

系统与集成

Direct Heat Integration of Independent Processes

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摘要 The properties of matched streams, the simultaneous operation time, and the distance between integrated processes, are the main factors which determine whether the direct integration is feasible or not. According to whether such synthetic integration is economically better than the separate integration of each process, a mathematical formulation is established. The retrofit of reforming and arene processes in a certain petrochemical factory, which are independent each other, is chosen as a case study. By only considering the simultaneous operation time, two retrofit designs are proposed: one is that each of the two processes is separately integrated by itself, and the other is that the two processes are integrated comprehensively. Under different simultaneous operation hours, the energy-saving effects and the economic profits of the two designs are calculated, and furthermore, the critical simultaneous operation time for direct heat integration of the two processes is obtained. When the actual simultaneous operation time of the two processes is longer than the critical value, the direct heat integration of the two processes is better economically, and otherwise the separate heat integration for each process should be considered.

关键词 [heat integration,independent processes,simultaneous operation time](#)

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