

## Dispersion Polymerization of 2-Hydroxyethyl Methacrylate (HEMA) and Surface Modification of PHEMA with Glycidyl Methacrylate (GMA) in Compressed Liquid Dimethyl Ether (DME)

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The free radical dispersion polymerization of 2-hydroxyethyl methacrylate (HEMA) has been carried out in compressed liquid DME using several surfactants. The polymerization are performed in the presence of fluorine-based and siloxane-based surfactants. The spherical and relatively uniform poly(2-hydroxyethyl methacrylate) (PHEMA) particles could be produced even at 20 bar, with a narrow particle size distribution in compressed liquid DME. Chemical modification at the surface of PHEMA particles was also conducted with functional monomer, glycidyl methacrylate (GMA). When the dispersion polymerization of HEMA was performed in DME, the -OH group of PHEMA existed at the surface of PHEMA particles by DME. Therefore, PHEMA particles modified with the epoxy group of GMA. These results indicated that it could make the polymer particles which have vinyl end groups at the particles' surface.