

## BIODEGRADATION (BOD/COD)

TEST SUBSTANCE

**Identity:** A mixture containing perfluorooctanesulfonate, which may also be referred to as PFOS, FC-95, or as a component of FC-787 or FC-787X. (1-Octanesulfonic acid) (CAS # 2795-39-3).

**Remarks:** The 3M production lot number was not noted. The test sample is FC-787. Current information indicates it is a mixture of 0.73% PFOS, 10% diethylene glycol monobutyl ether, 79.74% water, 5% ethylene glycol, 1.47% propane Sultone foamer, 0.73% sodium octyl sulfate, 0.73% sodium decyl sulfate, 0.75% xanthan gum, 0.75% magnesium sulfate, 0.10% N-(3-chloroallyl)hexaminium chloride, and 0.05% benzotriazole.

***The following summary applies to a mixture with incompletely characterized concentrations of impurities. Data does not accurately reflect the degradation potential of the fluorochemical component of the test sample.***

METHOD:

**Method:** EPA or other acceptable methodologies

**GLP:** No

**Year completed:** 1990

**Contact time:** 20 days

**Inoculum:** Source not given.

RESULTS

Chemical Oxygen Demand (COD): 350,000 mg/kg  
320,000 mg/kg (replicate)

Biochemical Oxygen Demand (CBOD):  
5-Day: 160,000 mg/kg  
10-Day: 220,000 mg/kg  
20-Day: 200,000 mg/kg

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

CONCLUSIONS

No conclusions given.

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

#### DATA QUALITY

**Reliability:** Klimisch ranking 3. Study lacks description and records of the method followed. The inoculum is not properly characterized. The 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 Serco Laboratories, St. Paul, MN at the request of the 3M Company, St. Paul, MN, Lab Request number H1608, 1990.

#### OTHER

Last changed: 6/28/00



# SERCO Laboratories

1931 West County Road C2, St. Paul, Minnesota 55113 (612) 636-7173

LABORATORY ANALYSIS REPORT NO: 2869  
09/28/90

PAGE 1

Environmental Laboratories/3M  
Building 2-3E(9) 3M  
P.O. Box 33331  
St. Paul, MN 55133

DATE RECEIVED: 09/25/90  
COLLECTED BY : CLIENT  
DELIVERED BY : CLIENT  
SAMPLE TYPE : PRODUCT SAMPLE

Attn: Garry Hilling

SERCO SAMPLE NO: 84230 84240

SAMPLE DESCRIPTION: H1608 H1608  
-1 -2

## ANALYSIS:

-----  
COD, Chemical Oxygen Demand, mg/kg 350000 320000

All analyses were performed using EPA or other accepted methodologies. Samples that may be of an environmentally hazardous nature will be returned to you. Other samples will be stored for 30 days from the date of this report, then disposed of by SERCO LABORATORIES. Please contact me if other arrangements are needed.

Report submitted by,

Diane J. Anderson  
Project Manager



**SERCO Laboratories**

1931 West County Road C2, St. Paul, Minnesota 55113 (612) 636-7173

REVISED

LABORATORY ANALYSIS REPORT NO: 2889  
10/13/90

PAGE 1

Environmental Laboratories/3M  
Building 2-3E(9) 3M  
P.O. Box 33331  
St. Paul, MN 55133

DATE RECEIVED: 09/25/90  
COLLECTED BY : CLIENT  
DELIVERED BY : CLIENT  
SAMPLE TYPE : PRODUCT SAMPLE

Attn: Garry Hilling

|                     |             |             |
|---------------------|-------------|-------------|
| SERCO SAMPLE NO:    | 84230       | 84240       |
| SAMPLE DESCRIPTION: | H1608<br>-1 | H1608<br>-2 |

## ANALYSIS:

|                                    |        |        |
|------------------------------------|--------|--------|
| COD, Chemical Oxygen Demand, mg/kg | 350000 | 320000 |
| Density, g/ml                      | 0.79   | 0.78   |

All analyses were performed using EPA or other accepted methodologies. Samples that may be of an environmentally hazardous nature will be returned to you. Other samples will be stored for 30 days from the date of this report, then disposed of by SERCO LABORATORIES. Please contact me if other arrangements are needed.

Report submitted by.

Diane J. Anderson  
Project Manager

002614





# SERCO Laboratories

St Paul, Minnesota

1931 West County Road C2  
St. Paul, Minnesota 55113  
Phone: (612) 636-7173 FAX (612) 636-7178



November 2, 1990

Mr. Garry Hilling  
Environmental Laboratories/3M  
Building 2-3E (9), 3M  
P.O. Box 33331  
St. Paul, MN 55133

Mr. Hilling:

This is to modify the CBOD results reported on SERCO Laboratories' report 854 dated 6/13/90, 3M H1608-1.

Based on the density performed on the sample which was re-submitted on 9/25/90, the CBOD results are as follows:

BOD, Carbonaceous, 5-day, mg/kg = 160,000  
BOD, Carbonaceous, 10-day, mg/kg = 220,000  
BOD, Carbonaceous, ~~15~~<sub>20</sub>-day, mg/kg = 200,000

The calculation performed was:

$\frac{\text{CBOD mg/L}}{\text{density g/mL}} = \text{CBOD mg/kg}$  (g/mL = kg/L)

Please refer to the COD and density results on SERCO Laboratories' report 2869 that is included with this letter.

Sincerely,  
SERCO Laboratories

Diane J. Anderson  
Project Manager

DJA/dke

Enclosures

Copy

# Corrective Action Request

Form 28570 - A - PWO

BEST COPY AVAILABLE

File **H1608**

|                                    |                                    |                       |
|------------------------------------|------------------------------------|-----------------------|
| Requester<br><b>EAR</b>            | Initiated By<br><b>Wade Scheel</b> | Date<br><b>9-7-90</b> |
| Lab Request Number<br><b>H1608</b> | Analyst<br><b>Serco</b>            | <b>636-7173</b>       |

Items in Question: **#1 11/1/90 mg/L for COD**

Problem (suspected) **mg/kg for COD**

**#1 = #2 COD Dups**  
**680000 → 330000**

**QC-check added**

| - Response and/or Corrective Action - |                                                                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 9-7-90                                | Phoned, left message for Diane Anderson at Males                                                                                          |
| 9-11-90                               | Reached Diane Anderson - She'd check out the problem.                                                                                     |
| 9/24/90                               | They have no sample left. Sample was sent back to 3M.<br>BOD was done volumetrically<br>COD was weighed out.                              |
|                                       | They could find no math errors or data entry errors in the COD calculations                                                               |
| 9/25/90                               | Duplicate recheck samples sent to SERCO<br>They to recheck COD and run a density of the material                                          |
| 10/7/90                               | Recheck showed COD #1 - 350000 mg/L #2 - 320000 mg/L<br>They want to do the density. They're missing the density, so the COD is incorrect |
| 10-26-90                              | They claim that the calc and report will be finished today.                                                                               |
| 11-2-90                               | Results returned - 11/2/90                                                                                                                |

|                                         |                     |
|-----------------------------------------|---------------------|
| Analyst Acceptance of Corrective Action |                     |
| Requester Notified                      |                     |
| Computer Changes Made                   |                     |
| QA Officer Approval                     | Date <b>11-2-90</b> |

002616