



Effect of curing time on phenolic resins using latent acid catalyst

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Abstract: An investigation has been made to reduce the effect of curing time of phenol formaldehyde resin by incorporating latent acid catalyst at various percentages. The latent acid catalyst is used because of its capability to form more methylene bridge with phenol formaldehyde enabling fast curing at reduced temperatures and time. The curing of phenol formaldehyde takes place at higher temperature of about 110-140°C. Various latent acid catalysts are experimented and para-toluene sulphonic acid which is blocked by isopropanol is found best to serve as a latent acid catalyst. The characterisation techniques such as Fourier transform infrared spectroscopy, Differential Scanning Calorimetry and Thermogravimetric analysis were carried out. The latent acid catalyst of 40% para-toluene sulphonic acid and 60% isopropanol has been found. The amount of catalyst required to reduce curing time is determined to be 7 min 52 sec. It is observed that gel time (or) cure time of the phenol formaldehyde resin decreases with increasing catalyst content.

Keywords : Phenol formaldehyde, Para-toulene sulphonic acid, iso propanol, curing time, crosslinking polymerization, coatings, abrasives.

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