

Correlation and Measurement of Solubility of Iodine in $\text{HI}_x + \text{H}_2\text{O} + \text{I}_2$ mixture at 363K~423K

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Sulfur-Iodine (SI) cycle is a process getting hydrogen by splitting water in thermo-chemical method. The process efficiency is increased by recycling chemicals involved reactions and reusing heat from the nuclear energy.

In aspect of hydrogen producing efficiency in the cycle, purity of HI in HI_x solution is an important factor. One of method to increase purity of HI is separating iodine by crystallization, and SLE data is needed for designing crystallizer. However this system has a few experimental data.

In this study, solubility of iodine in $\text{HI}_x + \text{H}_2\text{O} + \text{I}_2$ mixture at 363K - 423K were measured and correlated.