SOLUBILITY IN PURE WATER, METHANOL, AND ACETONE – SHAKE FLASK AND COLUMN ELUTION METHODS

TEST SUBSTANCE

Identity: N-ethylperfluorooctane sulfonamidoethanol; may also be referred to as N-EtFOSE Alcohol, N-EtFOSE OH, or FM-3422. (1-Octanesulfonamide, N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-(2-hydroxyethyl)-, CAS # 1691-99-2)

Remarks: Material is a white, waxy solid. A sample purified from the same source using the same purification method as was used for the test substance was characterized as being 99.9% pure. A purity of 99.9% was therefore assumed for the test substance.

METHOD

Method: Based on OECD 105, OPPTS 830.7840.
GLP (Y/N): Yes
Year completed: 2001

Solvent Sources:

Pure water = ASTM Type I water, Millipore
Methanol = EM Science, HPLC Grade
Acetone = EM Science, HPLC Grade

Statistical Methods: Statistical methods were limited to calculating means and standard deviations. Data that did not meet acceptance criteria as described in the OPPTS and OECD guidelines was excluded following statistical examination using Dixon's Q-test.

Remarks: The screening test to determine water solubility was conducted by creating nominal concentration solutions of N-EtFOSE OH in water of 5000 mg/L, 100 mg/L, and 10 mg/L. Gross observation indicated that the material was not completely solubilized at any of the 3 concentrations, thus the column elution method was used for determination of solubility in water.

The screening test to determine solubility in methanol and acetone was conducted by creating nominal concentration solutions of $\geq$10% (w/v). Gross observations indicated the test substance was totally in solution for both solvents.

RESULTS

ASTM Type I Water*: 151 µg/L at 19.5 - 21ºC
Methanol: >10% (w/v) at 22.5ºC
Acetone: >10% (w/v) at 22.5ºC

Description of solubility: Low solubility in water. Highly soluble in methanol and acetone.

Remarks: Per the test method, once solubility was established as >10%, no further testing was required. Definitive studies were therefore not conducted for methanol and acetone solubility.

* Water solubility corrected for purity.

CONCLUSIONS

The solubility concentration of the test substance in pure water was determined to be 151 mg/L (adjusted for purity), and >10% for both methanol and acetone.

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DATA QUALITY

Reliability: Klimisch ranking 1.

REFERENCES

Studies conducted at the 3M Company, St Paul, MN, 2001, Environmental Laboratory Project Number E00-1715.

OTHER

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