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-3041. (1-Octanesulfonic acid) (CAS # 2795-39-3).

Remarks: The 3M production lot number was 2300. The test sample is FC-3041 (cc 809-1). Current information indicates it is a mixture of 6% PFOS, 36% diethylene glycol butyl ether, 36.05% water, 12% Sultone foamer, 9% sodium octyl sulfate, 0.55% sodium lauryl sulfate, and 0.4% tolyltriazole.

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

METHOD

Method: Acute Toxicity of a Compound to Activated Sludge Mixed Liquor, in-house method
Test type: Static acute
GLP: No
Year Completed: 1981
Analytical monitoring: Dissolved oxygen concentration
Statistical methods: Results were determined by calculation of the change in dissolved oxygen concentration and graphic interpretation.
Test organism source: Mixed liquor from the Minneapolis – St. Paul Metro Sewage Plant, St. Paul, MN.

Test condition:

Dilution water: Deionized water
Inoculation: Not given.
Reference and test solution preparation: A 6000 mg/L primary stock solution was prepared by diluting 0.6 g of test substance with 100 mL dilution water.
Test vessels: Not given
Number of concentrations: 1 plus blank.
Temperature: Not given.
Total suspended solids and pH on day of testing: Not given.
Element Basis: Change in dissolved oxygen concentration compared to the blank.

RESULTS

Nominal concentrations: Blank control and 1000 mg/L.
Element values: No inhibition of activated sludge respiration rate at 1000 mg/L with a contact time of ~5.5 minutes.

Element values based on nominal concentration.

Remarks: Testing was conducted on a 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 material exhibited no inhibitory effect at 1000 mg/L over ~5.5 minute exposure.

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

DATA QUALITY

Reliability: Klimisch ranking 3. The study lacks description and records of the method followed. The inoculum is not properly characterized. There is no characterization of the test substance purity, and the study lacks analytical confirmation of the amount of fluorochemical proportion in the solution. The testing was conducted on a mixture of chemicals having varying degrees of biodegradability, leading to potential misinterpretation of the results.

REFERENCES

The studies were conducted by the 3M Company, Environmental Laboratory, Lab Request number 6508S, 1981.

OTHER

Last changed: 6/26/00

FORM 166204-PWO

File: LR -Page No. 6508 S

ENVIRONMENTAL ENGR. LAB – WORK SHEET

SAMPLE DESCRIPTION
FC-3041 Lot 2300

Date: 3-06-81
Analyst: W.A. Schiel
Hrs.:

ACUTE TOXICITY OF A COMPOUND TO ACTIVATED SLUDGE

SLUDGE - MIXED LIQUOR FROM MRS.- STP METRO SEWAGE PLANT (PIGS EYE)

DATE OF SLUDGE COLLECTION: 3-06-81

STOCK SOLUTION OF SAMPLE: 0.60 grams FC-3041 diluted to 100 ml with DI. H_2O. 3/06/81 W.A. Schiel

TIME		CONCENTRATION OF SAMPLE IN BOD BOTTLE								
MIN.	SEC.	DI H_2O CONTROL		1,000 mg/l						
	30	7.55		7.20						
1	45	6.60		(6.65) — 1 min. 0 sec.						
2				5.25						
3		5.60		3.90						
4				2.66						
5		4.10								
5	15			1.00						
5	38			0.50						
6		3.40								
7		2.65								
8		1.95								
9		1.20								
10		0.55								

Reviewed by:

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

Sample Description: FC-3041 LOT-2300

Analyst: WADE A. SCHEIL

Date Analyzed: 3-06-81

Lab Request No.: 6508 S