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Report Abstract

Petrochemical Market Dynamics Propylene Derivatives

Global Propylene Markets: Polypropylene, ACN, Propylene Oxide, Phenol, Acrylic Acid, IPA, Supply/Demand, Trade.

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Nexant

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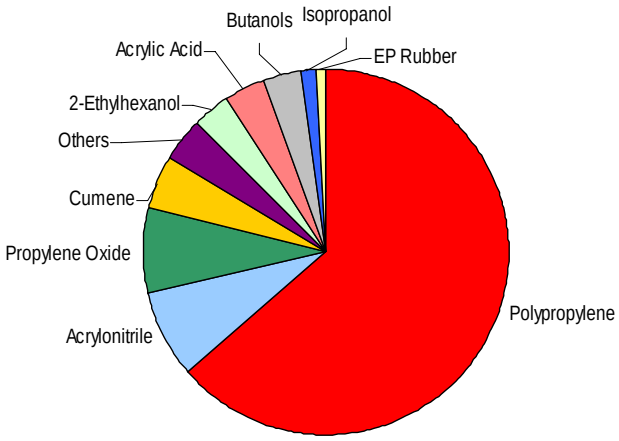
Nexant's Petrochemical Market Dynamic, Vinyls report investigates the market and growth profile of EDC, VCM and PVC, and details the expected plant developments and changes in global trade patterns. The reports are published as part of ChemSystems / Petroleum and Petrochemical Economics Programme (PPE). Subscriptions to the programme are available from www.chemsystems.com. For further details or to request a sample copy, please email chemsystems@nexant.com.

ECONOMIC DOWNTURN IMPACTS ON PROPYLENE

Global propylene consumption has weakened markedly as manufacturing industries struggle with the economic downturn, with total consumption falling back to 71 million tons in 2008. While global consumption is expected to bounce back relatively quickly, this will largely be a result of strong growth in Asia and the Middle East; North American and West European markets are predicted to take many years to recover volumes achieved in 2007.

Propylene markets have been particularly impacted by the weak performance of the United States and West European automotive and construction sectors, and it is these two effects alongside competition from new producers elsewhere that will hold back traditional propylene markets. Global growth is forecast at 3.9 percent over 2009-18, down markedly on the 4.8 percent achieved from 1995-08. Polypropylene meanwhile has increased its dominance of consumption as commodity demand for the polymer has been maintained while higher value added demand for other propylene derivatives weakened.

Global Propylene Consumption



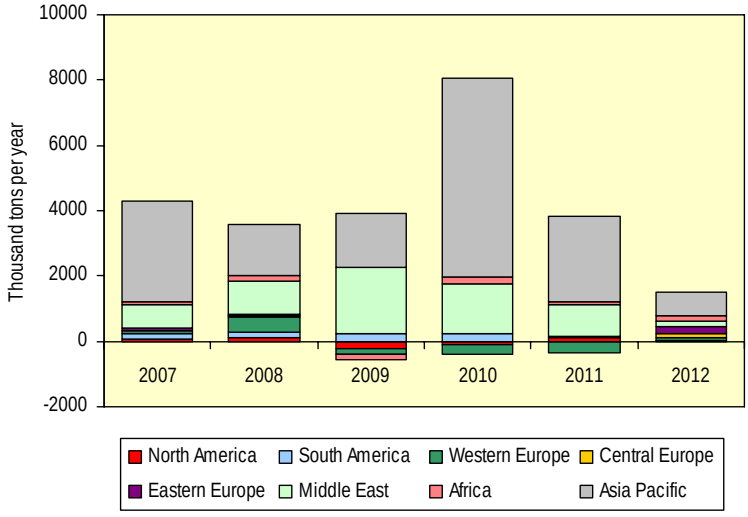
The threat from the start up of major new polypropylene plants in the Middle East continues to hang over the market, and will further depress operating rates among higher-cost producers in other regions. Asian producers will be less exposed, especially as demand in the region has responded well to Government stimulus packages.

The latest propylene derivatives report investigates the market and growth profile of propylene and all major derivatives, and details the current slate of firm projects, and the capacity developments across the product chain that will be required to meet demand in future.

SUPPLY

Propylene capacity is evenly divided between the three major regions of North America, Western Europe, and Asia Pacific. The share held by Middle Eastern producers is comparatively small relative to their presence in the ethylene market, due to the prevalence of ethane-based steam crackers. Major investment in propane dehydrogenation (PDH), the move towards mixed-feed steam crackers, and finally metathesis is providing a massive jump in propylene capacity however.

Incremental Propylene Capacity



Western Europe and Asia Pacific derive most propylene from naphtha crackers, while supply in the United States is based to a greater extent on refinery production. The scale of developments in Asia eclipses those in other regions. Having historically been of similar size to Western Europe or North America, Asia Pacific will become larger than both regions combined by 2010. Developments are principally from steam cracking, and are focussed in China, India and Singapore. Reliance also brought on a new 900 000 tons per year FCC unit at its Jamnagar, India site in early 2009, although FCC developments in other regions are minimal. The first methanol-based plant is set to start production in China towards the end of 2009. In the Middle East, annualised propylene capacity in 2009 is rising by 45 percent over 2008, and will increase by a further 50 percent by 2012. The major increments from PDH and refinery sources are now in place, with the near term development driven by steam cracking and metathesis. Developers of methanol-to-olefins projects in Africa have had an uphill struggle arranging finance, due to the relatively high technological and geographical risk. The sharp downturn in global operating rates may impede further progress in the near term.

Western Europe, the United States and Japan will all see propylene capacity decline in the near term, mainly as a result of closures of uneconomical liquids-based and mixed-feed steam crackers. Investments to increase flexibility of steam cracker feed slates towards lighter

feedstocks in these regions has also resulted in a net decrease in propylene capacity at some facilities.

CONSUMPTION

Polypropylene is the largest and fastest growing of the major propylene applications, and will account for around 70 percent of total global propylene consumption by 2020. Polypropylene continues to compete with polyethylene in many packaging applications, and has additional growth opportunities in the automotive sector, although this can also increase cyclicality during economic downturns.

Acrylonitrile production growth has been very low due to the substitution of acrylic fibre by other materials.

The production of acrylonitrile butadiene styrene (ABS) is a faster growing sector for acrylonitrile and is expected to support marginally higher growth rates in future.

Propylene oxide, which has applications in the production of polyols for polyurethanes and propylene glycol, had been the fastest growing of the other major propylene derivatives, however demand for polyurethanes have been significantly impacted by the problems in both the automotive and construction sectors. These sectors will need to recover before propylene oxide can resume its strong growth trend. Demand growth into cumene/phenol has meanwhile entered a slower period of growth following rapid expansion over the last ten years as demand into optical media falters.

Oxo-alcohols have been a declining sector of propylene demand in recent years as the market for 2-ethylhexanol has declined sharply due to health and safety concerns surrounding its main derivative, the plasticiser dioctyl phthalate (DOP).

The largest uses of the two butanol isomers, normal butanol and isobutanol, are as solvents and for production of butyl acetates, both of which are expected to continue to show steady growth.

Acrylic acid production will provide lower demand growth for propylene due to the relatively small scale and the mature nature of the market. The main outlets for acrylic acid are in the production of acrylate esters, superabsorbents and other applications in detergents and flocculants.

Isopropanol (IPA) is used principally as an oxygenated solvent, mainly in the coatings and printing inks sector. Growth here is under pressure due to restrictions on VOC content in coatings, and competition from acetone in some applications.

The report ***Petrochemical Market Dynamics: Propylene Derivatives*** is published by Nexant as part of its ChemSystems programs. Subscriptions to the programs are available from www.chemsystems.com. The report is also available for purchase without subscription. For further details please contact chemsystems@nexant.com.

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