World Catalysts

Industry Study with Forecasts for 2018 & 2023

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Growth will be led by a rebound in the chemical and polymer industries, most notably in developed economies, and more stringent regulations that favor higher-value catalyst products.

World demand to rise 4.8% annually through 2018

Demand for catalysts will grow 4.8 percent per year to $20.6 billion in 2018. Growth will be led primarily by a rebound in the chemical and polymer industries, most notably in developed economies hit hard by the recession. The fastest advances, however, will be in the developing world, where rising income levels and vehicle ownership rates and rapid industrialization will encourage capacity expansion in all catalyst-consuming markets. Across the board a more stringent regulatory environment will support a shift in the catalyst product mix toward higher-value catalyst products that are highly efficient, facilitate product differentiation, and provide flexibility to manufacturers. However, despite tightening fuel sulfur regulations in large developing markets such as China and India, growth in petroleum refining catalyst demand will be restrained as global efforts to improve vehicle fuel efficiency lead to weak growth in refined product consumption.

Polymerization catalysts to rise at healthy pace

Polymerization catalyst demand will rise at a healthy pace in response to accelerating global polymer production. However, the commodity nature of many polymers and varying raw material costs will encourage a focus on product differentiation that will drive a shift in the polymer catalyst product mix, especially in developed regions. Demand for polymer catalysts will be strong in Asia and the Middle East where low-cost, commodity polymer capacity will continue to expand. In North America and Western Europe, polymer production growth will be more modest, but manufacturers in those regions will focus more on specialized products in order to remain competitive on a global scale, resulting in increased demand for Ziegler-Natta and single-site catalysts.

Higher-value types favored in chemical synthesis

Regional shifts in feedstocks will lift demand for generally higher-value chemical synthesis catalysts. In China, abundant coal resources and a focus on coal-to-olefins technology will support demand for synthesis gas. The shale gas boom and low natural gas prices in North America will fuel a similar shift in that region. Additionally, demand for synthesis gas catalysts, especially those used in the production of hydrogen, will be fueled by growing hydrogen demand in the petroleum refining industry, where hydrogen plays a key role in reducing sulfur content in fuels and helping manufacturers produce more valuable petroleum products. An increased focus on sustainability, regulatory efforts to reduce chemical waste, and the continued development of structurally complex active pharmaceutical ingredients will also drive a shift toward higher-value products such as biocatalysts.
NORTH AMERICA

Mexico: Catalyst Demand

Catalyst demand in Mexico is forecast to increase year to year to 5.1% through 2018. Petroleum refining demand grows more slowly, reflecting modest increases in refined products output and a slower pace than demand in the chemical sector. Growth in the country's polymer and chemical manufacturing industry also contributes to the upturn in demand. Demand for petroleum refining will remain the largest catalyst market by a wide margin. Mexico's refineries make use of fluid catalytic cracking (FCC), hydrotreating, and alkylation processes, as well as catalytic reforming. The recession in the United States and the global financial crisis during the 2008 to 2013 period was particularly challenging for Mexico's refining industry. During that period, volume demand for refining catalysts fell significantly. However, because the country's crude supplies tend to be of a heavier variety, demand for the generally expensive FCC catalysts capable of processing heavy feedstock helped support modest growth in value. Mexico's environmental regulations regarding sulfur content in fuels are limited in scope, which restricts faster growth for refining catalysts overall. However, PEMEX, Mexico's national oil company, plans to upgrade up to fifteen existing diesel plants and to build four new ultra-low sulfur diesel plants through the forecast period. As this new capacity comes online and Mexico tightens its sulfur content regulations, growth prospects for FCC and hydrotreating catalysts will improve.

Volume demand for chemical synthesis catalysts will advance through 2018, reflecting a sustained rebound for the country's chemical manufacturing industry after declining during the 2008-2013 period. While Mexico's economy handled the economic slowdown better than did the US or Canada, its dependence on trade with its NAFTA partners limits the pace of recovery. However, Mexico's environment regulations regarding sulfur and nitrogen content in fuels are more stringent than in the US or Canada, which provides a stronger growth impetus for the chemical synthesis market. The demand for polymerization catalysts is expected to increase through 2018. Growth in the Mexican polymer market reflects the country's need to increase capacity for production of general purpose polyethylene and polypropylene. Mexico is anticipating modest growth in these areas, and demand for polymerization catalysts is expected to follow suit.
Univation Technologies LLC
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Houston, TX  77056
713-892-3700
http://www.univation.com

Annual Sales:  $30 million (estimated)
Employment:  200 (estimated)
Key Products:  chromium, Ziegler-Natta, metallocene, and bimodal catalysts

Univation Technologies operates as a 50/50 technology development and licensing joint venture between Dow Chemical Company (Midland, Michigan) and the ExxonMobil Chemical Company subsidiary (Houston, Texas) of Exxon Mobil Corporation (Irving, Texas). The Company is a leading technology licensor and catalyst supplier for polyethylene production operations. In October 2014, Dow Chemical agreed to acquire ExxonMobil Chemical’s 50-percent stake in Univation Technologies, thereby making Univation Technologies a wholly owned subsidiary of Dow Chemical. The transaction is expected to close by the end of 2014.

The Company is active in the world catalyst industry through the production of chromium, Ziegler-Natta, metallocene, and bimodal catalysts used in the polymerization of polyethylene. In particular, Univation Technologies produces a variety of catalysts intended for use with Columbia, Maryland-based WR Grace’s UNIPOL gas-phase, fluidized bed process for polyethylene manufacturing. In December 2013, WR Grace acquired the UNIPOL process from Dow Chemical.

Univation Technologies’ catalysts for use in the UNIPOL polyethylene process encompass UCAT, XCAT, PRODIGY, and UT offerings.
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### World Industrial Silica Sand

Global demand for industrial silica sand is forecast to advance 5.5 percent annually to 291 million metric tons in 2018, with a value of $12.5 billion. The Asia/Pacific region will remain the largest market, while North America will grow the fastest. Glass will remain the leading outlet, while the hydraulic fracturing segment grows the fastest. This study analyzes the 223 million metric ton world silica sand industry, with forecasts for 2018 and 2023 by market, world region, and for 19 countries. The study also evaluates company market share and profiles industry participants.

#3237 .................. December 2014 ................ $6200

### World Salt

Global demand for salt is forecast to climb 1.5 percent annually to 325 million metric tons in 2018, valued at $13.4 billion. The dominant Asia/Pacific region will be the fastest growing market. Trends in the production of chlor-alkali chemicals will continue to have the most significant effect on regional salt demand. This study analyzes the 302 million metric ton world salt industry, with forecasts for 2018 and 2023 by market, production method, world region, and for 22 countries. The study also evaluates company market share and profiles industry competitors.

#3199 .................. August 2014 ................ $6200

### World Biofuels

World demand for biofuels is expected to expand at a 3.6 percent annual pace, reaching 115 million metric tons in 2018. North America and Central and South America will remain the largest regional markets, while the Asia/Pacific region grows the strongest from a relatively small base. Bioethanol will remain the leading biofuel. This study analyzes the 96.3 million metric ton global biofuel industry, with forecasts for 2018 and 2023 by product, world region, and for 22 countries. The study also evaluates company market share and profiles industry participants.

#3179 .................. August 2014 ................ $6200

### World Specialty Silicas

Global demand for specialty silicas will rise 5.0 percent per year through 2018 to 2.9 million metric tons, valued at $6.9 billion. Rubber is the largest market and will also be the fastest growing. Precipitated silica will remain the dominant product type. The Asia/Pacific region will remain the largest and fastest growing market. This study analyzes the 2.3 million metric ton world specialty silica industry, with forecasts for 2018 and 2023 by product, market, world region, and for 16 countries. The study also evaluates company market share and profiles industry players.

#3178 .................. July 2014 ................ $6300

### World Hydrogen

World consumption of captive and merchant hydrogen is projected to increase 3.5 percent annually through 2018 to more than 300 billion cubic meters. Gains will be driven by the increasing use of hydrogen in refinery hydrotreating, especially in developing countries in Asia. Petroleum refining will remain the dominant market. This study analyzes the 254.5 billion cubic meter world hydrogen industry, with forecasts for 2018 and 2023 by market, world region, and for 19 major countries. The study also evaluates company market share and profiles industry players.

#3165 .................. June 2014 ................ $6100

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- Industrial Components
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