

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-heptadecafluoro-, potassium salt, CAS # 2795-39-3)

Remarks: The 3M production lot number was 628. The test sample is FC-600. 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 % benzotriazole.

The following summary applies to a mixture with incompletely characterized concentration of impurities. Data may not accurately reflect the 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, 55 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

Limited contact time estimates that FC-600, Lot 628 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

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 properly 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 8875, 1983.

OTHER

Last changed: 6/28/00

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

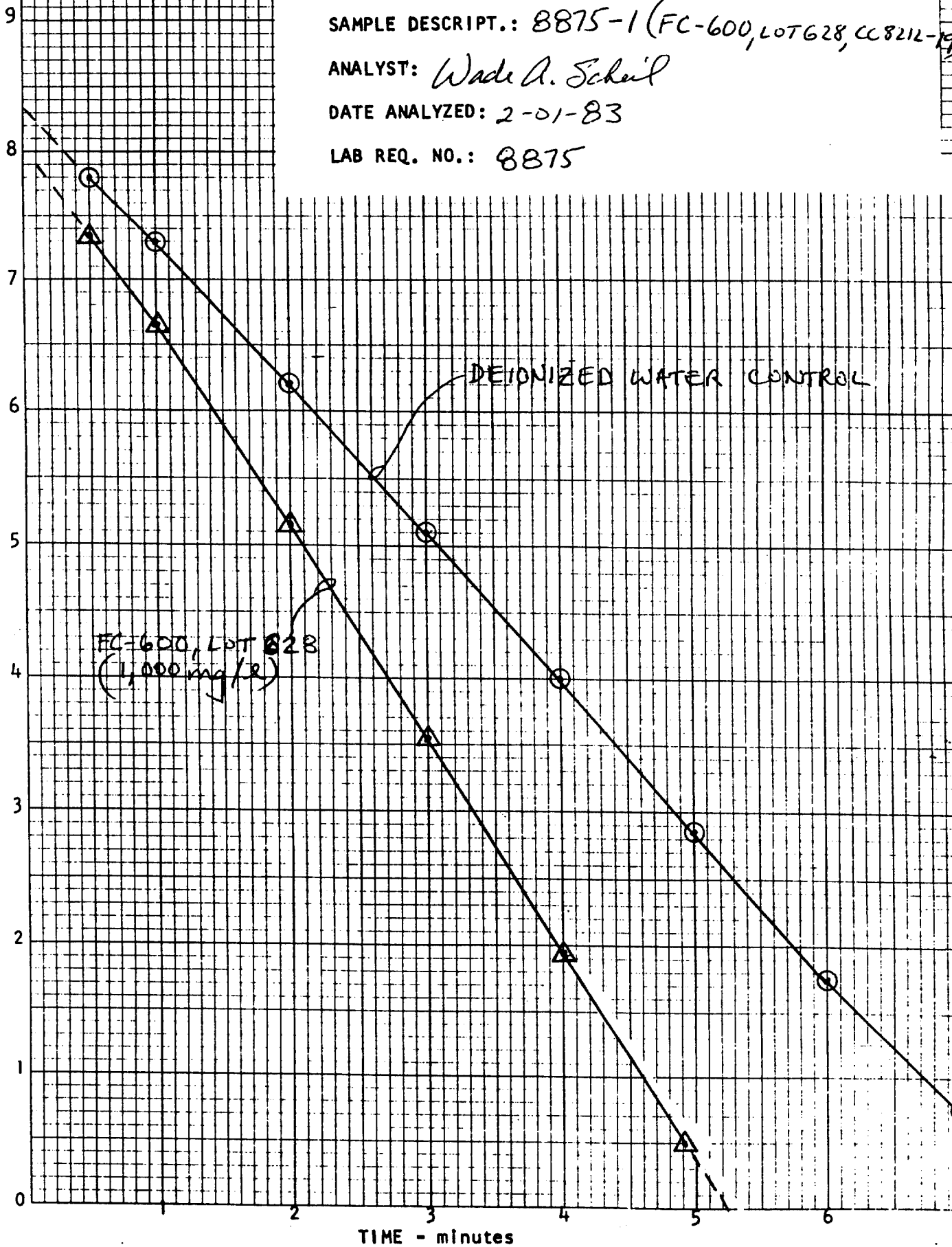
SAMPLE DESCRIPT.: 8875-1 (FC-600, LOT 628, CC 8212-1)

ANALYST: Wade A. Scheil

DATE ANALYZED: 2-01-83

LAB REQ. NO.: 8875

DISSOLVED OXYGEN CONCENTRATION - mg/l



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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. Schei

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

Sample description: FC-600, LOT-628 (CC 8212-19)
LR #8875-1

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

TIME		CONCENTRATION OF TEST MATERIAL IN ACTIVATED SLUDGE MIXTURE						
min.	sec.	DI H ₂ O	1000	100	10	DI H ₂ O	0.10	0.010
		CONTROL	mg/l	mg/l	mg/l	Control	mg/l	mg/l
	30	7.80	7.35 7.70					
1	-	7.30	6.65 7.35	WAS 2/01/83				
2	-	6.20	5.15					
3	-	5.10	3.55					
4	-	4.00	1.95					
5	-	2.85	0.50	4 min 55 sec.				
6	-	1.75						
7	-	0.75						

COMMENTS:

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