Welding and Material Testing
Sudarea şi Încercarea Materialelor

1/2015
Year XXIV

The Bulletin of the National R&D Institute for Welding and Material Testing – ISIM Timişoara, Romania

ISSN 1453-0392

Evaluation of damage caused by artificial aging on the solvent-based ink printed layer of PVC coated PES fabrics

Evaluarea degradării produse de îmbătrânirea artificială a stratului imprimat cu cerneală pe bază de solvent din componența țesăturilor PES acoperite cu PVC

L. Kun[1)], A.C. Murariu[1)], S.-V. Galațanu[1)], K.-N. Kun[2)]

[1)]National R&D Institute for Welding and Material Testing – ISIM Timisoara, Romania;
[2)]Politehnica University of Timisoara, Mechanical Engineering Faculty, Department of Mechanics and Strength of Materials, Timisoara, Romania

E-mail: lkun@isim.ro

Abstract

This paper presents an experimental program developed to evaluate the damage caused by accelerated artificial aging with ultraviolet radiation on the surface and on the color quality and mechanical properties of polyvinyl chloride (PVC) coated polyester (PES) fabrics printed with solvent-based inks. The experimental program consisted of artificially aging printed and non-printed specimens with periodical monitoring of the damage to the printed surface, followed by tensile testing in order to assess the influence of artificial aging of the printed layer on the mechanical properties. The results showed that the artificially aged printed areas suffered extensive color modifications and loss of elasticity, especially the light colored or white areas. The results of the tensile tests confirmed that the analyzed material's tensile properties are also influenced by a 72 hour exposure to accelerated artificial aging using UV radiation.

Keywords

PVC coated PES fabrics, solvent-based ink, artificial aging, mechanical properties