

## MICROBICS MICROTOX® TOXICITY TEST

### TEST SUBSTANCE

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**Identity:** Perfluorodecanesulfonate, ammonium salt; may also be referred to as PFDS, FC-120, or 3M Sample J2905-1. (1-Decanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heneicosafuoro-, ammonium salt, CAS # 67906-42-7)

**Remarks:** Test sample is a mixture of the test substance in water and butyl cellosolve (approximately 25% test substance, 37.5% butyl cellosolve and 37.5% water). All values reported relate to this mixture. No calculations were made to adjust for the actual concentration of the test substance in the test sample. Test sample was from 3M Lot 164.

### METHOD

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**Method:** Microbics Microtox® "BASIC" Procedure

**Test type:** Static acute

**GLP:** No

**Year Completed:** 1992

**Species:** *Photobacterium phosphoreum*

**Analytical monitoring:** None

**Statistical methods:** Microbics computer software package

**Test organism source:** Microbics Microtox® Reagent

**Test conditions:** Per Microbics method

**Replicates:** Two

### RESULTS

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**Nominal concentrations:** 125, 250, 500, 1000 mg/L

**Test Sample Element values:** 30-minute  $EC_{10}$  = 79 (65 – 96) mg/L  
30-minute  $EC_{50}$  = 327 (299 – 358) mg/L

### CONCLUSIONS

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FC-120 exhibited a 30-minute  $EC_{50}$  for *Photobacterium phosphoreum* of 327 mg/L.

Testing was conducted on the "as-sold" mixture of the subject material in water (~25% subject material). The values reported apply to that mixture and not directly to the subject material.

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

#### **DATA QUALITY**

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**Reliability:** : Klimisch ranking 2. This study, while well conducted, lacks analytical data for: determination of the test substance concentration in the test solutions; and determination of the sample purity. Because a mixture was tested, care must be taken when interpreting the results. The solvent in the mixture could have enhanced or restricted biological uptake and/or toxicity of the fluorochemical component.

#### **REFERENCES**

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This study was conducted by the 3M Company, Environmental Laboratory, St Paul, MN, Lab Request number J2904, 4/20/92.

#### **OTHER**

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**Last changed:** 5/18/00

# MICROTOX

Form 10620 - 6 - 3 - PWO

Lab Request No. J2909-1

Page 1 of 10

Date: 4/20/92

Analyst: KSN

## Environmental Lab — Work Sheet

### Sample Description

FC-120 LOT 164

Yellow Liquid

Added 200 mg of sample to flask with  $\approx$  50 ml Milli-Q water

Initial pH = 7.7 - adjusted to 6.6 with  $H_2SO_4$

Added Milli-Q water to 100 ml.

Osmotic Adjustment: Added 200 mg NaCl to 10 ml of sample

Final Appearance of Test Solution: \* Slight cloudiness suspected

\* Note: Test concentrations are close to limits

P<sub>g</sub> 2 of 10

FINAL RESULTS

J2904-1.K5

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| NUMBER | CONC.     | GAMMA  | GAMMA EST. | % EFFECT |
|--------|-----------|--------|------------|----------|
| 3      | 250.0000  | 0.1277 | 0.1271     | 11.324   |
| 4      | 250.0000  | 0.1315 | 0.1271     | 11.619   |
| 5      | 500.0000  | 0.2287 | 0.2685     | 16.511   |
| 6      | 500.0000  | 0.2920 | 0.2685     | 22.603   |
| 7      | 1000.0000 | 0.5838 | 0.5670     | 36.860   |
| 8      | 1000.0000 | 0.5722 | 0.5670     | 36.394   |

ED 50 =1660.7427 mg/L (95% CONFIDENCE RANGE:1319.6220 TO 2089.7258)

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## MICROTOX DATA REPORT

FILE NAME: J2904-1.K5

TEST DATE: \_\_\_\_\_

Sample Description:

TEST TIME: \_\_\_\_\_

FC-120 LOT 164 YELLOW LIQUID: TEST CONCENTRATIONS ARE CLEAR.  
COLORLESS

Procedure: BASIC

Osmotic Adjustment: NaCl

Initial Concentration : 1000 mg/L

Dilution Factor : 2

Test Time: 5 minutes

Concentration Units: mg/L

| NUMBER | IO/IT  | CONC.     | GAMMA    |
|--------|--------|-----------|----------|
| 1      | 84/ 48 | 125.0000  | 0.06075  |
| 2      | 83/ 49 | 125.0000  | 0.02673* |
| 3      | 80/ 43 | 250.0000  | 0.12771# |
| 4      | 84/ 45 | 250.0000  | 0.13146# |
| 5      | 75/ 37 | 500.0000  | 0.22867# |
| 6      | 81/ 38 | 500.0000  | 0.29204# |
| 7      | 81/ 31 | 1000.0000 | 0.58379# |
| 8      | 83/ 32 | 1000.0000 | 0.57218# |

CONTROL IT/IO = 55/ 92

BLANK RATIO = 0.6061

[illegible]

3SLOPE = 1.0786

G  
A  
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A

[illegible]

EC 50 =1660.7427 (95% CONFIDENCE RANGE:1319.8220 TO 2089.7258)

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# Used for calculations
# Invalid gammas
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Pg 4 of 10

STATISTICAL REPORT FOR DATA FILE J2904-1.K5

ESTIMATING EQUATION:  $\text{LOG } C = 0.9129 \times \text{LOG } b + 3.2203$

NUMBER OF DATA PAIRS USED: 6

RESIDUAL VARIANCE: 0.00139

95% CONFIDENCE FACTOR: 1.25831 FOR EC50

CORRELATION COEFFICIENT:  $R = 0.99229$

EFFECTIVE CONCENTRATIONS (95% CONFIDENCE RANGE):

|       |                  |                              |
|-------|------------------|------------------------------|
| EC 50 | = 1660.7427 mg/L | ( 1319.8220 TO 2089.7258)*** |
| EC 20 | = 468.4890 mg/L  | ( 424.7483 TO 516.7341)      |
| EC 10 | = 223.4613 mg/L  | ( 188.4842 TO 264.9290)***   |
| EC 1  | = 25.0349 mg/L   | ( 14.7624 TO 42.4556)***     |

\*\*\* EXTRAPOLATED RESULTS

## FINAL RESULTS

J2904-1.K15

| NUMBER | COND.     | GAMMA  | GAMMA EST. | % EFFECT |
|--------|-----------|--------|------------|----------|
| 1      | 125.0000  | 0.1686 | 0.1339     | 14.429   |
| 2      | 125.0000  | 0.1175 | 0.1339     | 10.511   |
| 3      | 250.0000  | 0.3356 | 0.3646     | 25.126   |
| 4      | 250.0000  | 0.3484 | 0.3646     | 25.879   |
| 5      | 500.0000  | 0.9564 | 0.9931     | 48.886   |
| 6      | 500.0000  | 0.9886 | 0.9931     | 49.714   |
| 7      | 1000.0000 | 2.7563 | 2.7046     | 73.378   |
| 8      | 1000.0000 | 2.8490 | 2.7046     | 74.019   |

EC 50 = 500.9496 mg/L (95% CONFIDENCE RANGE: 463.6847 TO 541.2094)

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## MICROTOX DATA REPORT

FILE NAME: J2904-1.K15

TEST DATE:

TEST TIME: \_\_\_\_\_

**Sample Description:**

20 LOT 164 YELLOW LIQUID: TEST CONCENTRATIONS ARE CLEAR.  
ORLESS

Procedure: BASIC

Osmotic Adjustment: NaCl

Initial Concentration : 1000 mg/L

Dilution Factor : 2

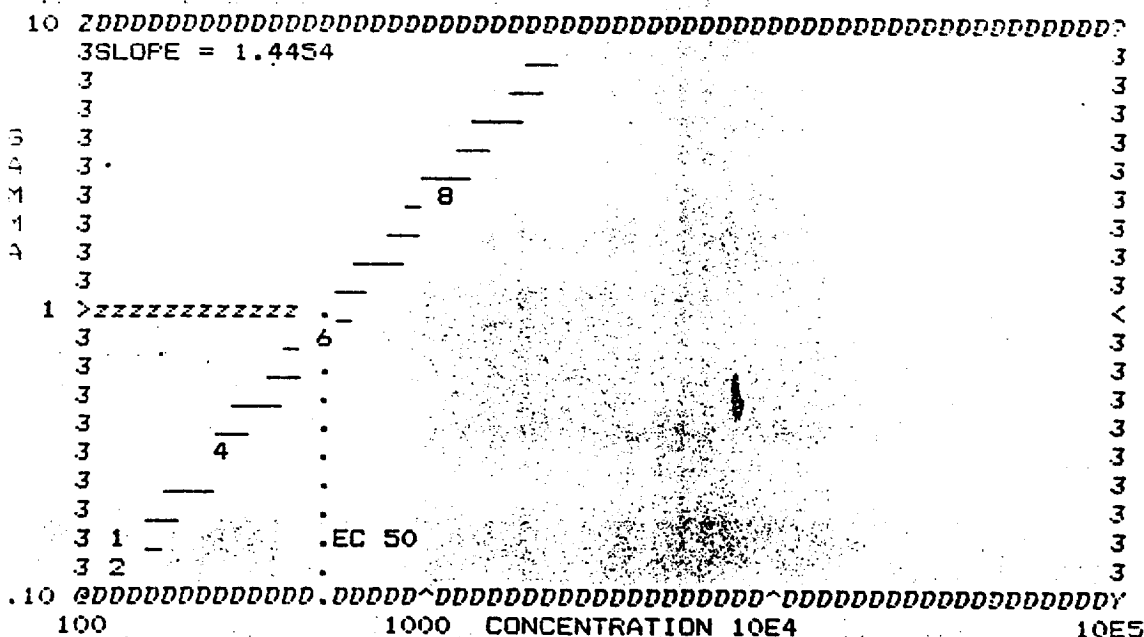
Test Time: 15 minutes

Concentration Units: mo/L

| NUMBER | IO/IT  | CONC.     | GAMMA    |
|--------|--------|-----------|----------|
| 1      | 84/ 30 | 125.0000  | 0.16862# |
| 2      | 83/ 31 | 125.0000  | 0.11746# |
| 3      | 80/ 25 | 250.0000  | 0.33557# |
| 4      | 84/ 26 | 250.0000  | 0.34841# |
| 5      | 75/ 16 | 500.0000  | 0.95640# |
| 6      | 81/ 17 | 500.0000  | 0.98862# |
| 7      | 81/ 9  | 1000.0000 | 2.75629# |
| 8      | 83/ 9  | 1000.0000 | 2.84903# |

CONTROL IT/IO = 38/ 92

BLANK RATIO = 0.4173



EC 50 = 500.9496 (95% CONFIDENCE RANGE: 463.6847 TO 541.2094)

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# Used for calculations
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## STATISTICAL REPORT FOR DATA FILE J2904-1.K15

ESTIMATING EQUATION:  $\text{LOG } C = 0.6861 \times \text{LOG } d + 2.6998$ 

NUMBER OF DATA PAIRS USED: 8

RESIDUAL VARIANCE: 0.00125

95% CONFIDENCE FACTOR: 1.08037 FOR EC50

CORRELATION COEFFICIENT: R = 0.99585

EFFECTIVE CONCENTRATIONS (95% CONFIDENCE RANGE):

|         |               |   |          |    |              |
|---------|---------------|---|----------|----|--------------|
| EC 50 = | 500.9496 mg/L | ( | 463.6847 | TO | 541.2094)    |
| EC 20 = | 193.5175 mg/L | ( | 176.9699 | TO | 211.6124)    |
| EC 10 = | 110.9398 mg/L | ( | 97.6970  | TO | 125.9777)*** |
| EC 1 =  | 21.4085 mg/L  | ( | 16.4163  | TO | 27.9189)***  |

\*\*\* EXTRAPOLATED RESULTS

$P_g \cdot g \propto 10$

## FINAL RESULTS

J2904-1.K30

32904-1.850  
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| NUMBER | CONC.     | GAMMA  | GAMMA EST. | % EFFECT |
|--------|-----------|--------|------------|----------|
| 1      | 125.0000  | 0.1916 | 0.2306     | 16.078   |
| 2      | 125.0000  | 0.2264 | 0.2306     | 18.464   |
| 3      | 250.0000  | 0.7732 | 0.6639     | 43.604   |
| 4      | 250.0000  | 0.6550 | 0.6639     | 39.576   |
| 5      | 500.0000  | 2.3247 | 1.9118     | 69.922   |
| 6      | 500.0000  | 2.1917 | 1.9118     | 68.669   |
| 7      | 1000.0000 | 4.7451 | 5.5052     | 82.594   |
| 8      | 1000.0000 | 4.8870 | 5.5052     | 83.013   |

EC 50 = 327.3192 mg/L (95% CONFIDENCE RANGE: 299.1904 TO 358.0926)

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[[[Touch SPACE BAR to continue....]]]#####

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P<sub>c</sub>, 10  $\sigma$ -10

STATISTICAL REPORT FOR DATA FILE J2904-1.K30

ESTIMATING EQUATION:  $\text{LOG } C = 0.6466 \times \text{LOG } d + 2.5150$

NUMBER OF DATA PAIRS USED: 8

RESIDUAL VARIANCE: 0.00201

95% CONFIDENCE FACTOR: 1.09402 FOR EC50

CORRELATION COEFFICIENT:  $R = 0.99331$

EFFECTIVE CONCENTRATIONS (95% CONFIDENCE RANGE):

|         |               |   |          |    |             |
|---------|---------------|---|----------|----|-------------|
| EC 50 = | 327.3192 mg/L | ( | 299.1904 | TO | 358.0926)   |
| EC 20 = | 133.5555 mg/L | ( | 115.6267 | TO | 154.2643)   |
| EC 10 = | 79.0551 mg/L  | ( | 65.0098  | TO | 96.1349)*** |
| EC 1 =  | 16.7701 mg/L  | ( | 11.6396  | TO | 24.1620)*** |

\*\*\* EXTRAPOLATED RESULTS