

INTERNATIONAL MEETING ON
ADVANCED NANOMATERIALS AND NANOTECHNOLOGY
NOVEMBER 07-08, 2017 SINGAPORE

Mechanical and thermal characteristics of solvent blended EPDM/neoprene clay nanocomposites: A comparative study

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Nanocomposites have definite advantages over conventional composites due to their light weight, low cost and excellent mechanical, thermal, optical and electrical properties. Clays and layered silicates are well suited for this purpose as they provide polymer-clay nanocomposites (PCNs) and polymer-layered silicate nanocomposites (PLSNs). Elastomers and rubbers are very promising polymeric matrices for the preparation of PCNs because of their multi-characteristic applications. Non-polar EPDM demands polar inducement in the form of compatibilizing agents for getting a homogeneous blend with neoprene. EPDM/neoprene matrices are prepared by solvent blending without any compatibilizing agents. Morphological studies and single Tg values have established an excellent compatibility of the blend, further confirmed by their enhanced mechanical characteristics. Organo-modified MMT Clay (CA-MMT) and locally available Kaolinite have been filled in the EPDM/Neoprene matrices to prepare their respective nanocomposites. The CA-MMT is adjudged as the most efficient filler as shown by the comparative studies, even though kaolinite too has shown comparable characteristics in a few cases. It is suggested that kaolinite could be a promising filler to be modified further to attain still better results.

Biography

S Ginil Mon is a Chemist who has specialized in polymer chemistry and has received his Doctorate from the Manonmaniam Sundaranar University, India. He has 6 publications to his credit. He is working in nanotechnology, polymer nanocomposites, spectroscopy and molecular docking as an international Resource Person. Currently he is teaching in the Department of Chemistry and Research, Nesamony Memorial Christian College, India.

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