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Report Abstract

Petrochemical Market Dynamics Vinyls

January 2010

EDC, VCM and PVC, Markets, Supply/Demand, Plant Developments, Global trade patterns.

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Vinyls

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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.

WEAK CONSTRUCTION HAMPERS VINYLS MARKET

PVC demand has remained weak in 2009 following the collapse in consumption experienced in the second half of 2008 as the weak economic outlook continued to restrict activity within the key construction sector.

Ahead of the economic crisis PVC demand enjoyed accelerated growth, driven by construction activity in developing economies as energy exporting regions such as Eastern Europe and the Middle East embarked on major infrastructure projects. The emerging middle class in many Asian countries led to a vast expansion of housing and urban infrastructure, driving PVC consumption growth at double-digit rates in regions such as China.

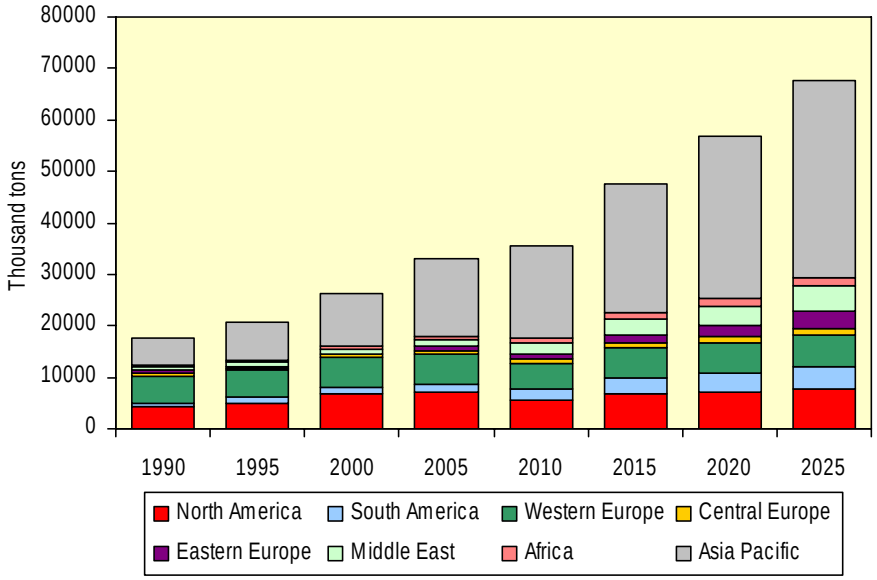
The global economic slowdown has taken its toll on the construction sector and building activity in Europe and North America has been dramatically reduced. Global PVC demand driver China suffered negative growth in 2008 but in 2009 the government's economic stimulus packages buoyed consumption and the country has seen positive growth return. Consumption growth in developing economies in 2010 will once again prove vital for global producers as there are fears that the current slowdown will be extended as governments in North America and Europe cut spending to restore extensive deficits in national accounts.

Consumption

In recent years, environmental and safety issues as well as substitution by polyethylene have negatively affected PVC consumption. Several countries have legislated against the use of plasticised PVC in children's toys, and consumption in food packaging has also declined, although more as a result of better cost-performance of other polymers. In addition, some substitution by polyolefins in cable and wire applications and certain construction uses have eased growth in some segments. However, the cost competitiveness of PVC in the key construction sector growth is expected to sustain growth.

High consumption growth in populous nations such as China and India will make Asia the major driver of global PVC consumption growth. While consumption in the United States has been declining since 2004, growth in Mexico and a recovery in the United States demand will support future growth rates in North America. Western Europe will show the lowest growth, due to the already high per-capita consumption, and low GDP growth outlook. Growth in Eastern Europe and the Middle East is running at very high rates due to oil wealth, while demand in South America will benefit from high GDP growth and infrastructure development.

Regional PVC Consumption



Supply

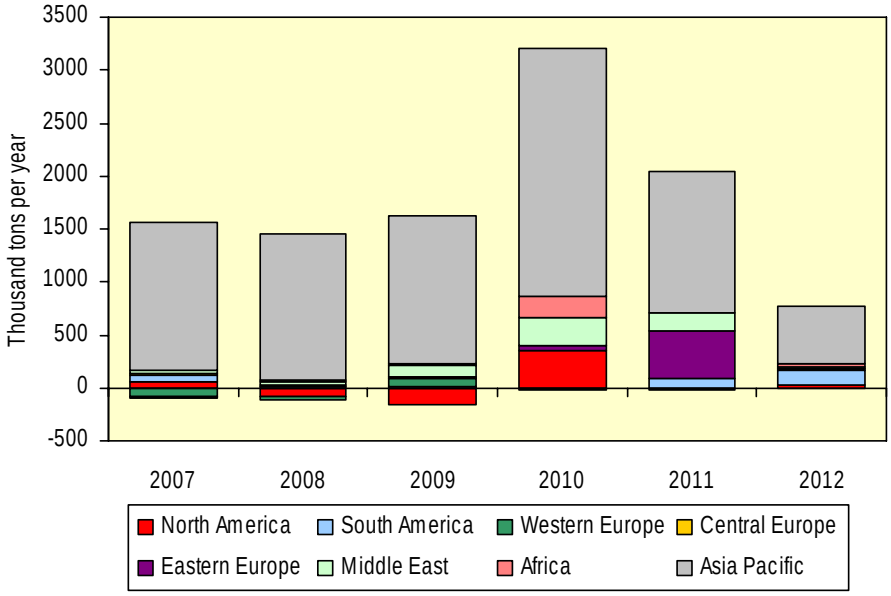
Regional capacity development shows considerable variation due to the sharply differing consumption outlook and production costs. Low growth and high energy prices make investment in North America and Western Europe unattractive. Capacity development in China is proceeding rapidly due to the massive demand growth and the relative attractiveness of coal based production. Other parts of Asia show minimal development due to the lack of competitively priced feedstock and abundance of capacity already installed. Some major capacity developments are already underway in North America, which have proceeded despite the ongoing contraction in domestic demand. Much of this new supply will be for export.

The capacity development that is ongoing in China is unprecedented. Capacity has expanded from five million tons per year in 2003 to over 15 million tons per year in 2009, almost 90 percent of total global capacity expansion over the period. Despite legitimate environmental concerns, relating both to massive carbon emissions and mercury pollution, the development of acetylene based capacity in China shows no sign of slowing. The government's effort to restrict the construction and expansion of less efficient, environmentally hazardous plants has had little impact on the overall pace of development, although has perhaps prevented some sub-scale projects from moving ahead.

While coal/acetylene technology has been progressively replaced by ethylene-based production in other regions, coal based production in China has been encouraged as it does not require imported feedstock, or compete for the limited supplies of ethylene. The required feedstocks – coal and limestone – are concentrated in the Western part of the country, which are comparatively underdeveloped. Industrial activity there is subsequently inexpensive, and provides economic growth in otherwise isolated areas.

The pace of capacity development in the Middle East has been slow because of the lack of local consumers for the caustic soda by-product from chlorine production, and the availability of more attractive investment opportunities in olefins. The higher long-term global energy pricing environment has however brought the focus back onto the ethylene and power cost advantages in the region, leading to new interest in projects. Regional demand growth has also outpaced previous expectations, providing a much larger domestic market for new entrants to sell into.

Regional PVC Capacity Additions



Supply, Demand and Trade

Operating rates have fallen sharply in recent years as capacity increased while demand has fallen. Further capacity additions in Asia, Eastern Europe and the Middle East will hold rates at the current low levels through 2010, before beginning to recover in 2011. Consumption growth in the near term in developed regions will be low due to the economic downturn, but will recover in other regions.

The arrival of large volumes of acetylene-based PVC production has changed many aspects of the global market. The massive development in capacity had offset the massive level of PVC imports into China, which ran in excess of over two million tons per year over 2001-2004 as acetylene based PVC became increasingly advantaged as oil prices rose. As acetylene-based product sets the price in the Chinese market, ethylene-based operators have had difficulty selling into the domestic market as crude prices increased. Chinese product has therefore been aggressively marketed around the world. Japan, South Korea and Taiwan collectively have 2.4 million tons of surplus PVC capacity. This output was previously exported to China, but as China has become self-sufficient in PVC, these countries have been forced to market their product further afield. The collapse in oil pricing eroded this advantage leading to a marked increase in imports in 2008 and 2009 and a resumption of exports to China. As the capacity build continues China is expected to increase production and move to a balanced position forcing their East Asian counterparts to look further afield once more.

The slow development of capacity, and rapid consumption growth, has led to a growth in imports into Eastern Europe. Eastern Europe imports mainly from South Korea and China, although part of the import is of emulsion grade from Western Europe, which is used in flexible applications such as flooring. Major new projects are under discussion in Eastern Europe, however, and the region will move to a more balanced position post 2010.

Exports from North America will peak in 2010, driven higher by a combination of large capacity additions and declining domestic demand. If the domestic construction sector fails to show signs of recovery, however, more capacity could be rationalised to avoid this exposure to the export market at the bottom of the business cycle.

The rapid growth of demand in the Middle East has outpaced new capacity development. The current slate of projects will not be sufficient to meet demand growth, and therefore the region will remain a net importer for much of the outlook period. Most of the import growth to date has been from East Asia.

The latest vinyls chain report investigates the market and growth profile of EDC, VCM and PVC, and details the expected plant developments and changes in global trade patterns. Nexant's ***Vinyls Chain Market Dynamics*** report is part of the ChemSystems Petroleum and Petrochemical Economics (PPE) program of reports available for subscription on www.chemsystems.com.

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