

## Recycling Technology of Phenol-Formaldehyde Resol Resin using Supercritical Methanol

조항규, 임종성\*  
서강대학교

(limjs@sogang.ac.kr\*)

Phenol resin does not dissolve in solvents and melt by heat owing to the curing network structure.

However, it is very difficult to reuse such a thermosetting resin, therefore, in present, most of waste cured phenol resin have been incinerated or disposed of in landfills. We investigated the method to recover carbon from cured phenol resin using supercritical methanol.

The cured phenol resin can be completely re-plasticized in supercritical Fluids in a short time, and the effect of several process parameters was investigated.

The thermo-plasticization reaction was accelerated with increase in temperature in the range from 380°C to 430°C

The characteristics of thermal properties and physical properties in partially cured waste phenol resin were studied by introducing reactive melt processing with carbon particle.

The supercritical fluid technology is considered as the excellent method for the recycling of phenol resin nanocomposites and new material manufacturing process.