

Experimental Measurements of Solid-Liquid Equilibria for Mixtures of HI-I₂-H₂O

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The Sulfur-Iodine (SI) thermophysical water splitting cycle is one of the promising approaches to produce large quantity of hydrogen in an efficient way using the nuclear energy. In the HI demposition section of the cycle, the removal of iodine (I₂) is needed to improve the hydrogen generation. Crystallization of solid I₂ in equilibrium with liquid phase is regarded as one possibility for removing I₂. However, few literature data for solid-liquid equilibria of the ternary mixture have been reported. In this work, solid-liquid equilibrium data for the HIx (HI-I₂-H₂O) mixtures were measured at temperature from 274 to 333 K and ambient pressure. After equilibration, liquid phase was sampled and analyzed for equilibrium compositions using the titration. The present data were compared and found in general agreements with literature data.