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RESEARCH NOTES

超临界水中添加过氧化苯甲酰对聚丙烯降解的促进作用

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摘要 The effect of benzoyl peroxide（BPO）on polypropylene（PP）degradation in supercritical water was investigated with the aim of developing a process for recycling of waste plastics. A series of experiments with and without BPO were carried out at temperatures of 653 K and 673 K under pressure about 26MPa for 30, 75 and 120 min respectively. Products were analyzed by an Ostward-type viscometer, gas chromatography and spectrometry（GC/MS）etc. The results indicated that mean molecular weight of the samples decreased greatly along with the time elapsing or with the temperature increasing, and PP was decomposed to Miphatic and cyclopparafitnic hydrocarbons but a few benzenoid hydrocarbons. By comparing the experiments with and without BPO, it was made clear that BPO is an effective additive on PP degradation in supercritical water.

关键词 超临界水，过氧化苯甲酰，聚丙烯，降解，促进作用。

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An Investigation on Polypropylene Degradation in Supercritical Water Adding Benzoyl Peroxide

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Abstract The effect of benzoyl peroxide（BPO）on polypropylene（PP）degradation in supercritical water was investigated with the aim of developing a process for recycling of waste plastics. A series of experiments with and without BPO were carried out at temperatures of 653 K and 673 K under pressure about 26MPa for 30, 75 and 120 min respectively. Products were analyzed by an Ostward-type viscometer, gas chromatography and spectrometry（GC/MS）etc. The results indicated that mean molecular weight of the samples decreased greatly along with the time elapsing or with the temperature increasing, and PP was decomposed to Miphatic and cyclopparafitnic hydrocarbons but a few benzenoid hydrocarbons. By comparing the experiments with and without BPO, it was made clear that BPO is an effective additive on PP degradation in supercritical water.

Key words supercritical water; polypropylene degradation; benzoyl peroxide;

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