

Abstract Submitted
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Fragility of Ionic Liquids Measured by Flash Differential Scanning Calorimetry RAN TAO, NIST - Natl Inst of Stds Tech , ESHAN GURUNG, EDWARD L. QUITEVIS, SINDEE L. SIMON, Texas Tech University — Ionic liquids are a class of materials that possess attractive properties. They generally have low rates of crystallization due to their bulky and asymmetrical ion structure, and are often considered as good glass-forming materials. In this work, a series of imidazolium-based ionic liquids with varying functionalities from aliphatic to aromatic groups and a fixed anion are characterized using fast scanning differential scanning calorimetry. The limiting fictive temperature T_f' , which is equivalent to the glass transition temperature T_g , is measured on heating as a function of cooling rate using Flash differential scanning calorimetry. Different calculation methods are employed and compared for the determination of T_f' . The dynamic fragility is obtained for the series of ionic liquids, and using this data along with a compilation of data from the literature reveals the relationship between molecular structure and fragility for ionic liquids.

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