

Reclamation of Cross-linked Polyethylene by De-cross-linking Reaction in Supercritical Fluid

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Today, the recycling of waste plastic has been one of most important global issue. As a solution for this problem, the supercritical fluid technology has been paid attention. In this study, the de-cross-linking of cross-linked polyethylene (XLPE) in supercritical fluid was investigated. A series of experiments were carried out in a batch reactor system and the gel content was measured for the characterization of products. As a result, it was confirmed that the XLPE can be completely de-cross-linked in various supercritical fluids over 380°C. In addition, the kinetic model was obtained from experimental data and this model was well-correlated with experimental results.