

### Thermal Analysis of 1-butyl-3-methylimidazolium Ionic Liquids by DSC

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Differential Scanning Calorimetry (DSC) is a powerful thermoanalytical technique which can be used to measure a variety of physical properties of a substance. In practice, DSC is used to investigate thermal transitions of the substances as a function of time or temperature. In this research, 1-butyl-3-methylimidazolium [bmim] based ionic liquids were studied with DSC. Applications of ionic liquids to electrolytes, biotechnology, novel reaction media and separation/extraction processes have been widely studied. Investigation of basic physical properties of ionic liquids, especially thermal phase behavior, is important for not only measuring ionic liquids properties for the applications but also understanding their thermophysical characteristics. We have measured the thermal phase behavior of the selected ionic liquids at a variety of scanning rates using a DSC. Experimental DSC curves for [bmim] based ionic liquids have been collected in the temperature range 20–100 °C. As the results of this study, we compared the melting point according to different scan rates and obtained cyclic thermal behavior of the ionic liquids.