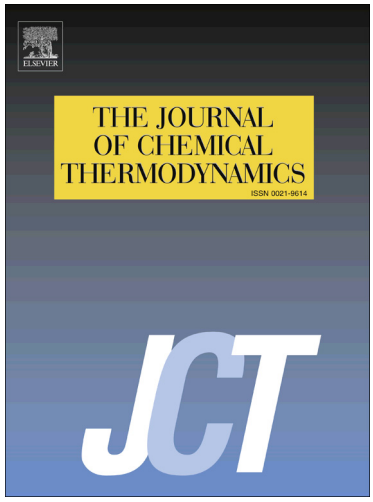

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Estimation and confirmation of the thermodynamic stability relationships of the enantiotropic polymorphs of glycolide

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ABSTRACT: The polymorphism of glycolide has been investigated. Form 1 and Form 2 of glycolide have been identified and characterized by X-ray powder diffraction (XRPD). Differential scanning calorimetry (DSC) and thermogravimetry (TG) analyses were carried out to study the thermodynamic stability relationships and the transition of the two forms of glycolide. Based on the heat of transition rule, Form 1 and Form 2 were determined as an enantiotropic system. The solubility measurements were done at 310.15 K under atmospheric pressure (0.1 MPa) by using the isothermal gravimetrical method for form 1 in this work. According to the solubility data of glycolide Form 1 and Form 2 in ethyl acetate, 1-propanol, 2-propanol, ethanol and 1-butanol, the transition temperature was then estimated by solubility extrapolation method, heat of transition (ΔH_{tr}) method