



Contribution ID: 13

Type: poster

On the existence of cerium (IV) orthophosphate, 'Ce₃(PO₄)₄'

Monday, 29 March 2010 11:50 (5 minutes)

The present study is aimed to elucidate the existence of the ceric orthophosphate by synthesis and characterization of 'Ce₃(PO₄)₄' and CePO₄. The results obtained indicate a mixed valence in both phosphates obtained, corresponding to nonstoichiometric compounds of cerium in an intermediate oxidation state (molar ratios P/Ce of 1.06 to 1.18). Based on the results obtained, the existence of other ceric phosphates synthesized at high temperatures is discussed.

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Session Classification: Introductions to Posters

Track Classification: Inorganic, organometallic chemistry