AR226-0913

MICROBICS MICROTOX® TOXICITY TEST

TEST SUBSTANCE

Identity: A mixture containing perfluorooctanesulfonate, which may also be referred to as PFOS, FC-95, or as a component of FX-3103. (1-Octanesulfonic acid) (CAS # 2795-39-3).

Remarks: The 3M production lot number was not noted. The test sample is FX-3103, 3%. Current information indicates it is a mixture of 0.96%PFOS, 20% diethylene glycol butyl ether, 50.56% water, 15% ethylene glycol, 4.32% sodium octyl sulfate, 6.0% polyoxyethylene monooctylphenyl ether, 2.5% propane sultone foamer, 0.5% sodium nitrate, 0.06% sodium lauryl sulfate, and 0.1% benzotriazole.

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: Microbics Microtox® "BASIC" Procedure
Test type: Static acute
GLP: No
Year Completed: 1985
Species: *Photobacterium phosphoreum*
Analytical monitoring: Not given.
Exposure period: 30-minutes
Statistical methods: EC50 values calculated by statistical linear regression program provided for Microtox®
Test organism source: Microbics' Reagent.
Test conditions:

- **Diluent:** Not given.
- **Test temperature**: Not noted.
- **Stock and test solution preparation:** Not given.
- **Exposure vessels:** 4 mL cuvettes.
- **Number of replicates:** two
- **Number of concentrations:** Four plus a blank control
- **Element basis:** Percent light loss

RESULTS

Nominal concentrations: Blank control, 100, 250, 750, and 1000 mg/L

Element value: 5-minute EC_{50} = >1000 mg/L
15-minute EC_{50} = >1000 mg/L

Element values based on nominal concentrations.

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 substance 15-minute EC_{50} for *Photobacterium phosphoreum* was determined to be >1000 mg/L.

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

DATA QUALITY

Reliability: Klimisch ranking 3. Study lacks description and records of the method followed. There is no characterization of the test substance purity, 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, Minnesota, Lab Request number C1111-1, 1985.

OTHER

Last changed: 6/26/00.

ENVIRONMENTAL LABORATORY

MICROBIAL TOXICITY TEST
MICROTOX® RAW DATA

WR C1111 - 1
DATE 5 Feb 1985
ANALYST KAin

SAMPLE DESCRIPTION: FX-3103 3% Type Light water

SAMPLE CUVETTE	FINAL ASSAY CONCENTRATION	INITIAL READING I(0)	FINAL READINGS 5-MIN I(5)	15-MIN I(15)	30-MIN I(30)
B1	BLANK	90	55	32	20
C1	DUPLICATE	90	54	32	22
B2	100 mg/l	99	65	46	38
C2	duplicate	83	52	37	30
B3	250 mg/l	88	46	30	24
C3	duplicate	81	42	27	21
B4	750 mg/l	96	38	23	18
C4	duplicate	78	30	17	12
B5	1000 mg/l	78	28	16	11
C5	duplicate	84	29	16	11

MICROTOX™ DATA REDUCTION

LR C1M-1
DATE 5 Feb 87
ANALYST EAL

BLANK RATIOS* = final / initial

BLANK CUVETTE	5-MIN Blank Ratio	5-MIN Difference	15-MIN Blank Ratio	15-MIN Difference	30-MIN Blank Ratio	30-MIN Difference
B1	53/90 = .611	.011	32/90 = .356	0	24/90 = .222	.022
C1	54/90 = .60		32/90 = .356		22/90 = .244	

* THE BLANK RATIOS FOR B1 AND C1 SHOULD AGREE WITHIN 0.02.

MEAN BLANK RATIOS = (B1 Bk Ratio + C1 Bk Ratio) / 2

5-MIN	15-MIN	30-MIN
.606	.356	.233

NORMALIZED LIGHT LOSS (Γ EFFECT) = (Mean Blank Ratio × Initial Sample Reading) / Final Sample Reading

SAMPLE CUVETTE	5-MIN Γ	15-MIN Γ	30-MIN Γ
B2 100	- 0.077	- 0.234	- 0.393
C2	- 0.033	- 0.201	- 0.355
B3 ~~100~~ 250	.157	.044	- 0.146
C3	.164	.068	- 0.101
B4 500	.531	.486	.243
C4	.576	.633	.515
B5 1000	.688	.736	.652
C5	.755	.869	.779

% LIGHT LOSS (%Δ) = Γ / (1+Γ) × 100

SAMPLE CUVETTE	5-MIN %Δ	15-MIN %Δ	30-MIN %Δ
B2 C2			
B3 C3		BEST COPY AVAILABLE	
B4 C4			
B5 C5			

EFFECTIVE CONCENTRATIONS (EC_S)

EC_S	5-MIN	15-MIN	30-MIN
EC_{20}	368.6	532.4	
EC_{50} (95% Confid. Limits)	1324.4 (1201.2 - 1460.3)	1055.0 (887.8 - 1257.9)	
EC_{80}	4758.1	2090.5	
	$EC_{50} > 1000$	$EC_{50} > 1000$	

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