عنوان مقاله:

In-Situ Polymerization of UHMWPE Using Bi-Supported Ziegler-Natta Catalyst of MoS2 Oxide/MgCl2 (Ethoxide Type)/TiCl4/TiBA: Study of Thermo-Mechanical Properties of System

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خلاصه مقاله:

The use of UHMWPE has attracted the attention of many researchers and industries. The aim of the present work is to fabricate UHMWPE/MoS2-Oxide nano-composites using in-situ polymerization. For this purpose, modified molybdenum disulfide was used. In order to perform the polymerization, a Ziegler-Natta catalytic system, with MoS2-Oxide and magnesium Ethoxide as support, was used. In order to fabricate nano-composites with different filler percentages, the length of polymerization was varied while other parameters were constant. A significant increase in some of the mechanical properties such as modulus and yield stress confirms the effectiveness of interactions between the nano-particles and the matrix. Thermal properties of the obtained nano-particles were analyzed by DSC and TGA analysis. Results of these analyses indicate an increase in crystallinity, melting temperature and improvement in thermal stability of the samples. Mechanical properties analysis indicates a significant increase in the modulus and tensile strength of nano-composites containing filler compared with pure polymer.

کلمات کلیدی:

in-situ polymerization, UHMWPE, Nano-composite, MoS2-Oxide, Ziegler-Natta catalysis

لینک ثابت مقاله در پایگاه سیویلیکا: