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Micheal Nouman, Johanna Saunier, Emile Jubeli, Christian Marlière, Najet Yagoubi

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**Impact of sterilization and oxidation processes on the additive blooming observed on the surface of polyurethane**

Micheal Nouman<sup>a</sup>, Johanna Saunier<sup>a</sup>, Emile Jubeli<sup>a</sup>, Christian Marlière<sup>b</sup>, Najet Yagoubi<sup>a</sup>

<sup>a</sup> Laboratoire “Matériaux et santé”, EA 401, UFR de pharmacie, Université Paris-Sud 11, 5, rue JB Clément, 92296 Châtenay Malabry, France

<sup>b</sup> ISMO, UMR CNRS 8214, Univ. Paris Sud,- Université Paris-Saclay, 91405 Orsay cedex, France

Corresponding Author : J.Saunier

Fax : +33 1 46 83 59 63

Tel : +33 1 46 83 59 50

Email : [johanna.saunier@u-psud.fr](mailto:johanna.saunier@u-psud.fr)

**Abstract**

The surface state is a major parameter for the biocompatibility of medical devices. During storage, the blooming of additives may occur on the surface of polymers and modify their properties. In this study, the impact of sterilizing and oxidation treatments on blooming was studied. The study was realized on polyurethane used in the fabrication of catheters on which the blooming of antioxidant crystals has been previously observed. Sterilization by ionizing radiations (beta, gamma) was performed on this material and samples were submitted to different kinds of oxidation process (UV, H<sub>2</sub>O<sub>2</sub> and macrophages action). Surface evolution was investigated using AFM microscopy, FTIR-ATR and SEM.

**Keywords**

Sterilization – ionizing radiation – polyurethane – blooming – macrophage - oxidation

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