

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-206C and L-5439. (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 501. The test sample is L-5439. Current information indicates it is a mixture of 0.73% PFOS, 76.09% water, 15% diethylene glycol butyl ether, 4% urea, 1.55% sodium octyl sulfate, 1.47% hydroxy foamer, 1.05% polyoxyethylene monooctylphenyl ether, 0.06% sodium lauryl sulfate, and 0.05% benzotriazole..

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

METHOD:

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

Test type: Static acute

GLP: No

Year Completed: 1981

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 used

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 6 minutes.

Element values based on nominal concentrations.

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

The test substance exhibited no inhibitory effects at 1000 mg/L over a contact time of 6 minutes.

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

DATA QUALITY

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 adverse effects that might occur during typical wastewater treatment retention times. Sample purity was not characterized and the study lacks analytical confirmation of the amount of fluorochemical proportion in the solution.

REFERENCES

This study was conducted by the 3M Environmental Laboratory, St Paul, MN, Lab Request number 6812S, 1981.

OTHER

Last changed: 6/26/00

LRN: 68128

SLUDGE TOX. RESULTS

3M Environmental Laboratory
(Acute Toxicity of a Compound to Activated Sludge Mixed
Liquor)

Sample Description: L-5439, CCB14-28, F-6661, LOT-501

Analyst: W.A. SCHEIL

Date Analyzed: 7-01-81

Lab Request No.: 6812 S

DISSOLVED OXYGEN CONCENTRATION - mg/l

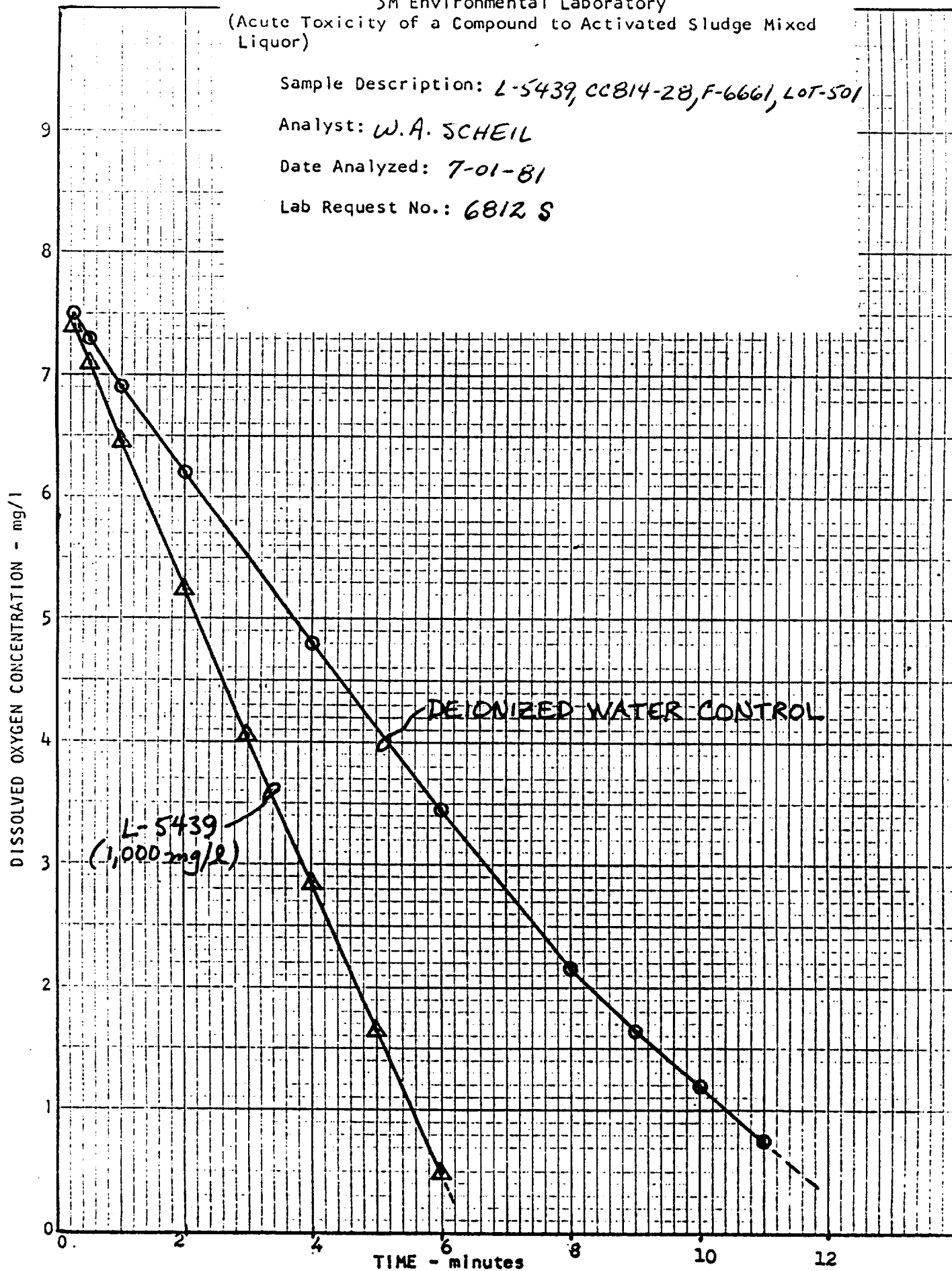
TIME - minutes

L-5439
(1,000 mg/l)

DEIONIZED WATER CONTROL

DISSOLVED OXYGEN CONCENTRATION - mg/l

NO. 30010 DISSOLVED OXYGEN PAPER
12 X 10 PER INCH



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

Lab request no.: 68125 Date: 7-01-81 Analyst: W. Q. Scheid

The activated sludge mixed liquor was collected from the St. Paul/Minneapolis Metro Wastewater Plant on 7-01-81.

Sample description: L-5439, CC814-28, F6661, LOT-501

Preparation of stock solution: 0.60 grams of sample were diluted to 100 ml with deionized reagent water. Date of preparation: 7-01-81.

TIME		CONCENTRATION OF TEST MATERIAL IN ACTIVATED SLUDGE MIXTURE						
min.	sec.	DI H ₂ O CONTROL	1000 mg/l	100 mg/l	10 mg/l	DI H ₂ O CONTROL	0.10 mg/l	0.010 mg/l
	15	7.50	7.40					
	30	7.30	7.10					
1	-	6.90	6.45					
2	-	6.20	5.25					
3	-	-	4.05					
4	-	4.80	2.85					
5	-	-	1.65					
6	-	3.45	0.50					
7	-	-						
8	-	2.15						
9	-	1.65						
10	-	1.20						
11	-	0.75						

COMMENTS:

THIS GRAPH WAS MADE BY CONNECTING THE DISSOLVED OXYGEN PROBE TO A STRIP CHART RECORDER. THE PAPER WAS REPOSITIONED TO PRODUCE OVERLAPPING CURVES.

3M ENVIRONMENTAL LAB ACUTE TOXICITY OF A COMPOUND TO ACTIVATED SLUDGE

SAMPLE: L-5439, CC814-28, F-6662, LOT-501

ANALYST: W.A. ZENEIL

DATE ANALYSED: 7-01-81

LAB: 68123

NOTE: 1 GRAPH UNIT = $0.090 \text{ mg O}_2 \frac{\text{L}}{\text{L}}$

