

BIODEGRADATION (BOD/COD)

TEST SUBSTANCE

Identity: Perfluorooctanesulfonylamido(ethyl)acetate; may also be referred to as PFOSAA, FC-128 or as the major component of FC-127, FC-129, FC-109, FC-109-X, FC-4351, or L-6778. (Glycine, N-ethyl-N-[(heptadecafluorooctyl)sulfonyl]-, potassium salt, CAS # 2991-51-7)

Remarks: The 3M production lot number was 501 (F6873). The test sample is L-6778 dried to dryness. Current information indicates that the product L-6778 is a mixture of 40% water, 34.4% PFOSAA, 5.6% C₄-C₇ fluoroalkyl carboxylate compounds, 17% isopropyl alcohol, and 3% ethanol.

The following summary applies to the solids portion of a mixture with incompletely characterized concentrations of impurities.

METHOD:

Method: Not noted.

Type: Aerobic BOD

GLP: No

Year completed: 1982

Contact time: 28 days

Innoculum: Stale sewage from 3M's Cottage Grove, MN "Chemolite" facility.

Seed concentration: 6.0 mL/L

Dilution water: Not clarified. May be distilled water, aged 10 days or deionized water. The indication is that distilled, aged water was used for the blanks, controls, and reference substance and that deionized water was used to prepare the test substance stock solution.

Test solution preparation: The study indicates a sample of L-6778 was evaporated to dryness. The suggested method was under air or N₂ utilizing a 40°C water bath or other means, but the actual method is not noted. 0.4254 grams of L-6778 was then dissolved and diluted to 100 mL with DI water. Non-seeded and seeded dilution water blanks were utilized as well as seed controls and glucose – glutamic acid standard reference solutions.

RESULTS

Chemical Oxygen Demand (COD)*:	280,000 mg/kg
Biochemical Oxygen Demand (CBOD):	
5-Day:	<8,800 mg/kg
15-Day:	<8,800 mg/kg
28-Day:	18,900 mg/kg

Remarks: Testing was conducted on the solids portion of the mixture described in the Test Substance Remarks field. The values reported apply to the fluorochemical solids proportion and not that mixture.

* It is unclear how the COD was determined. It is available only as a summary data point.

CONCLUSIONS

No reliable conclusions can be derived from these results. The indication is that the solids portion of L -6778 are resistant to biodegradation.

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DATA QUALITY

Reliability: Klimisch ranking = 3. The inoculum is not properly characterized. The study lacks reporting of the test method and procedures followed. The sample purity was not properly characterized and the study lacks analytical confirmation of the amount of fluorochemical proportion in the solution.

REFERENCES

The studies were conducted by the 3M Company, Environmental Laboratory, St. Paul, MN, 3M Lab Request number 8442 -2, November, 1982.

OTHER

Last changed: 3/31/01