



Thermolysis of low density polyethylene catalysed by zeolites

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Abstract

Plastic wastes, which cause a serious environmental problem in urban areas, can serve as sources of energy. Thermal degradation of low density polyethylene (LDPE) has shown that, under appropriate conditions, polyethylene can yield chemicals in the gasoline range of hydrocarbons as well as those found in jet fuels. In the reactions catalysed by H-mordenite and H-Theta-1, hydrocarbons in the range C₁₁ to C₁₉ are the significant components of the non-volatile fraction, whereas over H-ZSM-5, no hydrocarbon higher than C₁₄ is detected and alkalines are the significant products. H-ZSM-5 catalysed degradation results in a significant amount of aromatics compared with H-mordenite and H-Theta-1 where the yield of aromatics is small.

Keywords

- Catalysis;
- cracking;
- degradation;
- hydrocarbon;
- plastic wastes;
- polyethylene;
- pyrolysis;
- thermolysis;
- zeolites.

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