

Synthesis of Ionic Liquids Including Carboxylic Acid, Sulfonate Derivatives and Low Halide Content by Using Microreactor System

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Generally, ionic liquids own many advantageous properties of thermal stability, non-flammability, high ionic conductivity, non-volatility. But, the residual halide and other impurities have large effect on their physical properties. The problem here is that it's difficult to remove such unwanted contents in connection with any separation and purification method. To solve this problem and to improve thereby the durability, new type synthesis method using the microreactor system, through which imidazolium, pyridinium, pyrrolidinium, ammonium derivative ionic liquids with low halide content are efficiently synthesized with sodium hexanoate, -octanoate, -butyrate and potassium bis(fluorosulfonyl)imide reagents as intermediate compound is introduced. In addition, the synthesis conditions of the microreactor system, and the yield efficiency, halide content and the properties such as electrical conductivity and decomposition temperature of ionic liquids are depicted by several empirical and analytical methods.