

## ACUTE TOXICITY TO FISH

TEST SUBSTANCE

**Identity:** N-Ethylperfluorooctanesulfonamide; may also be referred to as U1464, EtFOSA, EtPOSA, F-6309, or FX-12. (1-Octanesulfonamide, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-N-ethyl-, CAS # 4151-50-2)

**Remarks:** Material is a white solid, lot 505 (cc842-3, F6309, L-1089). Sample purity was not recorded.

The following summary is abbreviated due to the fact that this study has been superseded by a more recent test.

METHOD

**Method:** Not provided  
**Type:** Acute static  
**GLP:** No  
**Year completed:** 1984  
**Species:** *Pimephales promelas*

RESULTS

96-hour LC<sub>50</sub>: 34 (27-44) mg/L (Probit analysis)

DATA QUALITY

**Reliability:** Klimisch ranking = 3. This study was tested in excess of solubility (individual weights above solubility limits) and actual concentrations were not measured. Results were based on nominal concentrations. Additionally, sample purity was not adequately characterized.

REFERENCES

This study was conducted by the 3M Company, Environmental Laboratory, 1984.

OTHER

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

**Last changed:** 5/16/00

ENVIRONMENTAL LABORATORY  
CHEMICAL ENVIRONMENTAL EFFECTS EVALUATION  
TOXICITY TEST: SUMMARY REPORT

Chemical Tested EX 17, LOT 505 (PC 842-3) Test Type: DEFINITIVE (FULL-SCALE)  
FL 309, L-1089  
 LC50/EC50/IC50/GR50 (95% C.L.): 7.2 (24-49) / 8.1 (25-53) mg/l

Test Species: FATHREAD MINNOWS, (PIMEPHALES PROMELAS)

Test Date: 4-2-84 / 4-16-84 L.R. #: JB 1230

Analyst(s): [Signature]

(Exposure/Test Conditions)

Exposure Type:

Static ✓ ACUTE Static/Continuous  
 Orbital Shaking \_\_\_\_\_

Static Recirculatory \_\_\_\_\_ Static Renewal \_\_\_\_\_ Flow-Through \_\_\_\_\_

Diluent:

Aerated Well Water (Initial D.O. 9.2 mg/l; pH 8.2; Temp. 20 °C (68 °F))

Water Hardness: 240 ppm Hardness Classification: HARD

Dissolved Oxygen & Saturation:

|                                   | <u>48-hr</u> | <u>96-hr</u> | <u>Extended Exposure</u> |
|-----------------------------------|--------------|--------------|--------------------------|
| Control(s)                        | <u>79</u>    | <u>80</u>    | _____                    |
| Lowest Experimental Dose 13 mg/l  | <u>79</u>    | <u>79</u>    | _____                    |
| Highest Experimental Dose 79 mg/l | <u>82</u>    | <u>89</u>    | _____                    |

pH Levels:

|                                   | <u>48-hr</u> | <u>96-hr</u> | <u>Extended Exposure</u> |
|-----------------------------------|--------------|--------------|--------------------------|
| Control(s)                        | <u>8.1</u>   | <u>8.1</u>   | _____                    |
| Lowest Experimental Dose 13 mg/l  | <u>8.1</u>   | <u>8.1</u>   | _____                    |
| Highest Experimental Dose 79 mg/l | <u>8.1</u>   | <u>8.1</u>   | _____                    |

Test Temperature °C (°F):

| <u>48-hr</u>     | <u>96-hr</u>     | <u>Extended Exposure</u> |
|------------------|------------------|--------------------------|
| <u>21°C (70)</u> | <u>22°C (72)</u> | <u>°C ( )</u>            |

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Photoperiod: Sixteen hours light with a 15-30 minute transition period.

LR. 151230

ENVIRONMENTAL LABORATORY  
AQUATIC TOXICITY DATA SHEET  
DEFINITIVE (FULL-SCALE TEST)

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TYPE TEST 96 HR ACUTE STATIC

MATERIAL TESTED FX12 LOTS 505 (10842-3) F16309, L-1089

TEST ORGANISM FATHEND MULLET

LC<sub>50</sub>'s (95% CONFIDENCE LIMITS)

\* PROBIT ANALYSIS

| TEST RUNS                       | 24 HOURS | 48 HOURS | 72 HOURS | 96 HOURS           | COMMENTS |
|---------------------------------|----------|----------|----------|--------------------|----------|
| RUN                             |          |          |          | 34 mg/L<br>(24-49) |          |
| REPLICATE                       |          |          |          | 30 mg/L<br>(25-53) |          |
| COMBINED<br>LC <sub>50</sub> 's |          |          |          | 34 mg/L<br>(27-44) |          |

\* MOVING AVERAGE ANGLE METHOD

| TEST RUNS                       | 24 HOURS | 48 HOURS | 72 HOURS | 96 HOURS           | COMMENTS |
|---------------------------------|----------|----------|----------|--------------------|----------|
| RUN                             |          |          |          | 34 mg/L<br>(18-48) |          |
| REPLICATE                       |          |          |          | 34 mg/L<br>(18-49) |          |
| COMBINED<br>LC <sub>50</sub> 's |          |          |          | 34 mg/L<br>(24-43) |          |

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ENVIRONMENTAL LABORATORY  
AQUATIC TOXICITY DATA SHEET  
DEFINITIVE (FULL-SCALE TEST)

LR JB1230

pe Test 9/11/84 ANTE STATIC Material Tested EX12 (CCP42-3) Lot 505  
 st Organism FATHEAD MINNOW Source BRADY, NEB Date Rec'd 3/6/84 Batch # 5-84  
 g.Wt. 0.366 grams Avg. Size 3.88 cm No. Organisms per dose 10 Loading Factor 0.366 g/l  
 sh Disease Treatment: NONE

st Solution Volume 10 Liters/All-Glass Tank Tank Dimensions: 30.5 cm O.D. and 30.5 cm deep  
35x20 cm and 25 cm deep

me Started 12:30pm Date Started 4/2/84 Date Completed 4/6/84

lution Water Carbon-filtered well water (Temp. 20 °C., D.O. 9.2 ppm, pH 8.2)

vestigator [Signature] IC<sub>50</sub> (95% Confidence Limits)

ull Signature) PROBIT ANALYSIS 34(24-49)mg/l  
MOVING AVERAGE ANGLE 34(18-48)mg/l

| Tank No. | Initial Conc. mg/l | Total Amount Added | 24 Hours       |     |          | 48 Hours       |     |          | 72 Hours       |     |          | 96 Hours       |     |          |
|----------|--------------------|--------------------|----------------|-----|----------|----------------|-----|----------|----------------|-----|----------|----------------|-----|----------|
|          |                    |                    | Total No. Dead | pH  | D.O. ppm | Total No. Dead | pH  | D.O. ppm | Total No. Dead | pH  | D.O. ppm | Total No. Dead | pH  | D.O. ppm |
| I        | Control            | * mg               | 0              | 8.2 | 15       | 0              | 8.1 | 7.1      | 0              | 8.1 | 7.0      | 0              | 8.1 | 7.0      |
| 1        | 13                 | 130                | 0              | 8.1 | 7.4      | 0              | 8.1 | 7.0      | 1              | 8.1 | 6.8      | 1              | 8.0 | 6.8      |
| 2        | 20                 | 200                | 0              | 8.1 | 7.4      | 1              | 8.0 | 7.0      | 2              | 8.0 | 6.7      | 3              | 8.0 | 6.7      |
| 3        | 32                 | 320                | 1              | 8.0 | 7.3      | 3              | 8.0 | 6.8      | 3              | 8.0 | 6.5      | 5              | 7.9 | 6.5      |
| 4        | 50                 | 500                | 2              | 8.0 | 7.0      | 4              | 8.0 | 6.4      | 5              | 8.0 | 6.2      | 6              | 7.9 | 6.3      |
| 5        | 79                 | 790                | 7              | 8.1 | 7.4      | 8              | 8.1 | 7.4      | 9              | 8.1 | 7.5      | 9              | 8.0 | 7.8      |

Test Temp. °C 21°C 21°C 22°C 22°C  
 Initials & Date 3/4/3/84 3/4/4/84 3/4/5/84 3/4/6/84

ments: \* INDIVIDUAL WEIGHTS, LENGTH, CLAS, SEX, AGE, MORTALITY

condary Effects (other than Mortality):

EC<sub>50</sub>

| Tank No. | Symptoms or Reactions | Total Number Affected |        |        |        |
|----------|-----------------------|-----------------------|--------|--------|--------|
|          |                       | 24-Hr.                | 48-Hr. | 72-Hr. | 96-Hr. |
| Control  | I                     | NONE                  | NONE   | NONE   | NONE   |
| 1        |                       | NONE                  | NONE   | NONE   | NONE   |
| 2        |                       | 1                     | 1      | 1      | 1      |
| 3        | SURFACING             | 2                     | 2      | 2      | 2      |
| 4        |                       | 3                     | 3      | 3      | 2      |
| 5        |                       | 3                     | 2      | 1      | 1      |

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ENVIRONMENTAL LABORATORY  
AQUATIC TOXICITY DATA SHEET  
DEFINITIVE (FULL-SCALE TEST)

LR JB1230

Type Test 96 HR Acute Static Material Tested EX12 (C842-3) Lot 505  
Test Organism FATHEAD MINNOW Source FRANK, NEB Date Rec'd 3/6/84 Batch # 3-84  
Avg. Wt. 0.366 grams Avg. Size 3.88 cm No. Organisms per dose 10 Loading Factor 0.366 g/l  
Fish Disease Treatment: NONE

Test Solution Volume 10 Liters/All-Glass Tank Tank Dimensions: 30.5 cm O.D. and 30.5 cm deep  
35x20 cm and 25 cm deep

Time Started 12:30 pm Date Started 4/2/84 Date Completed 4/6/84

Dilution Water Carbon-filtered well water (Temp. 20 °C., D.O. 9.2 ppm, pH 8.2)

Investigator Robert A. Nix LC<sub>50</sub> (95% Confidence Limits)  
Full Signature) ROBERT A. NIX 34(25-53) mg/l  
MOVING AVERAGE RANGE 34(18-79) mg/l

| Tank No. | Initial Conc. mg/l | Total Amount Added | 24 Hours       |     |          | 48 Hours       |     |          | 72 Hours       |     |          | 96 Hours       |     |          |
|----------|--------------------|--------------------|----------------|-----|----------|----------------|-----|----------|----------------|-----|----------|----------------|-----|----------|
|          |                    |                    | Total No. Dead | pH  | D.O. ppm | Total No. Dead | pH  | D.O. ppm | Total No. Dead | pH  | D.O. ppm | Total No. Dead | pH  | D.O. ppm |
| II       | Control            | 4 mg               | 0              | 8.2 | 7.4      | 0              | 8.1 | 7.0      | 0              | 8.1 | 6.9      | 0              | 8.1 | 7.0      |
| 1A       | 13                 | 130                | 0              | 8.1 | 7.6      | 0              | 8.1 | 7.0      | 0              | 8.1 | 6.9      | 1              | 8.1 | 7.0      |
| 2A       | 20                 | 200                | 0              | 8.1 | 7.5      | 0              | 8.0 | 7.0      | 0              | 8.0 | 6.7      | 2              | 7.9 | 6.7      |
| 3A       | 32                 | 320                | 2              | 8.0 | 7.3      | 4              | 8.0 | 6.9      | 4              | 8.0 | 6.6      | 5              | 7.9 | 6.7      |
| 4A       | 50                 | 500                | 3              | 8.0 | 6.9      | 7              | 8.0 | 6.7      | 7              | 8.0 | 6.4      | 7              | 7.9 | 6.5      |
| 5A       | 79                 | 790                | 5              | 8.1 | 7.4      | 8              | 8.1 | 7.2      | 8              | 8.1 | 7.4      | 8              | 8.1 | 7.4      |

Test Temp. °C 21°C 21°C 22°C 22°C  
Initials & Date AS 4/3/84 AS 4/4/84 AS 4/5/84 AS 4/6/84  
Comments: \* INDIVIDUAL DEFICITS, WHITE CRYSTALLINE DEPOSITING

Secondary Effects (other than Mortality):

EC50

| Tank No.   | Symptoms or Reactions | Total Number Affected |        |        |        |
|------------|-----------------------|-----------------------|--------|--------|--------|
|            |                       | 24-Hr.                | 48-Hr. | 72-Hr. | 96-Hr. |
| Control II |                       | NONE                  | NONE   | NONE   | NONE   |
| 1A         |                       | NONE                  | 1      | 1      | 1      |
| 2A         |                       | NONE                  | 1      | 2      | 2      |
| 3A         | STRENGTH              | 2                     | 2      | 2      | 3      |
| 4A         |                       | 3                     | 3      | 3      | 3      |
| 5A         |                       | 3                     | 2      | 2      | 2      |

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