Abstract

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ADVANCES IN CATALYTIC REFORMING

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Catalytic reforming is a dominant process for making high octane gasoline and the major source of by-product hydrogen in the refinery. The process continues to evolve with improvements in catalysts and hardware to meet changing refinery needs. This report covers the technology and economics of conventional catalytic reforming for the production of gasoline. Six design cases based on a continuous catalyst regeneration process are presented to indicate the effects of feed composition, reforming severity, and reformer feed prefractionation of benzene and its precursors to reduce the reformate benzene content.

A new class of zeolite reforming catalyst has been developed that is highly selective for light paraffinic feedstocks to produce benzene, toluene, and xylenes (BTX). We evaluate this technology and present economics for a zeolite reformer processing aromatics extraction raffinate feedstock. Results show that this process offers a new commecial route to low-cost production of aromatics, particularly benzene and toluene, from light paraffinic feedstocks.

Issues affecting the reformer vary from region to region. For example, regulations requiring reformulated gasoline de-emphasize the reformer's role as an aromatics producer in the United States, whereas lead phaseout in Europe and the Asia-Pacific region increases the need for high octane blend components. One indication of the importance of the catalytic reforming process is that a substantial amount of new capacity is being built worldwide, especially in the industrializing areas.

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