

## ACTIVATED SLUDGE RESPIRATION INHIBITION TEST

TEST SUBSTANCE

**Identity:** A mixture containing perfluorooctanesulfonate, which may also be referred to as PFOS, FC-95, or as a component of FC-600. (1-Octanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-, potassium salt, CAS # 2795-39-3)

**Remarks:** The 3M production lot number was not noted. The test sample is FC-600 (from Antwerp, Belgium). Current information indicates it is a mixture of 1.0% PFOS, 81.20% water, 12.00% diethylene glycol butyl ether, 1.00% sodium octyl sulfate, 2.00% propane Sultone foamer, 1.00% sodium decyl sulfate, 0.85% xanthan gum, 0.1% N-(3-chloroallyl) hexaminium chloride, 0.80% starch, and 0.05 % tolyltriazole.

***The following summary applies to a mixture with incompletely characterized concentration of impurities. Data may not accurately reflect the inhibition by the fluorochemical component of the test sample.***

METHOD

**Method:** 3M Protocol, Reference EAR 11/8/79

**Test type:** Acute static

**GLP:** No

**Year Completed:** 1983

**Analytical monitoring:** Dissolved oxygen concentrations

**Statistical methods:** Graphed

**Test organism source:** Activated sludge mixed liquor collected from the Metro Wastewater Treatment Plant, St. Paul, MN

**Test condition:**

**Dilution water:** Deionized water.

**Synthetic sewage:** Not noted

**Reference and test solution preparation:** A stock solution of the test substance was created by diluting 0.60 grams of test sample to 100 mL with dilution water. It is not noted exactly how the 1,000 mg/L test solution is prepared from this stock solution.

**Test vessels:** Not noted

**Number of concentrations:** 1 plus 1 blank control

**Temperature:** Not noted

**Total suspended solids and pH on day of testing:** Not noted

**Element Basis:** Respiration inhibition as determined by oxygen consumption.

RESULTS

**Nominal concentrations:** Blank control and 1,000 mg/L

**Element values:** No acute inhibitory effect on activated sludge respiration rate at 1000 mg/L with a contact time of 4 minutes, 45 seconds.

Element values based on nominal concentrations.

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

#### CONCLUSIONS

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Limited contact time estimates that FC-600, Belgium is not expected to inhibit the activity of activated sludge.

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

#### DATA QUALITY

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**Reliability:** Klimisch ranking 3. Testing lacks record of methodology used. The method was not an agency approved method. Test duration was not long enough to definitively determine if there might be other effects that might occur during typical wastewater treatment retention times. The sample purity was not characterized and the study lacks analytical confirmation of the amount of fluorochemical proportion in the solution.

#### REFERENCES

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This study was conducted by the 3M Environmental Laboratory, St Paul, MN, Lab Request number 8875, 1983.

#### OTHER

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**Last changed:** 6/28/00

ENVIRONMENTAL LABORATORY SUMMARY SHEET  
TEST: Acute Toxicity of a Compound to Activated Sludge  
Mixed Liquor.

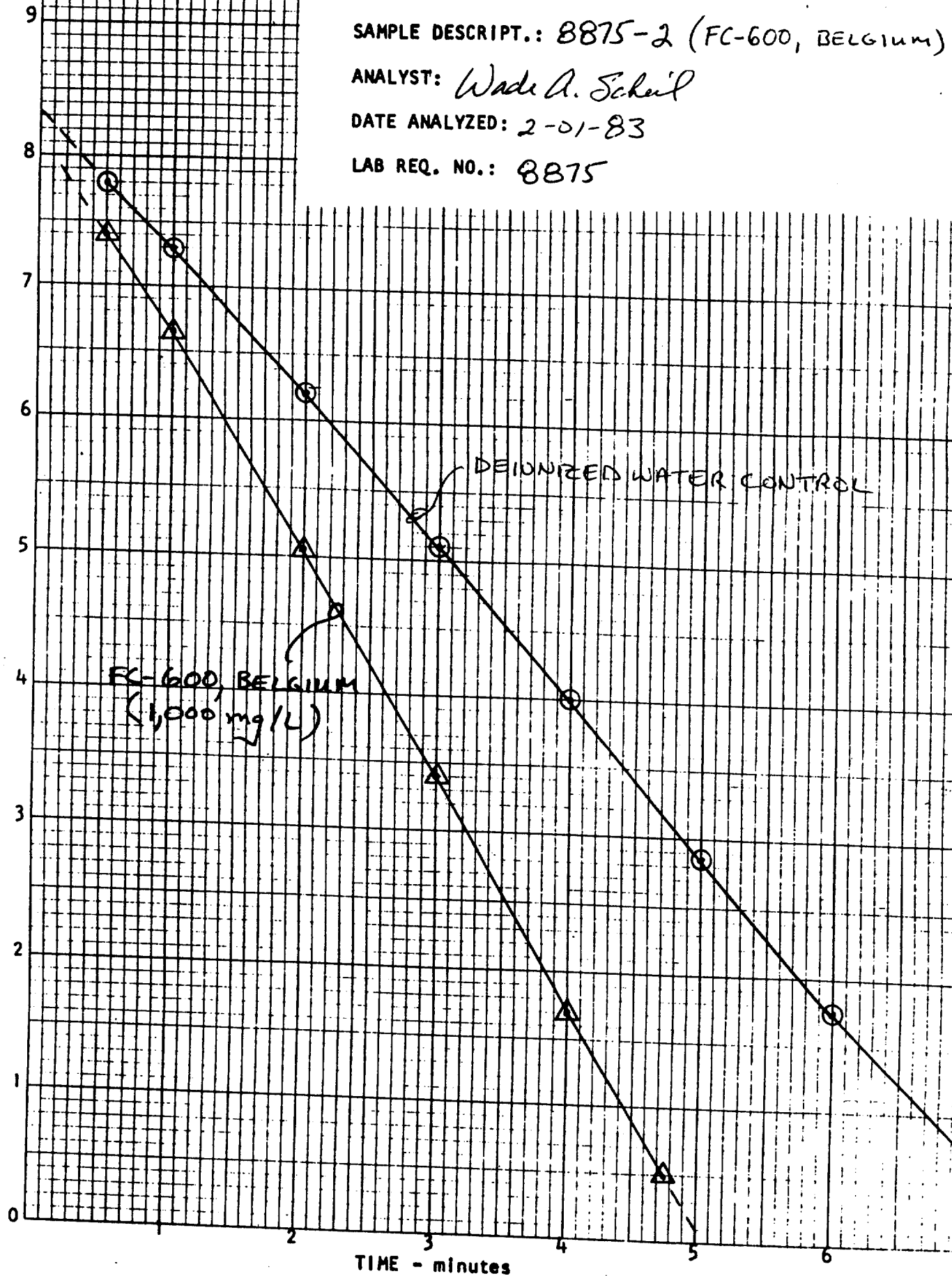
SAMPLE DESCRIPT.: 8875-2 (FC-600, BELGIUM)

ANALYST: Wade A. Scheil

DATE ANALYZED: 2-01-83

LAB REQ. NO.: 8875

DISSOLVED OXYGEN CONCENTRATION - mg/l



002022

3M Environmental Laboratory  
Acute Toxicity of a Compound (Substance) to Activated Sludge Mixed Liquor  
Protocol Reference: EAR 11/8/79

Lab request no.: 8875 Date: 2/01/83 Analyst: W. A. Sch

The activated sludge mixed liquor was collected from the St. Paul/Minneapolis Metro Wastewater Plant on 2/01/83.

Sample description: FC-600 (Belgium)

LR# 8875-2

Preparation of stock solution: 0.60 grams of sample were diluted to 100 ml with deionized reagent water. Date of preparation: 2/01/83.

| TIME |      | CONCENTRATION OF TEST MATERIAL IN ACTIVATED SLUDGE MIXTURE |              |                  |            |                                |              |               |
|------|------|------------------------------------------------------------|--------------|------------------|------------|--------------------------------|--------------|---------------|
| min. | sec. | DI H <sub>2</sub> O<br>CONTROL                             | 1000<br>mg/l | 100<br>mg/l      | 10<br>mg/l | DI H <sub>2</sub> O<br>Control | 0.10<br>mg/l | 0.010<br>mg/l |
|      | 30   | 7.80                                                       | 7.40         |                  |            |                                |              |               |
| 1    | -    | 7.30                                                       | 6.65         |                  |            |                                |              |               |
| 2    | -    | 6.20                                                       | 5.05         |                  |            |                                |              |               |
| 3    | -    | 5.10                                                       | 3.40         |                  |            |                                |              |               |
| 4    | -    | 4.00                                                       | 1.70         |                  |            |                                |              |               |
| 5    | -    | 2.85                                                       | 0.50         | → 4 min. 45 sec. |            |                                |              |               |
| 6    | -    | 1.75                                                       |              |                  |            |                                |              |               |
| 7    | -    | 0.75                                                       |              |                  |            |                                |              |               |
|      |      |                                                            |              |                  |            |                                |              |               |
|      |      |                                                            |              |                  |            |                                |              |               |
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|      |      |                                                            |              |                  |            |                                |              |               |

COMMENTS:

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