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CHEMICAL AND PHYSICAL PROPERTIES OF POLY FLUORO BENZENE SULFONIC ACIDS¹

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The preparation of a number of Sulfonic Acids of the series $C_6F_{6-n}(SO_3H)_n$ ($n = 1 - 3$) is described. Their chemical properties were examined and their Hammett acidity functions H_0 determined. The results show them to be compounds of relatively high acidity, low oxidising power, having good solubility in organic solvents.

Results are presented in comparison to nonfluorinated benzene sulfonic acids as far as experimental values are available. Extension of this work to compounds with $n \leq 6$ is under progress.

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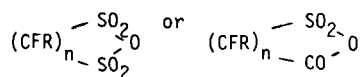
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ACIDITY STUDIES OF ANHYDROUS F-ALKANOIC ACIDS AND F-ALKANE-SULFONIC ACIDS

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Numerous examples of anhydrous mono and difunctional fluorochemical acids have been prepared. Anhydrous perfluoroalkanedisulfonic acids and mixed carboxylic-sulfonic acids can be conveniently prepared by the stoichiometric addition of water to the respective cyclic acid anhydride of the type



Acidity studies were conducted using the proton NMR technique to determine the absolute pKa values. The acidity of anhydrous F-ethane 1,2-disulfonic acid is within the same order of magnitude as trifluoromethane sulfonic acid.