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THE CRYSTAL STRUCTURE OF Sn_7F_{16}

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A previous study [1] of the SnF_2/SnF_4 system has shown the presence of 4 mixed oxidation state fluorides. Sn_3F_8 has previously been structurally characterised [2], and we now report the structure of Sn_7F_{16} ($SnF_4.6SnF_2$). The compound can be prepared by crystallisation from an aqueous hydrofluoric acid solution containing $[SnF_6]^{2-}$ and Sn^{2+}. In the structure the $[SnF_6]$ unit has a slightly distorted octahedral arrangement, consistent with interactions involving the surrounding Sn(II) atoms, through fluorine bridging. These units lie between infinite layers with an overall composition $[Sn_6F_{10}^{2+}]$, in which each tin atom has either two or three nearest fluorine neighbours, with further contacts completing much distorted coordination arrangements.

1 R. Sabatier, A. M. Hebrard and J. C. Cousseins, C. R. Acad. Sci., C279, (1974) 1121.

2 M. F. A. Dove, R. King and T. J. King, Chem. Commun. (1973) 944.