

## **Application of a Modified Regular Solution Model to Correlate the Solubilities of Phthalic Acid Isomers and Toluic Acid Isomers in Water**

B. Long<sup>C,S</sup>, Y. Wang, D. Zhao and Z. Yang  
*Bingwen\_long@163.com*

The solubilities of aromatic acids in water such as phthalic acid isomers and toluic acid isomers at elevated temperature are of great importance for the production of polyester. Here, a simple solution model, based on the regular solution theory coupled with Flory-Huggins entropy term, was applied to calculate the solubilities of phthalic acid isomers (o-, m-, p-) and toluic acid isomers (o-, m-, p-) in water from normal temperature up to the practical plant operation temperature. The literature data were correlated by optimizing internal energies and molar volumes of the aromatic acids which were treated as species dependent constant and function of the density of water. The reported experimental data were well represented by the present proposed model.