

PREPARATION OF POLYVINYL ACETATE AND POLYVINYL ALCOHOL USING SUPERCRITICAL CARBON DIOXIDE

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Poly(vinyl acetate) (PVAc) was prepared in supercritical CO₂ at various pressures and temperatures. The effect of surfactant amounts, initiator amounts and of reaction times were also investigated. Molecular weight of PVAc obtained in this study was in the range of 25,000 ~ 240,000, depending on the reaction conditions. As expected, the molecular weight decreased but the yield of PVAc increased with increasing the amount of initiator. There was a maximum behavior in the molecular weight and yield of polymer against the amount of surfactant. Moreover, the yield increased with the increasing of pressure. The molecular weight of the polymer and the effect of pressure on the yield of the reaction were investigated. Polyvinyl alcohol (PVA) that is used as an extremely hygroscopic organic gel were prepared from PVAc by saponification. The saponification of PVAc shows that the molecular weights of PVA obtained depend on the saponification conditions.