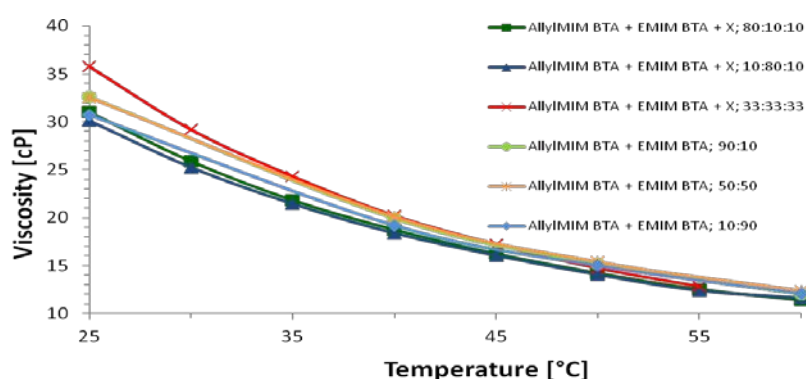


Ionic Liquids and their mixtures as electrolytes for energy storage

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Ionic liquids (ILs) – salts that are liquid at temperatures below 100°C – show interesting profiles of physical and chemical properties which allows their use as electrolytes^[1,2] in batteries and supercapacitors. Besides tunable viscosities and conductivities, chemical and thermal stability as well as large electrochemical windows, the major benefit of ILs is their low vapor pressure and incombustibility at temperatures below their decomposition point, which bring important safety improvements for electrolytes. One of the few disadvantages of ionic liquid electrolytes, namely their relatively high viscosity, can be overcome by the use of eutectic mixtures.



In this talk we will present our latest results and developments in the field of ionic liquid based electrolytes for electrical storage. Although the use of ILs in batteries is still in the R&D stage, it turns out that the IL has a major role in the SEI formation process. In supercapacitors stabilities of up to 8 000 000 cycles have been achieved [2]. The use of mixtures of ionic liquids and suitable additives in order to enhance performance and safety of zinc -air, aluminum - air and silicon - air batteries will be also discussed.

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