

PREPARATION AND PROPERTIES OF COMPLEX Ti(III) FLUORIDES

S. Stević, M. Dragojević and M. Fertilio

Faculty of Technology and Metallurgy, University of Belgrade,
Karnegijeva 4, 11001 Belgrade (Yugoslavia)

Three different fluorotitanate(III) complexes of ammonium and potassium have been synthesized directly by the reaction of TiCl_3 in 10% HCl with ammonium- and potassium-fluoride. The ratio of the reagents was: $\text{TiCl}_3 : \text{NH}_4\text{F}(\text{KF}) = 1 : 5, 1 : 6$ and $1 : 8$, respectively. All compounds were obtained as precipitates of characteristic colour: with a Ti/F ratio = $1 : 5$, a brownish precipitate of $\text{A/TiF}_3(\text{OH})(\text{H}_2\text{O})_2/$ ($\text{A}=\text{NH}_4, \text{K}$), was obtained. Red-violet colour of precipitate appeared when a compound $\text{A}_2/\text{TiF}_5/$ was formed, and violet colour was produced when $\text{A}_3/\text{TiF}_6/$ precipitated. When washed with ethanol and dried in vacuo over concentrated sulfuric acid, no formation of peroxytitanates(IV) occurred. Fluoride ion exchange in acidic solutions of fluorotitanates(III) complexes is described together with some preliminary work on structural characterization.