

Solubility Measurement of Succinic Acid Using Quartz Crystal Microbalance

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Succinic acid is a useful product among crystalline materials for many applications of food and drug. Crystallization method is highlighted for the production of high purity succinic acid. In crystallization process, measurement of solubility is critical to control a quality and productivity of product. QCM (Quartz Crystal Microbalance) is a good measuring device in terms of detecting a small amount of crystal such as succinic acid. In this study, succinic acid aqueous solution whose concentration were fixed was cooled to precipitate the crystal. Frequency and resistance were constantly measured by increasing temperature using QCM. The temperature which all the crystals in the solution were melted at was determined by measuring a gradient change of frequency and resistance data from QCM. A solubility curve of succinic acid in water was predicted using the concentration of the solution at the measured temperature. The solubility curve was predicted at temperatures from 20 °C to 55 °C. The measured solubility data were compared with a reference data of other literatures.