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THE PREPARATION AND PROPERTIES OF CHROMIUM OXIDE TRIFLUORIDE (CrOF₃)

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For the first time, pure chromium oxide trifluoride has been prepared via the reaction of CrO₃ with ClF followed by subsequent multiple fluorine treatments at 120°C. The stable purple solid reacts with Lewis acids and bases generating new and interesting chromium(V) complexes. The physical, chemical, and spectral properties of CrOF₃ and its complexes will be discussed.

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NITROGEN DERIVATIVES OF RHENIUM FLUORIDES

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Tungsten hexafluoride has been shown to react with (CH₃)₃SiN₃ to give WF₅N₃^{1,2}; this compound has also been isolated from the reaction of WF₆ with CsN₃ in liquid SO₂.³ Isolation of the corresponding Mo azide, MoF₅N₃, is much more difficult, but its n.m.r. spectrum has been observed during the reaction of CsN₃ with MoF₆ in SO₂ solution.³ Reaction of NaN₃ with MoF₆ in CF₂Cl·CFC1₂ solution does, however, allow the MoF₅N₃ to be isolated for a time sufficient for its mass spectrum to be obtained.

Rhenium hexafluoride reacts violently with (CH₃)₃SiN₃ at about -80° in CF₂Cl·CFC1₂ to give an orange solid, presumably an azide, which decomposes with N₂ evolution as the temperature is raised to 25°. From the resulting red brown solid ReF₄N may be sublimed away at 40° under a vacuum; the residue from this sublimation, when treated with ClF₃ at 0°, yields purple ReF₅(NCl).

- 1 J. Fawcett, R. D. Peacock and D. R. Russell, *J. Chem. Soc. (Dalton)*, 1980, 2294.
- 2 J. Burgess, J. Fawcett, R. D. Peacock and R. Sherry, *J. Fluorine Chem.*, 1981, 18, 173.
- 3 B. Glavincevski and S. Brownstein, *Inorg. Chem.*, 1981, 20, 3580.