

Abstract
Process Economics Program Report 129B
ADVANCES IN CATALYTIC REFORMING
(October 2006)

First commercialized in 1940, catalytic reforming remains the dominant process for producing high octane gasoline blendstocks and refinery hydrogen. Reforming is also a major source of aromatic (benzene, toluene and xylenes (BTX)) petrochemical feedstock. Over 78% of the world's refineries reform naphtha; total capacity is 13 LV% of total crude distillation capacity.

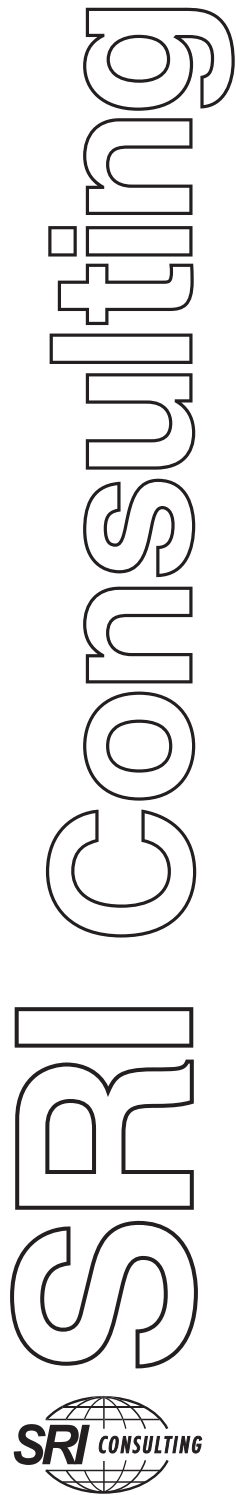
Demands on the catalytic reformer are changing:

- a) The trend in gasoline specifications is to further reduce the allowable benzene and total aromatics contents. This is tending to reduce reforming severity and in turn hydrogen production.
- b) Refinery hydrogen demand for hydroprocessing is increasing as the trend in fuel specifications is to decrease allowable sulfur in fuels.
- c) Global near term demand for petrochemical aromatics lead by para-xylene is forecast to grow by 3.8%/yr to 5.6%/yr from 2005 to 2010. Longer term demand to 2015 is anticipated to grow slower.
- d) A new factor in the U.S. and potentially elsewhere is replacement of MTBE with ethanol, which increases the demand for high octane gasoline blendstocks.

Evolution of reformer technology continues. Recent emphasis in catalytic reforming is on catalyst and process improvements to maximize catalyst life and selectivity to hydrogen and BTX aromatics, reforming of ultra low sulfur, low water naphthas, improved reactor internals, improved regeneration processes and revamping of existing units.

This report provides an overview of catalytic reforming developments in catalyst, process and hardware technologies since PEP Report 129A, "*Advances in Catalytic Reforming*", issued in 1996. The report then develops process economics for reforming a paraffinic, straight run naphtha and a dehexanized naphtha in continuous catalytic regenerated units. Also, a paraffinic raffinate from aromatics extraction is reformed in a semiregenerative unit to produce a high aromatic reformate for aromatics extraction.

Professionals and managers who manage, research, develop, plan, operate, design plants or manage investments in the petroleum refining and allied industries could benefit from the information contained in this report.



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ADVANCES IN CATALYTIC REFORMING

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