

258c Comparison of Reactive Distillation and Extractive Distillation Flowsheets for the Sulfur-Iodine Thermochemical Cycle

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Many investigators have devised flowsheets for the sulfur-iodine thermochemical cycle hydrogen cycle, with the goal of achieving high efficiency. Consideration of the basic thermodynamics of each process step can be used to understand why efficient flowsheets have all employ electrochemical or thermomechanical processes in the hydrogen iodide separation and decomposition step. Flowsheets are presented for reactive distillation and extractive distillation versions of the sulfur-iodine process, both of which employ thermomechanical processes to obtain high efficiency.