

Polymer electrolytes for electrochromic devices

M. Manuela Silva^{1*}, R. Leones¹, R. Alves¹, Rui F. P. Pereira^{1,2} and V. de Zea Bermudez²,

¹*Centro de Química, Universidade do Minho, Gualtar, 4710-057 Braga, Portugal*

²*Departamento de Química e CQ-VR, University of Trás-os-Montes e Alto Douro
5000-911 Vila Real, Portugal*

*nini@quimica.uminho.pt

Abstract

Polymer electrolytes are currently the focus of much attention as potential electrolytes in electrochemical devices such as batteries, display devices and sensors [1,2]. Generically, solid polymer electrolytes (SPEs) are mixtures of salts with soft polar polymers. SPEs have many advantages including high energy density, no risk of leakage, no issues relate to the presence of solvent, wide electrochemical stability windows, simplified processability and light weight. With the goal of developing a new family of environmentally friendly multifunctional biohybrid materials displaying simultaneously high ionic conductivity and high luminescence we have produced in the present work, flexible films based on different polymers, incorporating different salts.

The polymer electrolytes studied here have been characterized by means of Differential Scanning Calorimetry, Thermogravimetric Analysis, X-ray diffraction, Polarized Optical Microscopy, complex impedance spectroscopy and cyclic voltammetry. An evaluation of the performance of the sample with the highest conductivity as electrolyte in all solid-state ECDs was performed [3].

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