

Enzymatic polymerization of resorcinol alkylate and bisphenol A using
CiP(*Coprinus cinereus* peroxidase)
application to photoresist

김한상, 안은숙¹, 송봉근¹, 김현진², 김용환*
광운대학교 화학공학과; ¹한국화학연구원;
²동진썬미켄 기술연구소
(metalkim@kw.ac.kr*)

Resorcinol alkylate and bisphenol A were oxidatively polymerized by CiP peroxidase, which is expected to be an alternative for the preparation of conventional phenolic resins without using formaldehyde. Water/solvent ratio gave significant influences on the enzymatic polymerization of resorcinol alkylate and bisphenol A. To know the mechanism of enzyme deactivation that solvents and hydrogen peroxide induce is critically important to obtain higher yield of phenol polymer product. Hydrogen peroxide being used as oxidizing agent induced deactivation of peroxidase by destruction of heme structure. The stability of peroxidase was significantly improved by adding organic solvent. This is thought that radical scavenging by 2-propanol may play a major role in protecting peroxidase from the oxidation of oxidizing radical such as peroxy and alkoxy and superoxide anion radicals.