

### Decomposition of 2-chlorophenol by Using Supercritical Water Oxidation

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A Decomposition of 2-chlorophenol(2CP) was studied under the supercritical water oxidation (SCWO) conditions. The reaction was performed in the batch reactor. The ratio of  $H_2O_2/2CP$  must be at least more than 8 to be completely decomposed at 400°C, 300bar. Conversion above 90% was achieved within the first 1min under SCWO conditions. Namely, it seems that oxidation of 2CP by hydrogen peroxide proceeded rapidly during the first few minutes. 2CP could be completely decomposed when the temperature and the pressure were more than 400°C, 270bar under SCWO conditions. NaOH and  $Na_2CO_3$  were used as catalysts. The addition of the catalyst accelerated the decomposition of 2CP under SCWO conditions. The corrosion is a severe problem for chlorinated wastes due to the formation of HCl. The addition of NaOH and  $Na_2CO_3$  reduced the corrosion. It is thought that NaOH and  $Na_2CO_3$  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.