

ON NEW DIVALENT METAL HEXAFLUOROANTIMONATES

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The fluoride ion acceptor property of antimony pentafluoride is well established. Metal(II) hexafluoroantimonates have been prepared either by the reaction of metal difluoride with antimony pentafluoride in liquid sulphur dioxide ($\text{SnF}_2 \cdot \text{SbF}_5$, $\text{SnF}_2 \cdot 2\text{SbF}_5$) [1], or by the oxidation of powdered metals with antimony pentafluoride in the same solvent ($\text{MnF}_2 \cdot 2\text{SbF}_5$, $\text{FeF}_2 \cdot 2\text{SbF}_5$, $\text{NiF}_2 \cdot 2\text{SbF}_5$, $\text{CoF}_2 \cdot \text{SbF}_5$) [2]. Metal difluorides ($\text{MF}_2 = \text{MgF}_2$, CoF_2 , CuF_2 , AgF_2 , ZnF_2 , CdF_2 , SnF_2 , or PbF_2) react with antimony pentafluoride of the appropriate stoichiometry in anhydrous hydrogen fluoride at room temperature yielding soluble adducts of the type $\text{MF}_2 \cdot 2\text{SbF}_5$ ($\text{M} = \text{Mg}$, Co , Cu , Zn , Cd , Pb), and $\text{MF}_2 \cdot \text{SbF}_5$ ($\text{M} = \text{Ag}$), and slightly soluble $2\text{MF}_2 \cdot \text{SbF}_5$ ($\text{M} = \text{Sn}$). The properties of the isolated adducts were determined by chemical analyses, vibrational spectroscopy, X-ray diffraction technique and thermal analyses.

1 T. Birchall, P.A.W. Dean and R.J. Gillespie, J. Chem. Soc. (A), 1971, 1977

2 P.A.W. Dean, J. Fluorine Chem., 5, 499 (1975).