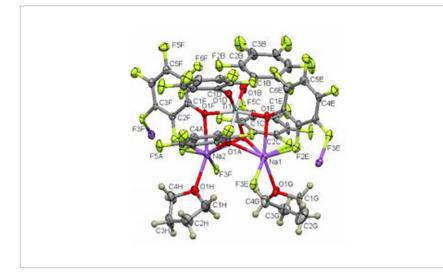
Synthesis of Double Alkoxide Titanates for Preparation of M2TiO3



ID# 2019-4885



Structure of the Na2Ti(OC6F5)6.THF2

Technology Summary

New transition metal fluoralkoxide complexes have been synthesised. Specifically, the compound Na2Ti(OC6F5)6.THF2 and Ti(OC6F5)4.THF2 have been synthesized and characterized via spectroscopic methods and a single crystal X-ray diffraction study. The target materials were prepared by high tempature combination of TiO2 and M2O, where M= Li, Na, etc. This approach reduces the temperature required for synthesis and provides molecular level control over the stoichiometric ratio of the metal ions. This method would also provide a way to form thin layers of lithium and sodium titanates which could be useful for preparation of electrode materials in batteries.

Application & Market Utility

Fluorinated alkoxide ligands provide the steric control associated with traditional alkoxide ligands, but have electron withdrawing properties that provide metal complexes with enhanced Lewis acidity. Many of these compounds may be useful for the preparation of titanium oxide materials by way of sol-gel hydrolysis.

Next Steps

Prepare and fully characterize more compounds of the group M2TiO3. Seeking licensing.

TECHNOLOGY READINESS LEVEL 1-3

Seeking

Investment | Licensing | Research

Keywords

- double alkoxides
- single source precursor
- lithium titanate
- sol-gel process
- electrode materials

Researchers

William G. Van Der Sluys Assistant Teaching Professor, Chemistry Online Bio

Originating College

College of Engineering

Office of Technology Management Contact Swope, Bradley bas101@psu.edu 814-863-5987



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