

### Study on Non-solvent process for High purity Ionic liquids synthesis

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An ionic liquid (IL) is a salt in the liquid state. Their properties are diverse; many have low combustibility, excellent thermal stability, wide liquid regions, and favorable solvating properties for a range of polar and non-polar compounds. On account of their distinctive properties ionic liquids have many applications, such as organic chemistry, electrochemistry, catalysis, physical chemistry, and engineering. The quality of ionic liquids has become an important consideration in their use. Although commercial producers try to make ionic liquids of the highest quality achievable at reasonable cost, ionic liquid is still expensive. In order to facilitate general acceptance and to promote the use of ILs when appropriate, cost and availability issues need to be addressed. Synthesis of ionic liquids was two steps. ILs was prepared by alkylation of 1-methylimidazole with an alkyl halide. The resulting organic salts can then be used directly as ILs, as a component of a halometallate IL, or for subsequent metathesis. When ILs was prepared, the by-product and unreacted material was generated. In this research, non-solvent process for high purity Ionic liquids synthesis was studied when the IL was manufactured.