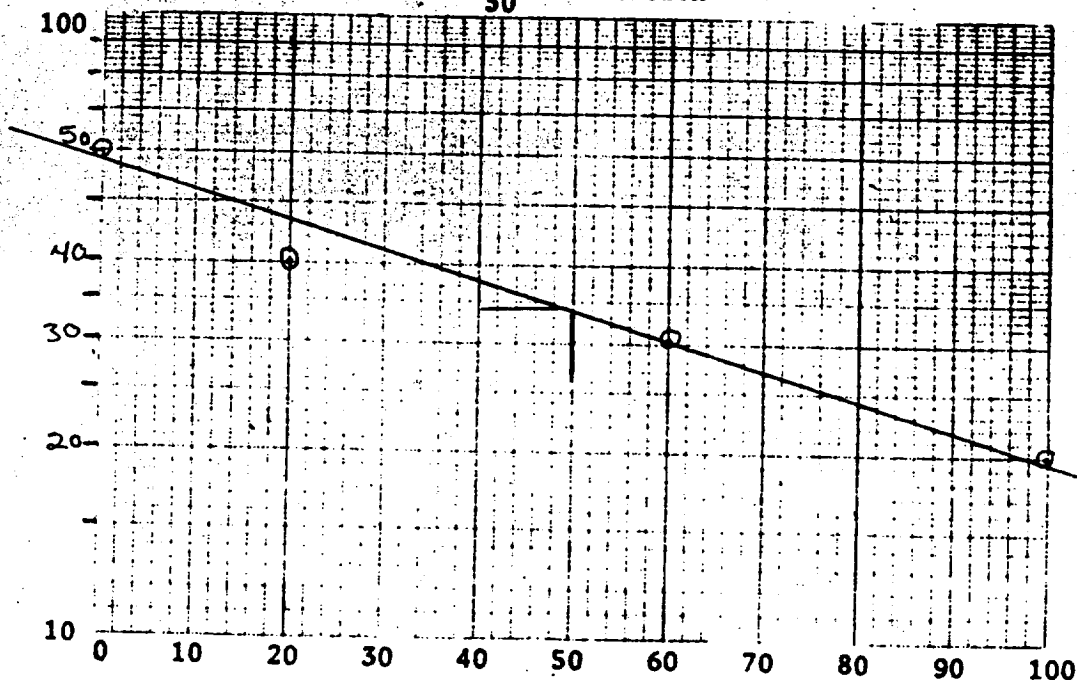
Oil and Grease, mg/l

Bioassay, 96 hour static LC5034 mg/l

Comments: _____

ENVIRONMENTAL ENGINEERING LABORATORY
 AQUATIC TOXICITY WORK SHEET
Type Test 96 hour, staticMaterial Tested FC-128 PowderTest Organism Fathead MinnowsAvg. Weight 1.5g Avg. Size 2 InchesDate Started 5-14-74Date Completed 5-18-74Time Started 2:00 PMPlotted LC₅₀ 34 mg/lDilution Water carbon filtered - city water

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	6.1	100	7.0	5.7	100	7.1	5.2	100	7.0	5.0
10 mg/l	100	7.0	5.9	100	7.0	5.5	100	6.9	5.0	100	6.9	4.5
20	100	6.9	5.7	100	7.0	5.2	100	6.9	4.7	100	6.9	4.5
30	100	6.9	5.7	100	7.0	5.2	70	6.9	4.5	60	6.9	4.0
40	90	6.7	5.7	70	6.9	5.0	30	7.0	4.2	20	6.9	4.0
50	70	6.7	5.5	20	6.7	4.5	0	6.5	4.0	0	—	—
Average Temperature			72	72			72			74		
Comments: Mg/l			160	320			480			640		
										800		

LC₅₀ Calculation

% Survival