

OCTANOL/WATER DISTRIBUTION COEFFICIENT

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+])

Remarks: The 3M production lot number was not noted. The test sample is CS-2151. It is described as containing 25% CS-2070 solids in water. The sample purity was not characterized.

METHOD

Method: 3M Environmental Laboratory protocol for the determination of the distribution coefficient of solid and liquid substances in n-octanol/water and Chiba, Tsunoda, Haraguchi and Fuwa "Determination of Fluorine in Urine and Blood Serum by Aluminum Monofluoride Molecular Absorption Spectrometry and with a Fluoride Ion Selective Electrode" Analytical Chemistry, 1980, Volume 52, pages 1582-1585.

GLP (Y/N): No

Year (study performed): 1981

Analytical method: Total Organic Fluorine by Atomic Absorption

Test temperature: Not noted.

Diluent: Distilled water and 99+% pure n-octanol

Test solution preparation: CS-2151 was diluted with water to give a concentration of CS-2070 of 10 ug/ml of distilled water. Equal aliquots of this CS-2070/water solution and n-octanol were shaken slowly for 8 hours and then allowed to stand for 24 hours. The phases were separated and analyzed for total organic fluorine.

Standards were made by dissolving CS-2070 in water and in n-octanol to match matrix and recoveries.

Remarks: CS-2070 was noted to be soluble in n-octanol.

RESULTS

Distribution Coefficient (D):

$$\frac{\text{Concentration in n-octanol}}{\text{Concentration in water}} = 0.65$$

CONCLUSIONS

Analysis for total organic fluorine in the n-octanol phase vs. the water phase indicate that the distribution coefficient for CS-2070 is 0.65

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DATA QUALITY

Reliability: Klimisch ranking = 4. Data and available details about the procedure were taken from a study summary. No raw data or records of the procedure followed were found.

REFERENCES

This study was conducted by the 3M Company, Commercial Chemicals Laboratory, Analytical Report #245, 1981.

OTHER

Last changed: 4/01/01