Abstract

Process Economics Program Report 22D

PHENOL

(December 2005)

Since its commercialization in the early 1950s, the cumene hydroperoxide (CHP) process has become the dominant technology for phenol production. Well over 90% of world phenol production is based on this technology.

A drawback of this route to phenol is the substantial production of acetone coproduct. While well established global markets for acetone exist, the demand for this coproduct has not always kept pace with the demand for phenol in certain regions. This has been a factor stimulating interest in new “non-coproduct” phenol technologies which would produce phenol directly from benzene.

The focus of this report is a comparative evaluation of two non-coproduct phenol production processes which appear to be ready for commercialization – Solutia’s AlphOx process and Misui’s cyclohexene based process – and how these processes compare with conventional CHP based phenol production. The scope of this report also includes a market status assessment of supply and demand trends for the various alternative feedstocks for these three routes to phenol production, as well as for acetone and phenol.

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by George J. Apanel

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Menlo Park, California 94025

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