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Titanium(IV) citrates in aqueous-chloride solutions

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Abstract

The titanium(IV) – citric acid system was studied by the method of potentiometric titration in conjunction with mathematical simulation for the ratios of metal-to-ligand 1:1, 2:3, 1:2 and 1:3. The composition, stability and quantity of accumulation of citrate titanium(IV) in aqueous solution were calculated. It was found that for the equimolar ratio of the reactants di-, tri- and tetranuclear particles are formed, while for the excess of ligand the mononuclear complex forms $[Ti(H_{4-n}Cit)_3]^{4-3n}$ (n = 2-4) at pH ≤ 8 and $[Ti(OH)_2(Cit)_2]^{6-}$ at pH ≥ 8 are dominant.