

Petroleum and Petrochemicals Economics Program: Petrochemical Market Dynamics

Aromatics 2013

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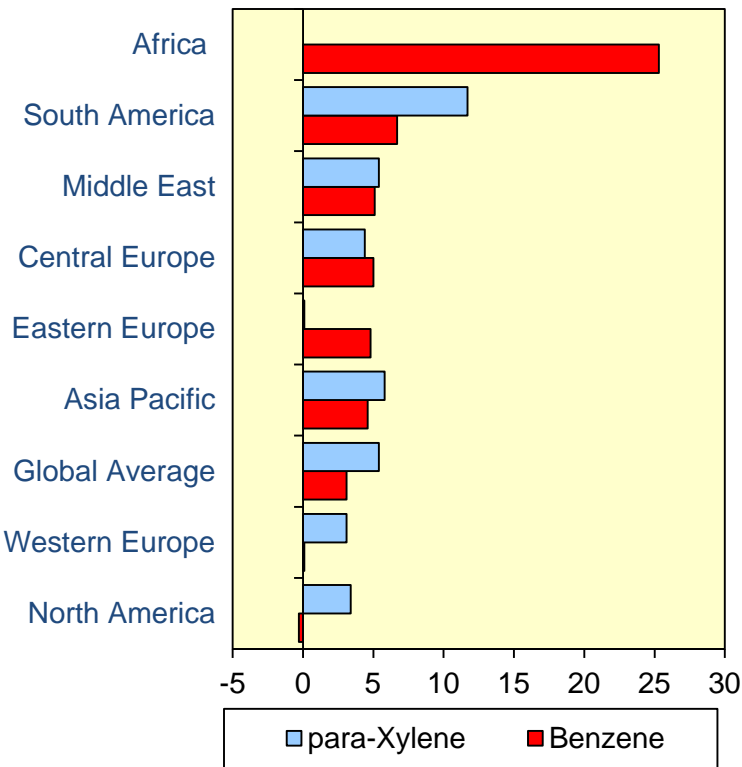
This report provides an in-depth analysis and forecast of key aromatics including benzene, *para*-xylene, toluene and mixed xylenes.

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Abstract

As a by-product, the global aromatics business continues to face inevitable volatility in both price and consumption. The poor macroeconomic environment suppressed further recovery of benzene and para-xylene consumption in 2011 and 2012, while supply tightness of both products kept prices high. Aromatics supply was largely restricted by the continuing trend towards lighter feedstocks for steam crackers, along with limited production from toluene conversion units and poor reforming production economics in the United States. This was also aggravated by the delay in new aromatics complexes in China, Singapore, India and the Middle East. As a result, benzene prices soared to a new historic high in late 2012 and early 2013. *para*-Xylene prices and margins remained strong, but were limited by the severe oversupply in the downstream PTA and PET markets. Nevertheless, as the aromatics market strengthened against the gasoline market, rising production of benzene and para-xylene from toluene conversion plants occurred in the first half of 2013.

Benzene and *para*-Xylene Growth, 2013-2020



The complexity in upstream factors provided a challenging business environment for aromatics. Benzene supply from pygas is highly dependent on the economics and feedstock of ethylene production. Under a high oil price environment, U.S. pygas supply has recently been further reduced by the abundance of cheap gas feedstocks resulting from shale gas exploitation, while LPG also gained in popularity as cracker feedstock in Western Europe. Similarly, Asian crackers were forced to run at low rates in 2011 and 2012, primarily due to poor demand and low margins of polyolefins production. On the reformer side, the strengthening aromatics and gasoline prices globally has promoted higher production of benzene and mixed xylenes from reformers in Western Europe and Asia Pacific. Nevertheless, U.S. reforming margins remained extremely poor, owing primarily to low by-product revenues. The reformers which are forward-integrated to para-xylene production continued to maximise their operation, following high margins for para-xylene. Apart from a new STDP unit recently built by ExxonMobil in the Netherlands, no major investment in stand-alone toluene conversion units have occurred in the last five years. Since early 2013, the margins for such processes have recently improved, following high benzene and para-xylene prices, amid weakening toluene and gasoline prices. Despite dramatic growth over the last ten years, benzene production from coal remained below ten percent of the global total, due to relatively poor margins.

Asia Pacific will continue to drive the development of new aromatics capacity from all major sources, although capacity growth in other emerging regions (i.e. South America and Eastern Europe) is forecast to accelerate with one or two world-scale developments each in the next ten years. A step change in Middle Eastern capacity is expected over the next five years, following development by Saudi Aramco in Saudi Arabia. There is unlikely to be any major investment in North America or Western Europe.

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Chapter's 3 to 4 are segmented by geography and further segmented into three main sections:

- Consumption: Assesses historic and forecast consumption; forecasts are based on projections of end-use and economic activity in each region.
- Supply: Includes a list of all producers, their production capacity, location, etc., and discussion of the status of new projects.
- Supply, Demand and Trade: Provides historical analysis and forecasts to 2030 of consumption, production, imports/exports, inventory build-up/decline, capacity and capacity utilisation for each region.

Nexant's analysis of the major derivatives (e.g. polyester, styrene, cumene/phenol, cyclohexane and LAB/BAB) is combined with the supply side analysis to provide a detailed evaluation of the benzene and *para*-xylene markets.

Section 5, Toluene, and 6, Mixed Xylenes, provide insight into inter-regional trade and are segmented by region.

This analysis will identify the issues shaping the industry, as well as provide an independent appraisal of the market.

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