

BIODEGRADATION (BOD/COD)

TEST SUBSTANCE

Identity: Decafluoro(pentafluoroethyl)cyclohexanesulfonate, DEA salt; may be referred to as CS-2070. When dissolved in water may also be referred to or as CS-2151 or FC-90. (DEA salt of perfluoro(ethylcyclohexyl) sulfonate, [C₂F₅-CF(CF₂CF₂)₂CF-SO₃-][H₂N(CH₂CH₂OH)₂+])

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Remarks: The 3M production lot number was not noted. The test sample is CS-2151, a mixture of CS-2070 in water (approximately 25% test substance and 75% water). All values reported relate to this mixture. No calculations were made to adjust for the actual concentration of the test substance in the test sample. The sample purity was not characterized.

METHOD:

Method: For COD: Standard Methods Reflux and the Standard Ampule COD Method of Oceanography International.

For BOD: 3M Environmental Laboratory protocol.

Type: Aerobic

GLP: No

Year completed: 1981

Contact time: 20 days

Inoculum: Not noted.

RESULTS

Theoretical Oxygen Demand (ThOD):	77,000 mg/kg
Chemical Oxygen Demand (COD):	66,000 mg/kg (reflux method)
	81,000 mg/kg (ampule method)
Biochemical Oxygen Demand (BOD):	
5-Day:	<3,700 mg/kg
10-Day:	62,000 mg/kg
20-Day:	69,000 mg/kg

Remarks: Testing was conducted on the test substance as described in the test substance remarks field. The values reported are based on nominal concentrations of CS-2151.

CONCLUSIONS

The 20-Day BOD was equivalent to 90% of the theoretical oxygen demand for the diethanolamine portion of the molecule assuming its complete conversion to CO₂, H₂O and NH₃. Oxygen demand for CS-2151 is presumed to be due to the diethanolamine portion of the molecule.

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DATA QUALITY

Reliability: Klimisch ranking = 3. There is a lack of characterization of the test sample. The inoculum was not properly characterized. Test solutions were not analyzed for test substance concentrations and confirmation of the amount of fluorochemical components in the solution.

REFERENCES

This study was conducted by the 3M Company, Environmental Laboratory, St. Paul, MN, Lab Request number 6260S, 1981.

OTHER

Last changed: 4/01/01