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THE SYNTHESIS OF TETRAFLUORO-SULPHOBENZOIC ACIDS AND THEIR DERIVATIVES

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The tetrafluorosulphobenzoic acids 1,2-HO₂C.C₆F₄.SO₃H (I) and 1,4-HO₂C.C₆F₄.SO₃H (II) have been synthesised [1] by oxidation of respectively 4,5,6,7-tetrafluorobenzo[*b*]thiophen-2-carboxylic acid (III) [2] and 4-mercaptotetrafluorobenzoic acid (IV) [3].

By-products were obtained when (III) was oxidised with either trifluoroacetic acid or potassium permanganate.

A number of reactions of these intermediates have been investigated and the products characterised, eg reaction of (I) with SOCl₂ gave tetrafluoro-1,2-sulphobenzoic acid cyclic anhydride (V). Although no significant change was observed when (II) was similarly treated reaction of (II) with DMF/SOCl₂ gave 1,4-Cl.C₆F₄.COCl. The diacid fluorides 1,2-FOC.C₆F₄.SO₂F (VI) and 1,4-FOC.C₆F₄.SO₂F (VII) were obtained when (I) and (II) respectively were reacted with sulphur tetrafluoride. The use of excess SF₄ gave 1,2- or 1,4-[F₃C.C₆F₄.SO₂F].

- 1 H. C. Fielding, P. H. Gamlen and I. M. Shirley, UK Patent Application No 8 804 858.
- 2 M. D. Castle, R. G. Plevy and J. C. Tatlow, J. Chem. Soc. (C), (1968) 1225.
- 3 G. M. Brooke and Md. Abul Quasem, J. Chem. Soc. (C), (1967) 865.