Electrochemical characteristics of morpholinium based Ionic Liquid

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Ionic liquids (ILs) that are fluid at room temperature exciting interest as electrolytes of fuel cells and batteries. Their special properties such as wide electrochemical window, high conductivity, and wide operation temperature range make ILs attractive to electrolyte applications.
For that purpose, new families of salts based on morpholinium organic cations combined with the bis (trifluoromethane sulfonyl)imide anions and their lithium doped materials are reported in the present study. These pure ILs were proven to be conductive and, electrochemically and thermally stable at room temperature.The conductivity values from 10-3 to 10- order are investigated in the temperature range between 293K to 323K. And their lithium-doped ionic liquids were also proven to be highly conductive and electrically stable.
In addition, the physical and electrochemical characteristics of these new type Ionic liquids based on morpholinium salts have been investigated for their uses as electrolytes of fuel cells and batteries.