

Electrolytes: Findings from University of Munster broaden understanding of electrolytes

DATE : 2013-12-19

By a News Reporter-Staff News Editor at Science Letter - Current study results on Electrolytes have been published. According to news reporting originating from Munster, Germany, by NewsRx correspondents, research stated, "We measured glass transition temperatures T-g as a function of the salt concentration in polymer electrolyte systems consisting of poly(ethylene oxide) (PEO) complexed either with sodium iodide (NaI) or lithium bis (trifluorosulfonylimide) (LiTFSI). At homologous compositions, T-g of PEO-NaI is found to be generally larger than that of LiTFSI."

Our news editors obtained a quote from the research from the University of Munster, "The present T-g values are markedly higher than previously reported reference data. Also the observed nonlinear concentration dependence differs from earlier studies. These findings are tentatively attributed to the more stringent preparation and measuring conditions maintained in the present work, thereby keeping organic solvent residues and water contamination at low levels. Also the high molecular weight of the polymer may have some influence. The measurements were performed by differential scanning calorimetry after quenching from the melt. We find that ex situ immersion quenching in liquid nitrogen leads to lower degrees of crystallinity than in situ quenching in the calorimeter environment."

According to the news editors, the research concluded: "In addition, the strong decrease of the crystallinity with increasing salt content gives rise to pronounced steps in the heat capacity near T-g for the more concentrated electrolytes."

For more information on this research see: Salt-Concentration Dependence of the Glass Transition Temperature in PEO-NaI and PEO-LiTFSI Polymer Electrolytes. *Macromolecules*, 2013;46(21):8580-8588. *Macromolecules* can be contacted at: Amer Chemical Soc, 1155 16TH St, NW, Washington, DC 20036, USA.

The news editors report that additional information may be obtained by contacting N.A. Stolwijk, University of Munster, Inst Mat Phys & Sonderforsch Bereich 458, D-48149 Munster, Germany. Additional authors for this research include C. Heddiar, M. Reschke, M. Wiencierz, J. Bokeloh and G. Wilde.

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