

Pinch Analysis for Integration of Cumene Production

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Cumene is a major intermediate chemical which is used in the worldwide production of phenol, acetone, and alpha-methyl styrene. High purity cumene is normally manufactured from propylene and benzene. Benzene and propylene are reacted under elevated temperature and pressure in the presence of a catalyst. The most commonly used catalyst was formerly solid phosphoric acid on an alumina support.

A recently established technique based on thermodynamic principles and known as pinch technology offers a systematic approach to optimum energy integration in a process. Heat integration of the overall cumene process is essential for an efficient and optimal design. In this study, the optimum heat exchanger network of cumene process will be determined.