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Thermodynamic Attainable Region for Direct Synthesis of Dimethyl Ether from Synthesis Gas

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Abstract : This paper demonstrates the use of a method of synthesizing process flowsheets using a graphical tool called the GH-plot and in particular, to look at how it can be used to compare the reactions of a combined simultaneous process with regard to their thermodynamics. The technique uses fundamental thermodynamic principles to allow the mass, energy and work balances locate the attainable region for chemical processes in a reactor. This provides guidance on what design decisions would be best suited to developing new processes that are more effective and make lower demands on raw material and energy usage.

Keywords : attainable regions, dimethyl ether, optimal reaction network, GH Space
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