

Synthesis of Terephthalic Acid from p-Xylene in Sub- and Supercritical Water

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Terephthalic acid (TPA) synthesis via partial oxidation of p-xylene (PX) was carried out in subcritical and supercritical water. Corrosion on the system induced by solvent and catalyst has been a big issue in the conventional TPA synthesis process. The water has been chosen as an alternative reaction medium to improve the process into more environmentally benign and less costed process.

Reactions were carried out in 23.8 ml batch reactors. H_2O_2 was served as oxidant and various metal compounds were used to investigate the effect of catalyst type. The results of our experiments showed that the highest yield of TPA was obtained in the subcritical region and with relatively short reaction time. The effects of various process variables were also investigated.