IONIC LIQUIDS FOR THE SYNTHESIS OF INORGANIC OXIDE POWDERS AT LOW TEMPERATURE

Ionic liquids offer huge promising opportunities for low-temperature synthesis of new materials. Owing to their tunable characteristics and their influence on the materials properties, they greatly facilitate the synthesis of materials with specific structure and morphology.

REFERENCES	IONIC LIQUIDS
Im3008b	1-(3-Hydroxypropyl)-3-Methylimidazolium Bis(trifluoromethanesulfonyl)imide [(pOH)min] NTf_2
Im0208b	1-Ethyl-3-Methylimidazolium Bis(trifluoromethanesulfony)imide [Emim] NTf_2

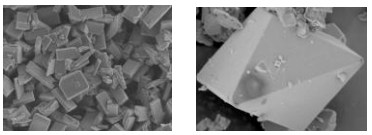
Applications:

Ionic liquids behave both as solvent and structuring agent leading to the synthesis of complex organic oxide powders with a simple and efficient process in terms of energy and reactants involved.

These materials are used as constituents for the manufacturing of:

- electrode materials,
- ceramics,
- pigments,
- magnetic materials for information storage.

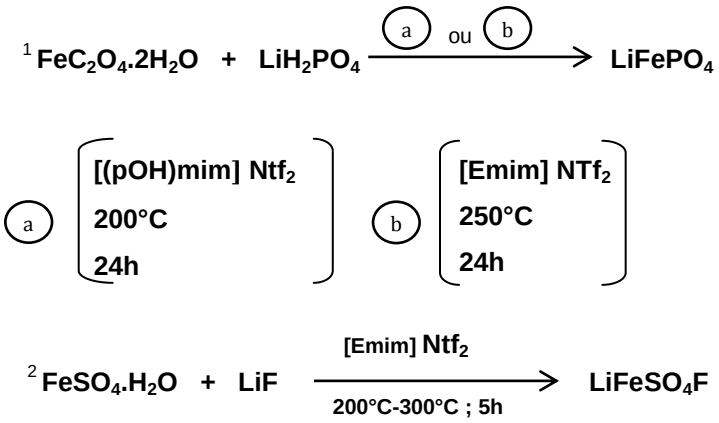
Controlled morphology



Synthesis of $LiFePO_4$ powders for « Lithium-ion » batteries

Ionic liquids are of a growing interest in the search for new materials especially for energy storage. The results presented by Recham et al. showed the advantages of using ionic liquids as solvents for the synthesis of $LiFePO_4$[1] and $LiFeSO_4F$[2].

Reaction in ionic liquid environment



Advantages of the process:

- Reaction at atmospheric pressure and low temperature
- Classical extraction : centrifugation or by solvent
- Recycling : recovery or reuse of Ionic Liquids
- Homogeneous material and controlled morphology
  => Electrochemical performance optimized
- Oxidation phenomenon eliminated

[1] N. Recham et al., *Chem. Mater.*, 2009, 21 (6), pp 1096–1107
[2] N. Recham et al., Nature M*aterials*, 2010, Vol 9, pp 69-74