

## Synthesis of TiO<sub>2</sub>-doped- Ag for biocide activity on SEBS/PP applications

Reference	Presenter	Authors (Institution)	Abstract
02-027	Luiz Gustavo HIroki Komatsu	Komatsu, L.G. (Instituto de Pesquisas Energéticas e Nucleares); Oliani, W.L. (Insituto de Pesquisa de Energia Nuclear); Lugão, A.B. (Instituto de Pesquisas Energéticas e Nucleares); Parra, D.F. (Instituto de Pesquisas Energéticas e Nucleares);	Antimicrobial activity represents a challenge for scientific community. Polymer processing conditions impose temperature limitation for stability of biocide nanoparticles. In the present work, we evaluate TiO <sub>2</sub> -doped-Ag synthesized in laboratory, utilizing P25 Degussa Titanium Dioxide as precursor. The main proposal is to improve the incorporation of Ag on TiO <sub>2</sub> . The nanoparticles was tested by reduction of colony units formation (CFU) (%), Dynamical Light Scattering (DLS) and Zeta potential values. On CFU tests, all samples showed biocide properties. The samples showed biocide effect on E.coli and S.aureus bacteriae. The same nanoparticle was tested after sterilization under gamma irradiation, and showed an increase on biocide effect against S.aureus bacteria. The obtained biocide material was processed in SEBS/PP to obtain biocide polymeric films. The new material was characterized by: forming colony units (CFU)(%), Differential Scanning Calorimetry (DSC), and Fourier Transformed Infrared (FT-IR).

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