

Short chain U(600) Di-ureasil Ormolytes Doped with Potassium Triflate: Phase Diagram and Conductivity Behavior

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Abstract

Di-urea cross-linked poly(oxyethylene)/siloxane hybrids, synthesized by the sol-gel process and containing a wide concentration range of potassium triflate, KCF_3SO_3 , have been analyzed by x-ray diffraction and differential scanning calorimetry. The pseudo-phase diagram proposed has been taken into account in the interpretation of the complex impedance measurements. The xerogels prepared are obtained as transparent, thin monoliths. At room temperature the highest conductivity found was $2 \times 10^{-6} \text{Scm}^{-1}$.

Conclusion

A novel category of potassium triflate-based POE/siloxane ormolytes with good optical transparency over a wide range of salt concentration ($900 < n < 3$) has been studied. The exploratory results of the thermal analysis and conductivity measurements effected have confirmed that these materials show properties which encourage further studies. A pseudo-phase diagram has been proposed for this system.