OPTICA APPLICATA online
open access
A quarterly of the Institute of Physics, Wroclaw University of Technology
Wroclaw University of Technology
INSTITUTE OF PHYSICS

Optica Applicata 2005(Vol.35), No.4, pp. 887-894

Organic-inorganic hybrid electrolytes for thin film metal oxide electrochromic coatings

Elzbieta Zelazowska, Maria Borczuch-Laczka, Ewa Rysiakiewicz-Pasek, Wieslawa Lachman

Keywords

organic-inorganic hybrids, sol-gel, lithium-ion conducting electrolytes

Abstract

Sol-gel derived lithium salt ($LiClO_4$) doped organic-inorganic hybrid electrolytes have been obtained from the tetraethyl orthosilicate (TEOS) and poly(ethylene oxide) (PEO), propylene oxide (PO), ethyl acetoacetate (EAA), propylene carbonate (PC), polyvinyl alcohol (PVA) precursors and have been investigated for morphology and structural properties by SEM/EDS and FTIR spectroscopy. The hybrid materials obtained were amorphous, with structural properties influenced by organic ingredients which had been used, and with the ionic conductivities of 10^{-4}–10^{-3} Scm^{-1}. When used as electrolytes in the WO_3-based thin-film electrochromic coatings, they have proved to be suitable for low-temperature electrochemical applications.

PDF 713.8 kB