

## High Pressure Phase Behavior for CO<sub>2</sub> + Benzyl Acrylate and CO<sub>2</sub> + Benzyl Methacrylate Systems

변현수\*, Shuang Liu  
전남대학교 공학대학 생명화학공학과  
(hsbyun@chonnam.ac.kr\*)

High pressure phase behavior are obtained for CO<sub>2</sub> + benzyl acrylate systems at 40 ~ 120 °C and pressures up to 243 bar and for CO<sub>2</sub> + benzyl methacrylate systems at 40, 60, 80, 100 and 120 °C and pressures up to 244 bar. The solubility of monomers for the CO<sub>2</sub> + benzyl acrylate and CO<sub>2</sub> + benzyl methacrylate systems increase as the temperature increases at constant pressure. The CO<sub>2</sub> + benzyl acrylate and CO<sub>2</sub> + benzyl methacrylate systems exhibit type-I phase behavior. The experimental results for CO<sub>2</sub> + benzyl acrylate and CO<sub>2</sub> + benzyl methacrylate systems were correlated with Peng–Robinson equation of state using a van der Waals one–fluid mixing rule including two adjustable parameters. Critical constants ( $P_c$ ,  $T_c$  and  $\omega$ ) were predicted with Joback method and Lee–Kesler method.