

Global Refining Catalyst Market Outlook to 2027

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Abstracts

Crude oil is today the primary energy source for transportation fuels worldwide and a source to produce a wide variety of chemical products. Catalysis plays a key role in petroleum refining, as most of the processes are catalytic. According to BlueQuark Research & Consulting, the global Refining Catalyst market is expected to witness a considerable growth rate during the forecast period. The market for refining catalysts is growing to meet the increasing market demands of quality standards. Moreover, increased demand for high octane numbers in fuels and rising demand for petroleum derivatives are further helping the market growth. Hence, the refining catalyst market is expected to grow at a high pace during the study period. On the other side, declining crude prices and diminishing resources are expected to hinder market growth in the future years. Catalysis plays a crucial role in several stages of fuel production. Many catalytic processes are necessary to convert crude oil to final commercial products, with strictly defined specifications. Around 30% of the total amount of catalysts produced by the industry is consumed in refinery processes.

Refineries produce different shares of petroleum products depending on the composition of crude oil and the demands of the market. Directly or Indirectly, around 6,000 products are derived from petroleum. The largest share, close to 75% of oil products produced in refineries, is used as energy carriers that are various grades of fuel oil and gasoline. These fuels include or can be blended to give gasoline, diesel fuel, jet fuel, heavier fuel oils, and heating oil. Heavier or less volatile fractions are used to produce asphalt, tar, paraffin wax, lubricating, and other heavy oils. Moreover, refineries produce other chemicals used in chemical processes to make plastics and other useful materials. Carbon, in the form of hydrogen and petroleum coke, is also produced as petroleum products. The hydrogen produced is often used as an intermediate product for other oil refinery processes such as hydrocracking and hydrodesulfurization. Many day-to-day used everyday products are also a derivative of petroleum that includes aspirin, dentures, clothing, cosmetics, solar panels, personal care products such as

shampoo & toothpaste, rugs, and food products like chewing gum.

Transportation is the primary economic sector in the consumption of a large number of petroleum products in the form of petrol and diesel. The increase in vehicle stock is the primary driver contributing to the rise in oil consumption in the road transportation sector. Among all transport modes, the most significant demand for oil comes from road transportation. The total vehicle stock is estimated to grow by around 1.1 billion between 2017 and 2040 to reach 2.4 billion vehicles. Out of this, passenger cars are estimated to grow by approximately 877 million, with 768 million cars in developing countries. Out of an expected 442 million commercial vehicles by 2040, a large majority of around 370 million will remain conventional. Natural gas vehicles are forecasted to account for 6% of the commercial fleet by 2040.

In addition to optimizing existing refining catalysts, producers are continually looking to develop new catalyst products with precise characteristics to meet the exact needs of a given application. The transition towards a CO₂ -neutral society poses a significant challenge to catalysis research. In the short term, the catalysts and processes that offer optimally efficient and clean use of fossil fuels and feedstock are in demand. In the longer term, new catalytic materials for the transition to a CO₂ -neutral society are required, which can also accommodate the predicted increase in the use of electricity and transport.

The global Refining Catalyst market is segmented based on Material and Type. The type segment is further segmented as Hydroprocessing Catalysts, Fluid Catalytic Cracking (FCC) Catalysts, Alkylation Catalysts, Reforming Catalysts, and Others. Fluid Catalytic Cracking (FCC) Catalysts are expected to drive the market due to their high demand in the refinery.

The fluid catalytic cracking unit or FCC is one of the leading conversion units in a refinery and produces the majority of the world's gasoline. In refining, the FCC is used to upgrade more massive distillation cuts to light products. Modern FCC units process a wide variety of feedstocks. To maximize profitability, the FCC unit is pushed to one or more constraints, which depend on the feedstock being processed, the unit configuration, and the mode of operation. With a properly tuned FCC catalyst and additives, the unit operating window is increased, thereby giving the flexibility to process heavier and cheaper feedstocks or increase unit severity for maximum conversion to higher margins lighter products.

On average, around 0.16 kg of FCC catalysts is used to convert a barrel of feedstock.

The leading FCC catalyst producers across the globe include W. R. Grace, Albemarle, and BASF, while local producers like CCIC in Japan and Sinopec and Petrochina in China have smaller market shares. In 2019, the global refinery FCC unit capacity increased to around 21 million barrels per day. United States, China, India, Japan, and Russia are among the top five countries globally that account for more than 60% of total FCC unit capacity. Indian Oil Corporation operated Ratnagiri refinery in India has the highest planned FCC capacity globally, equivalent to 312 thousand barrels per day from 2018 to 2022. The refinery is expected to start operations in 2022, with a total Capex of USD 40 billion.

Based on geography, the global Refining Catalyst market is segmented into Asia Pacific, North America, South America, Europe, and Middle East & Africa. Asia Pacific region is expected to continue the dominance due to the expansion of refining capacity and ongoing investments in countries like China, India, Singapore, etc. China accounts to be the major market holder with more than 14% of the world's refining capacity. Moreover, increasing investments in India is likely to drive the refining catalyst market. For instance, Indian Oil Corp. Ltd announced to invest INR 1.8 trillion along with the expansion of Gujarat and Barauni refineries in order to expand the refining capacity in the country during the forecast period.

The United States is the world's largest economy. The GDP of the country has decreased at an annual rate of 5% in the first quarter and 9.5% in the second quarter of 2020 due to the ongoing coronavirus pandemic. The market for refining catalysts in the region is mainly driven by a large consumption of petroleum products and derivatives coupled with an increasing number of refineries and capacity expansion of existing ones. As of 2019, there are a total of 135 petroleum refineries in the US distributed among 30 states of the country. Moreover, expected crude oil production is 11.3 mb/d in 2020 and 11.1 mb/d in 2021.

According to the US Energy Information Administration (EIA), in 2019, about 142.17 billion gallons of finished motor gasoline were consumed in the United States. US liquid fuel consumption averaged 16.2 mb/d in the second quarter of 2020, down by 20% from the same period in 2019. The decline reflects travel restrictions and reduced economic activity related to Covid-19 mitigation efforts. EIA expects that US oil consumption will generally rise through the end of 2021. A US 42 gallon barrel of crude oil yields about 45 gallons of petroleum products because of refinery processing gain. The US market for refining catalysts is also supported by favorable policies. The government is projected to continue its drive towards lower sulfur content in transportation fuels in the coming years. The latest environmental regulations in the United States are calling for

the use of ultra-low sulfur diesel. These mandates present a challenge to oil refiners and require substantial investment in hydrotreating capacity that is projected to increase the market for refining catalysts.

The global refining catalyst market was found to be fragmented. Some of the Major key players in the global refinery catalyst market were found to be W. R. Grace & Co. , Albemarle Corporation , BASF SE , and China Petroleum & Chemical Corporation , among others.

On 22nd Jul 2020, BASF announced the commercial launch of Altrium™, a new Fluid Catalytic Cracking (FCC) catalyst for mild to heavy resid feedstock. Altrium incorporates BASF 's newest Advanced Innovative Matrix and the proven technology IZY (Improved Zeolite-Y).

On 20th May 2020, BASF announces the commercial launch of ZEAL™, which is a new Fluid Catalytic Cracking (FCC) additive product designed to enhance the production of light olefins in FCC units that process resid or gasoil feedstocks.

On 23rd Mar 2020, BASF announced the commercial launch of Fourtune™, which is a new Fluid Catalytic Cracking (FCC) catalyst product for gasoil feedstock. Fourtune is the latest product based on BASF 's multiple framework topology (MFT) technology.

Our Global Refining Catalyst market report provides deep insight into the current and future state of the Refining Catalyst market across various regions. Also, the study comprehensively analyzes the Refining Catalyst market by segments based on Materials (Metal, Zeolites, Chemical Compounds), By Type (Hydroprocessing Catalysts, Fluid Catalytic Cracking (FCC) Catalysts, Alkylation Catalysts, Reforming Catalysts, and Others), and by Geography (Asia Pacific, North America, Europe, South America, and Middle-East and Africa). The report examines the market drivers and restraints, along with the impact of Covid-19 are influencing the market growth in detail. The study covers & includes emerging market trends, market developments, market opportunities, market size, market analysis, market dynamics, and challenges in the industry. This report also covers extensively researched competitive landscape sections with profiles of major companies, including their market share and projects.

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