

The novel photoresponsive oligomers containing azo derivatives of sulfamerazine for spontaneous surface relief grating inscription

Submitted by R gis Barille on Thu, 03/16/2017 - 08:45

Titre	The novel photoresponsive oligomers containing azo derivatives of sulfamerazine for spontaneous surface relief grating inscription
Type de publication	Article de revue
Auteur	Korbut, Aleksandra [1], Zielinska, Sonia [2], Barille, R�gis [3], Pigłowski, Jacek [4], Ortyl, Ewelina [5]
Editeur	Elsevier
Type	Article scientifique dans une revue � comit� de lecture
Ann�e	2017
Langue	Anglais
Date	Mai 2017
Pagination	392-406
Volume	90
Titre de la revue	European Polymer Journal
ISSN	00143057
Mots-cl�s	azopolymers [6], surface relief grating [7], trans-cis photoisomerization [8]
R�sum� en anglais	<p>In this work, a novel photoresponsive materials has been successfully developed. We have synthesized the series of azopolymers containing derivatives of sulfamerazine and studied their photochromic properties. The polymers were obtained from methacrylate azomonomers, butyl methacrylate and isobornyl methacrylate by radical polymerization. Spectral properties and photoisomerization kinetic constants were determined for thin transparent films, using UV-Vis spectroscopy. The maximum absorption of the films was observed at 432-440 nm. The obtained materials showed ability to reversible trans-cis photoisomerization. Reversibility of the process was confirmed during ellipsometric measurements. The change of the real part of the complex refractive index induced by laser irradiation was between 0.010 and 0.053. Additionally, some properties of described polymers and azobenzene derivatives were calculated and were utilized in order to better understand the differences in the photochromic behaviour of the new materials. Moreover, we determined the suitability of the obtained azopolymers for spontaneous surface relief grating inscription. Spontaneous surface relief grating recording on the thin azopolymer films was carried out using set-up with one laser beam. The spontaneous SRG was successfully recorded in all investigated polymers.</p>
URL de la notice	http://okina.univ-angers.fr/publications/ua15745 [9]
DOI	10.1016/j.eurpolymj.2017.03.024 [10]
Lien vers le document	http://www.sciencedirect.com/science/article/pii/S0014305716307480 [11]
Titre abr�g�	European Polymer Journal

Liens

- [1] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=26506>
- [2] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=3021>
- [3] <http://okina.univ-angers.fr/regis.barille/publications>
- [4] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=26507>
- [5] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=2587>
- [6] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=22565>
- [7] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=5167>
- [8] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=22566>
- [9] <http://okina.univ-angers.fr/publications/ua15745>
- [10] <http://dx.doi.org/10.1016/j.eurpolymj.2017.03.024>
- [11] <http://www.sciencedirect.com/science/article/pii/S0014305716307480>

Publié sur *Okina* (<http://okina.univ-angers.fr>)