

## عنوان مقاله:

Evaluation of Mechanical and Thermal Properties of Polypropylene Modified with Nanostructured ZSM-5 Zeolite

## محل انتشار:

مجله علم مواد و مهندسی ایران، دوره 16، شماره 3 (سال: 1398)

تعداد صفحات اصل مقاله: 12

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## خلاصه مقاله:

Polypropylene (PP) has been one of the most widely used polymers due to the versatility and cost benefits obtained with this material. In this work, composites of PP modified with nanostructured ZSM-5 zeolite were prepared and their thermal and mechanical properties were evaluated. Zeolites were synthesized by hydrothermal method and the crystallization time was modified to evaluate the effect of that parameter on zeolites properties. Scanning electron microscopy, thermal analyses, x-ray analysis, among others, were used to analyse the nanostructured particles. Composites were prepared by melt mixing in a torque rheometer and compression moulding. After obtaining the composites, mechanical and thermal properties were evaluated. The results showed that some properties (surface area, and crystallinity) of zeolites depend on the crystallization time. Young's modulus and elongation at rupture of composites were modified when the zeolites were added to the polymer matrix. No significant modifications were found on thermal properties.

## کلمات کلیدی:

Composites, Mechanical properties, Polypropylene, Thermal properties, Zeolites

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