عنوان مقاله:

An Integrated AHP-PROMETHEE Method for Selecting the most Suitable Ethylene Propylene Diene Termonomer

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خلاصه مقاله:

This paper considers the problem of selecting the most appropriate ethylene propylene diene monomer (EPDM), which is a polyolefin with a variety of usages in different areas. The metallocene catalyst, bis(۲-phenyl indenyl) zirconium dichloride ((۲-PhInd)۲ZrCl۲) was synthesized by a modified method and applied to the terpolymerization of ethylene, propylene, and ۵-ethylidiene-۲-norbornene (ENB). The methylaluminoxane (MAO) was used as a cocatalyst. It showed an appropriate activity, a high incorporation ability of the comonomers, and good performance in terpolymerization. The compounded EPDM showed good thermal stability with time. Proper criteria were chosen for the selection of the best EPDM, and a hybrid of the analytical hierarchy process (AHP) and preference ranking organization method for enrichment evaluations (PROMETHEE) was used for prioritizing ۱۵ different synthesized EPDM species. The sensitivity and Genetic Association Interaction Analysis (GAIA) analysis were also performed. Finally, one of the polymers, which had a very high quality and moderate yield, cost, and curing time was selected.

کلمات کلیدی:

AHP, PROMETHEE, MCDM, EPDM, Catalyst, Metallocene

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