

## Recrystallization of Pharmaceutical Compounds using Liquid and Supercritical Antisolvents

역상도\*, 박수진, 전세연

경북대학교

(syeo@knu.ac.kr\*)

Sulfabenzamide was recrystallized from its solutions by using both the liquid and supercritical fluid as antisolvents. The drug compound was dissolved in various organic solvents, such as acetone, methanol, ethanol, and ethyl acetate, and the solutions were contacted with two antisolvents, i.e. water and carbon dioxide. The variations of crystal habit, particle size, and thermal behavior of crystals were examined to investigate the effect of operating temperature, type of solvent and antisolvent, mixing method, and the presence of ultrasound. Crystal habits such as acicular, columnar, prismatic, equant, and tabular were obtained depending on the used solvents and antisolvents. The larger crystals with broader size distribution were produced at higher temperature, and the crystal size was reduced when the solution was sonicated while the precipitation occurred. The variation of crystal size was correlated using the concept of solubility parameter of solvent and antisolvent. The thermal analysis of crystals revealed that the type of solvent and antisolvent employed in crystallization have influenced the internal structure of the resulting crystals and produced the different polymorphs of sulfabenzamide.