

MICROBICS MICROTOX® TOXICITY TEST

TEST SUBSTANCE

Identity: A mixture containing perfluorooctanesulfonate, which may also be referred to as PFOS, FC-95, or as a component of FC-206CE. (1-Octanesulfonic acid) (CAS # 2795-39-3).

Remarks: The 3M production lot number was 502. The test sample is FC-206CE. Current information indicates it is a mixture of 0.92% PFOS, 15% diethylene glycol butyl ether, 76.09% water, 4% urea, 1.28% Sultone foamer, 1.55% sodium octyl sulfate, 1.05% polyoxyethylene monooctylphenyl ether, 0.06% sodium lauryl sulfate, and 0.05% tolytriazole.

The following summary applies to a mixture with incompletely characterized concentrations of impurities. Data may not accurately reflect the toxicity of the fluorochemical component of the test sample.

METHOD:

Method: Microbics Microtox® Procedure

Test type: Static acute

GLP: No

Year Completed: 1989

Species: *Photobacterium phosphoreum*

Analytical monitoring: pH and osmotic condition.

Exposure period: 30-minutes

Statistical methods: EC₅₀ values calculated by statistical linear regression program provided for Microtox®

Test organism source: Microbics' Reagent.

Test conditions:

Diluent: Microbics 2% NaCl solution.

Test temperature: Not noted.

Stock and test solution preparation: A primary stock solution was prepared in Millipore Milli-Q™ water. The pH of the stock solution was 6.7 and an osmotic adjustment was made using 200 mg NaCl dissolved in 10 mL stock solution. Appearance of test solutions was noted as "apparently miscible in water, no color apparent". All test solutions were made by proportional dilutions.

Exposure vessels: 4 mL cuvettes.

Number of replicates: two

Number of concentrations: Four plus a blank control

Element basis: Percent light loss

RESULTS

Nominal concentrations: Blank control, 125, 250, 500, and 1000 mg/L

Element value: 5-minute EC₅₀ = 650 (590 – 710) mg/L
15-minute EC₅₀ = 450 (420 – 490) mg/L
30-minute EC₅₀ = 420 (390 – 440) mg/L

Element values based on nominal concentrations.

Remarks: Testing was conducted on a mixture as described in the Test Substance Remarks field. The values reported apply to that mixture and not the fluorochemical proportion alone.

CONCLUSIONS

The FC-206CE 30-minute EC₅₀ for *Photobacterium phosphoreum* was determined to be 420 mg/L with a 95% confidence interval of 390 to 440 mg/L.

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

DATA QUALITY

Reliability: Klimisch ranking 2. Testing meets all criteria for quality testing. However, 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 G1358-2, 1989.

OTHER

Last changed: 6/26/00.

ENVIRONMENTAL LABORATORY
MICROBICS MICROTOX^R SYSTEM

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RAW DATA

TEST SUBSTANCE: FC-206CE Lot 502TEST DATE: 6-16-89ANALYST: Ausan A. Beach

SAMPLE CUVETTE	FINAL ASSAY CONCENTRATION mg/L	INITIAL READING I(0)	FINAL READINGS		
			5-MIN. I(5)	15-MIN. I(15)	30-MIN. I(30)
B1	BLANK CONTROL	95	77	72	68
C1	DUPLICATE	95	77	72	69
B2	125	90	63	53	51
C2	Duplicate	96	69	60	57
B3	250	100	59	48	45
C3	Duplicate	98	59	49	46
B4	500	97	44	34	31
C4	Duplicate	101	47	37	34
B5	1000	96	31	22	19
C5	Duplicate	92	29	21	18

Test Substance: Stock Solution: 200 mg / 100 ml Milli-Q water
Yellow Liquid Each 1.0 ml = 2.0 mg

Osmotic Adjustment: Stock Soln. pH = 6.7
Apparently miscible in water; no color apparent
Added 200 mg NaCl to 10 ml Sample

Diluent: Microbics 2% NaCl Solution

Initial Dilutions: Initial Concentrations were double the Final Assay Concentrations mentioned above. The initial dilutions were introduced into the top row (Row A) and were then transferred (50/50) into the middle and the lower rows (Rows B & C).

MICROTOX(r) DATA SHEET

LR 61358-2 FC-206CE 5-MIN EXPOSURE 6/16/89 SAB

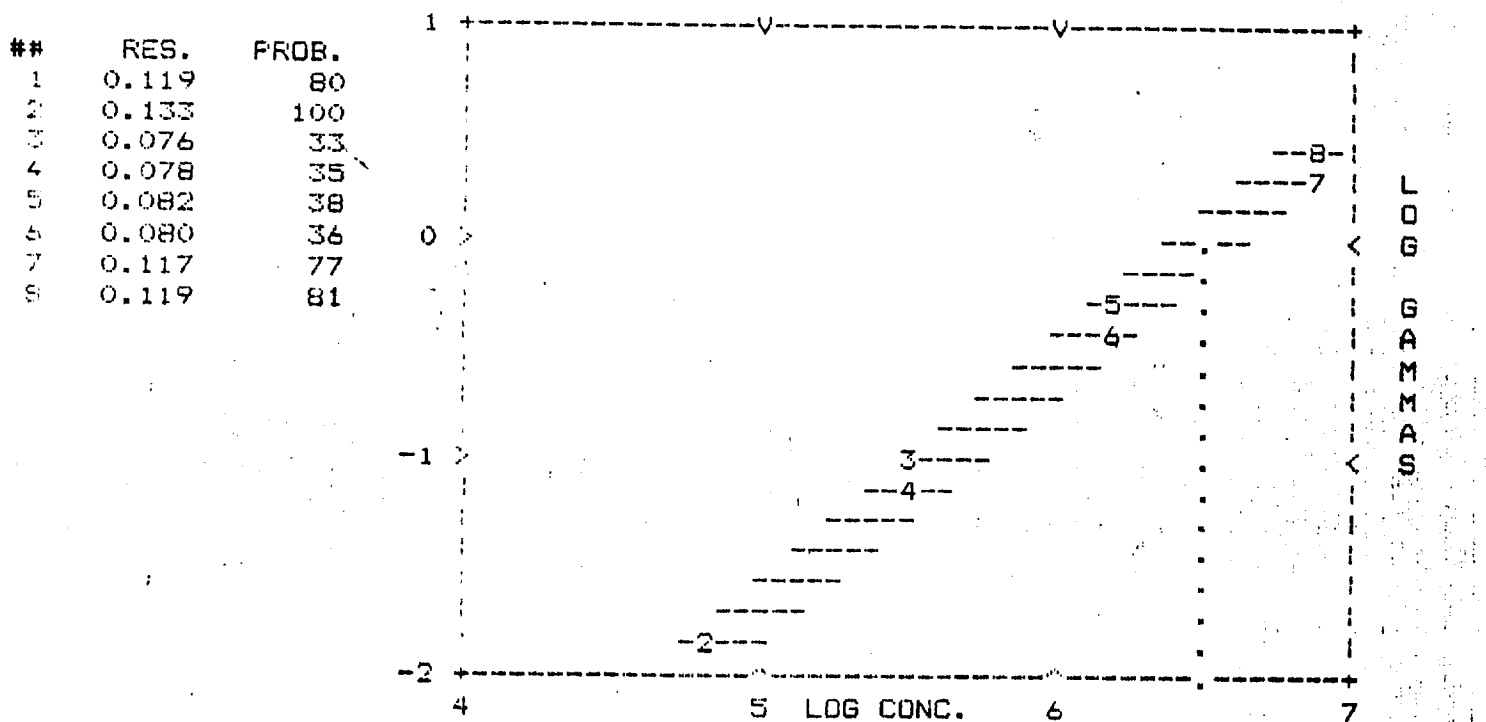
PAIR #	CONC. mg/L	Io/It	G-OBS	G-EST	Percent Light Loss ⁽¹⁾
1	125.000	90.0/ 63.0	0.158	0.151	14
2	125.000	96.0/ 69.0	0.128	0.151	11
3	250.000	100.0/ 59.0	0.374	0.333	27
4	250.000	98.0/ 59.0	0.346	0.333	26
5	500.000	97.0/ 44.0	0.787	0.735	44
6	500.000	101.0/ 47.0	0.742	0.735	43
7	%1000.000	96.0/ 31.0	1.510	1.621	60
8	%1000.000	92.0/ 29.0	1.571	1.621	61

BLANK Bo/Bt= 95 / 77
BLANK RATIO= 0.8105

$$(1) \frac{G-OBS}{(1+G-OBS)} \times 100$$

EC 50 = 651.251 (593.503 TO 714.617) 650 (590-710) mg/L

R = 0.99557 SLOPE = 0.8691 INTERCEPT = +6.4789



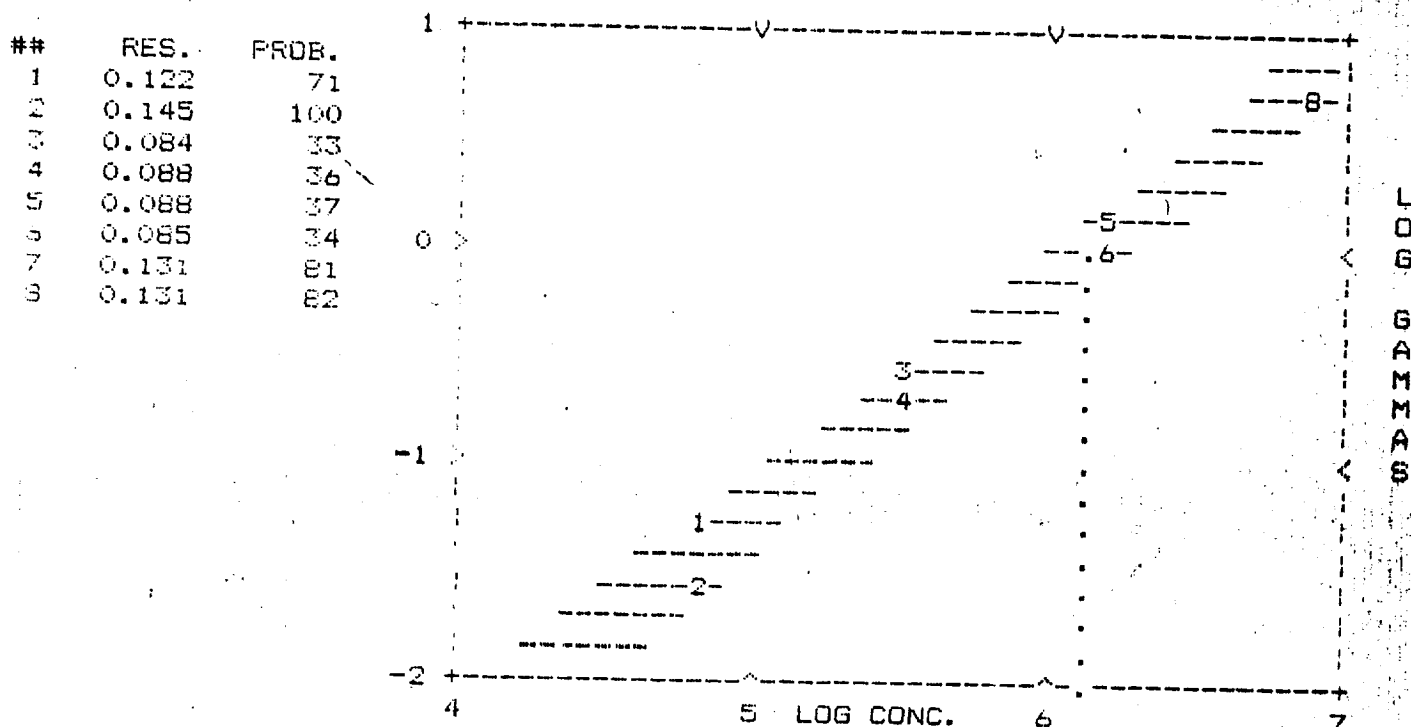
LIST 2RUN 3 L O A D " 4 S A V E " 5 C
C O N T 6 , " L P T 1 7 T R O N B T R E
F F K E Y
E N

6/16/89 SAB

$$(1) \frac{G-OBS}{(1+G-OBS)} \times 100$$

EC 50 = 451.134 (415.191 TO 490.189) 450 (420-490) mg/L

R = 0.99476 SLOPE = 0.9239 INTERCEPT = +6.1118



11. IST 2 RUN 3 L O A D " 4 S A V E " 5 C
C O N T 6 ' " L F T 1 7 T R O N B T R O F
F F K E Y
E N O S C R E E

[illegible]

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MICROTOX(r) DATA SHEET

LR G1358-2 FC-206CE 30-MIN EXPOSURE 6/16/89 SAB

PAIR #	CONC. mg/L	Io/It	G-OBS	G-EST	Percent Light Loss (%)
1	125.000	90.0/ 51.0	0.282	0.255	22
2	125.000	96.0/ 57.0	0.223	0.255	18
3	250.000	100.0/ 45.0	0.614	0.560	38
4	250.000	98.0/ 46.0	0.547	0.560	35
5	500.000	97.0/ 31.0	1.273	1.230	56
6	500.000	101.0/ 34.0	1.158	1.230	54
7	%1000.000	96.0/ 19.0	2.670	2.698	73
8	%1000.000	92.0/ 18.0	2.712	2.698	73

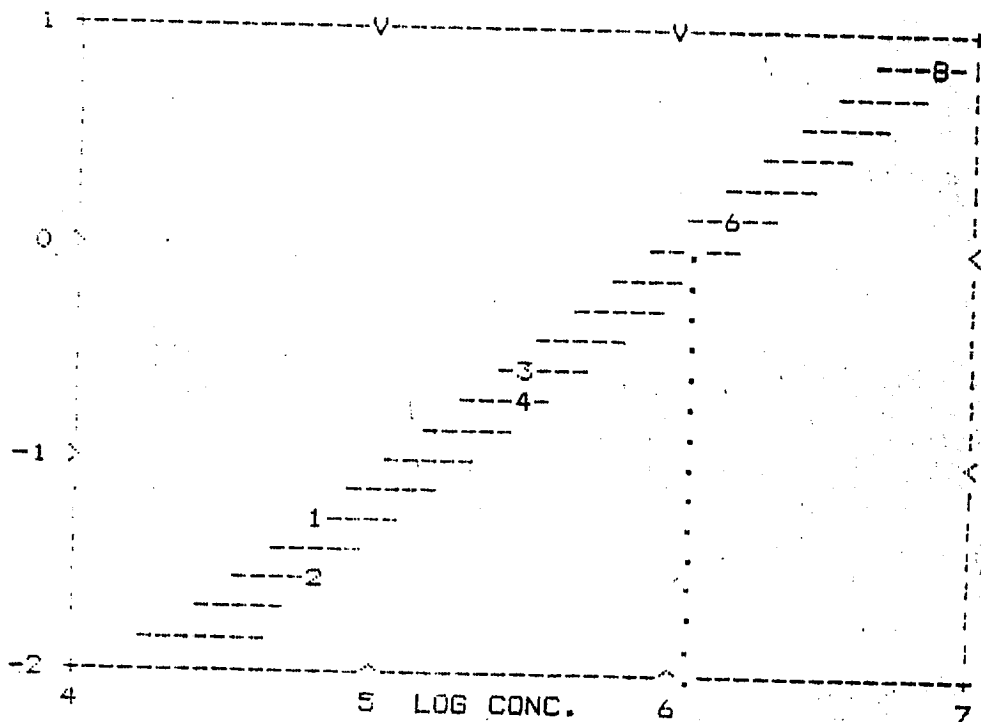
BLANK Bo/Bt= 95 / 69
BLANK RATIO= 0.7263

$$(1) \frac{G-OBS}{(1+G-OBS)} \times 100$$

EC 50 = 416.192 (390.084 TO 444.047) 420(390-440) mg/L

R = 0.99664 SLOPE = 0.8762 INTERCEPT = +6.0311

#	RES.	PROB.
1	0.100	78
2	0.114	100
3	0.067	35
4	0.070	38
5	0.070	38
6	0.068	35
7	0.105	86
8	0.106	87



IST 2RUN 3 L O A D " 4 S A V E " 5 C
= C O N T S , " L P T 1 7 T R O D N B T R E F
E F K E Y . 0 S C R E E