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Methods for chemical conversion of plastic wastes into fuels and chemicals. A review

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Abstract

Plastics are utilized in various materials that are useful in everyday life. As the usage of plastics increases, the disposal of plastic materials has become a major issue, calling for recycling methods. Here, we review the different methods to recycle plastics, with focus on catalytic cracking. We present catalysts, cracking mechanisms, and we compare the various treatment methodologies. Several attempts were made by researchers to increase the efficiency of the cracking process using different catalysts and reactors. Many studies reveal high quality products are obtained by catalytic cracking, which consumes low energy and produces lesser residues when compared to other treatment technologies.

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Abbreviations

PET: Polyethylene terephthalate

PS: Polystyrene

PP: Polypropylene

HDPE: High-density polyethylene