

PHOTODEGRADATION (AQUEOUS DIRECT AND INDIRECT)

TEST SUBSTANCE

Identity: N-methylperfluorooctane sulfonamidoethanol; may also be referred to as N-MeFOSE Alcohol, FC-790, or FM-3925. (1-Octanesulfonamide, N-methyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-(2-hydroxyethyl)-, CAS # 24448-09-7)

Remarks: Material is an off-white, waxy solid. Purity information was not recorded.

METHOD

Method/guideline followed: Specific method not noted.

Type (test type): Natural sunlight

GLP (Y/N): No

Year: 1979 - 1980

Light Source: Outdoor exposure. Natural sunlight and climate at the Bird Corporation of Palm Springs, CA.

Light Spectrum (nm): Full spectrum of natural sunlight.

Spectrum of substance (max lambda, max epsilon and epsilon 295):
Not determined.

Remarks field:

- **Test medium (air, water, soil, other - specify):** Distilled water
- **Duration:** 204 days (June 26, 1979 to January 15, 1980)
- **Positive Controls:** One (DDT)
- **Negative Controls:** Three (one DDT, one FM-3925, one FM-3925 with acetophenone photoactivator), all stored in dark.
- **Blank Controls:** One (distilled water only)

RESULTS

Concentration of Substance: A supersaturated solution created by adding an excess of FM-3925 to four 5-gallon aquaria. Exact concentration not available, though the description states that 0.5 to 1 g of FM-3925 was added to each 5 gallon container which was filled with distilled water to within 25 mm of the top. Two of these four were also treated with 20 drops of acetophenone, a photoactivator.

Temperature °F: 50-120°F

Degradation: GC and GC/MS analysis of the photolyzed and control samples indicated that FM-3925 did not undergo any major photolysis and/or hydrolysis.

Remarks field: GC/MS analysis indicated the photolyzed FM-3925/acetophenone test solution might have undergone isomerization

CONCLUSIONS

No photodegradation was detected in this 204-day study using natural sunlight, indicating the test substance does not undergo photolysis at a significant rate.

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DATA QUALITY

Reliability: Klimisch ranking 3. The sample purity was not properly characterized. Testing was done above the solubility limit of the test substance, indicated to be 0.82 mg/L. Environmental exposure of the test aquaria resulted in contamination of many of the test vessels with natural rainwater, potentially introducing sorbed air pollutants. Exact location of the test vessels is not recorded. General log of sunny days vs. cloudy/rain days is not given. General log of the daily photoperiod is not given, or any information if the vessels might have been shaded during any part of the day by surrounding trees or structures. Since the environment-exposed vessels had fluctuations in volume, the end concentration of FM-3925 could be significantly altered as compared to the initial concentration, which also wasn't adequately characterized. Volatile degradation products were not included as a possibility. Tanks were sealed (not real world) resulting in radical sources being used up in the first few hours.

REFERENCES

3M Technical Report "Photodegradation Study on FM-3925." Arthur Mendel and Connie. H. Schrandt, Project 9970012600, Report Number 043, Lab Request number 4920S, August 6, 1980

OTHER

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