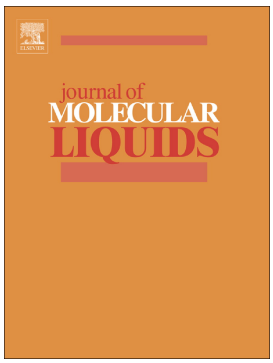

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Determination of Metastable Zone Widths and Nucleation Behavior of Aspirin in Acetic Acid and Acetic Anhydride Binary Solvent Mixture

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ABSTRACT

The dependence of metastable zone widths (MSZWs) of aspirin in acetic acid and acetic anhydride binary solvent mixture on saturated temperature, cooling rate and solvent composition was experimentally studied by polythermal method. Modified classical nucleation theory approach and modified self-consistent approach which take the saturation temperature and nucleation temperature into consideration were employed to describe the nucleation behavior by correlating the MSZWs with saturated temperature and cooling rate. The critical nucleus size, critical Gibbs energy and solid-liquid interfacial energy were calculated and analyzed. The results suggest that the critical nucleus size as well as the critical Gibbs energy decrease with the