

열기축매상에서 2-chlorophenol의 초임계수 산화반응

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The supercritical water oxidation(SCWO) of 2-chlorophenol(2CP) using basic catalysts was studied in the batch reactor. NaOH and Na₂CO₃ were used as basic catalysts. The effect of temperature on destruction of 2CP was also studied in the range of 200–450°C at 300 bar. The addition of the catalyst accelerated the decomposition of 2CP and promoted the dechlorination of 2CP. 2CP was dechlorinated to phenol and, in some parts, decomposed to gases and other small molecules under SCWO condition. The corrosion is a severe problem for chlorinated wastes due to the formation of HCl. The addition of Na₂CO₃ reduced the corrosion. It is thought that Na₂CO₃ plays a role in reducing the corrosion on reactor walls by neutralizing the acid and providing large surface area to adsorb the precipitated corrosive compounds. The effects of NaOH and Na₂CO₃ on the decomposition of other organic compounds as well as 2CP under SCWO conditions should be considered for determining optimum operating conditions and reactor designs.