Petroleum and Petrochemicals Economics Program: Petrochemical Market Dynamics

Olefins 2013

Olefins 2013 is one in a series of reports published annually as part of the Petroleum and Petrochemical Economics program.

This report provides an in-depth analysis and forecast of the global ethylene, propylene and butadiene market.

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Abstract

Olefins and aromatics are the basic building blocks for most of the petrochemical industry. The most commercially important olefins are ethylene, propylene and butadiene. Olefins are mainly produced by steam cracking hydrocarbon feedstocks, with additional production from oil refinery upgrading processes and by catalytic dehydrogenation of paraffins. Higher prices for conventional petrochemical feedstocks have driven technology development to exploit alternatives such as coal and methane. The first two plants producing propylene from coal via methanol have recently started in China.

Ethylene consumption growth fell substantially short of expectations in 2012, reaching only 0.8%. The main reason was the deepening economic downturn in China, which is in part due to the continuing lack of recovery in Western export markets. Demand fell further in both Western Europe and the United States, despite earlier hopes of a slight recovery in 2012. The outlook for 2013 is for limited improvement.

Following a surge in ethylene capacity development in the Middle East which saw 12 new steam crackers enter production over 2008-2011, the focus has now shifted to North America and Asia. The transformation in the U.S. market has been dramatic. With several plants threatened with closure as recently 2009, the rapid development of shale gas has provided rapidly growing supply of ethane and other NGLS which have been priced attractively in order to displace heavier cracker feeds.

Propylene's status as a co-product of ethylene production and refinery operations has frequently put propylene supply out of step with demand. The expansion of PDH and MTO/MTP capacity should however provide a capacity base better able to match the fluctuations in demand. The major supply development globally is the surge in propylene production in China from methanol and PDH.

Global butadiene production between 2010 and 2012 was affected by high naphtha prices, the shortage of mixed C4, and the recovery of the tyre and automotive industry. At the same time, global butadiene capacity during this period increased by over 650 000 tons, largely in Asia.



Ethylene Capacity Additions/Closures (Volume, 000 tons)

Global Ethylene Consumption



China Propylene Production by Process

(Polymer/Chemical Grade - thousand tons)





Table Of Contents

- 1. Executive Summary
- 2. The Olefins Industry
 - 2.1. Global Overview
 - 2.2. Current Performance
- 3. Ethylene
 - 3.1. North America
 - 3.2. South America
 - 3.3. Western Europe
 - 3.4. Central and Eastern Europe
 - 3.5. Middle East and Africa
 - 3.6. Asia Pacific
- 4. Propylene
- 5. Butadiene

Each regional analysis (e.g. Section 3.1) is segmented into three main sections:

- Consumption: Assesses historic and forecast consumption; forecasts are based on projections of end-use and economic activity.
- 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.

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

Appendix

- A. Methodology
- B. Olefins Technology

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- Consultation time with the project team





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