

5<sup>th</sup> World Congress on

# Materials Science & Engineering

June 13-15, 2016 Alicante, Spain

## Stability of aged ethylene norbornene copolymers used for medical devices

Wowro Sonia Rosine Lago<sup>1,2</sup>, Caroline Aymes-Chodur<sup>1</sup>, Ange Privat Ahoussou<sup>2</sup> and Najet Yagoubi<sup>1</sup><sup>1</sup>Univ Paris-Sud, France<sup>2</sup>Université Felix Houphouët Boigny de Cocody, Côte d'Ivoire

This study is an overall view of the study of aging the Ethylene Norbornene Copolymers (ENC) induced by ionizing radiation and photodegradation, that mimicking sterilization and storage ageing of medical devices. It is therefore, performed on different ENCs of different norbornene rates. These copolymers have interesting physicochemical properties for pharmaceutical and medical applications, due to their transparency similar to glass, good chemical resistance and low permeability to gas and water. The results presented here put in evidence the modifications of the physicochemical properties of the aged ENCs, using experimental techniques such as FTIR (Fourier Transformed Infrared spectroscopy), DSC (Differential Scanning Calorimetry), ATG (Thermogravimetry analysis) and SEC (Steric Exclusion Chromatography). ENCs stability is influenced by several parameters including the rate of norbornene present in the structure. Nevertheless, the effect of treatment (ionizing radiation or photooxidation), has a real impact on the oxidation induction time of ENCs. It is also highlighted in this study, the presence of oxidations compounds that can act as oxidation protector. It would now be interesting to identify them and determine their specific toxicity.

### Biography

Wowro Sonia Rosine Lago is currently working as a researcher at Univ Paris-Sud, France.

[wowro.lago@u-psud.fr](mailto:wowro.lago@u-psud.fr)

### Notes: