



WHAT THREATENS THE GROWING ETHYLENE MARKET?

Strong consumer demand for everyday products from plastic packaging to clothing spurred the ethylene market growth. The market will expand by 3.4% annually, believes Vince Sinclair, Vice President of Chemical Research, Wood Mackenzie Chemicals.

Ethylene is the most produced organic compound globally and the backbone of the processing industry. According to Alto Consulting Group's estimates, in 2017, the ethylene market achieved a growth of 2.6%. This surge has been driven by strong demand coupled with low feedstock prices, high operating rates and hefty investments.

The global ethylene market is valued at some USD 225 bn. It is dominated by the US, which produces 29 mt of ethylene annually – more than all other countries combined. China and Saudi Arabia are the second and third largest producers, accounting for 14 mt and 13.5 mt per year, respectively. Among the top 10 are also Japan, Germany, South Korea, Canada, Singapore and the Netherlands.



The US currently dominates the global ethylene market. Dow ethylene production facility, Louisiana Photo: corporate.dow.com

ACCORDING TO EXPERTS, THE RUSSIAN ETHYLENE IS BECOMING INCREASINGLY EXPENSIVE – SINCE 2015, ITS PRICE GAINED 58%, RISING FROM RUB 25,527.8 PER TONNE TO RUB 40,333.8 PER TONNE.

The Russian share is still relatively low, with the annual output standing at ca. 2.87 mt.

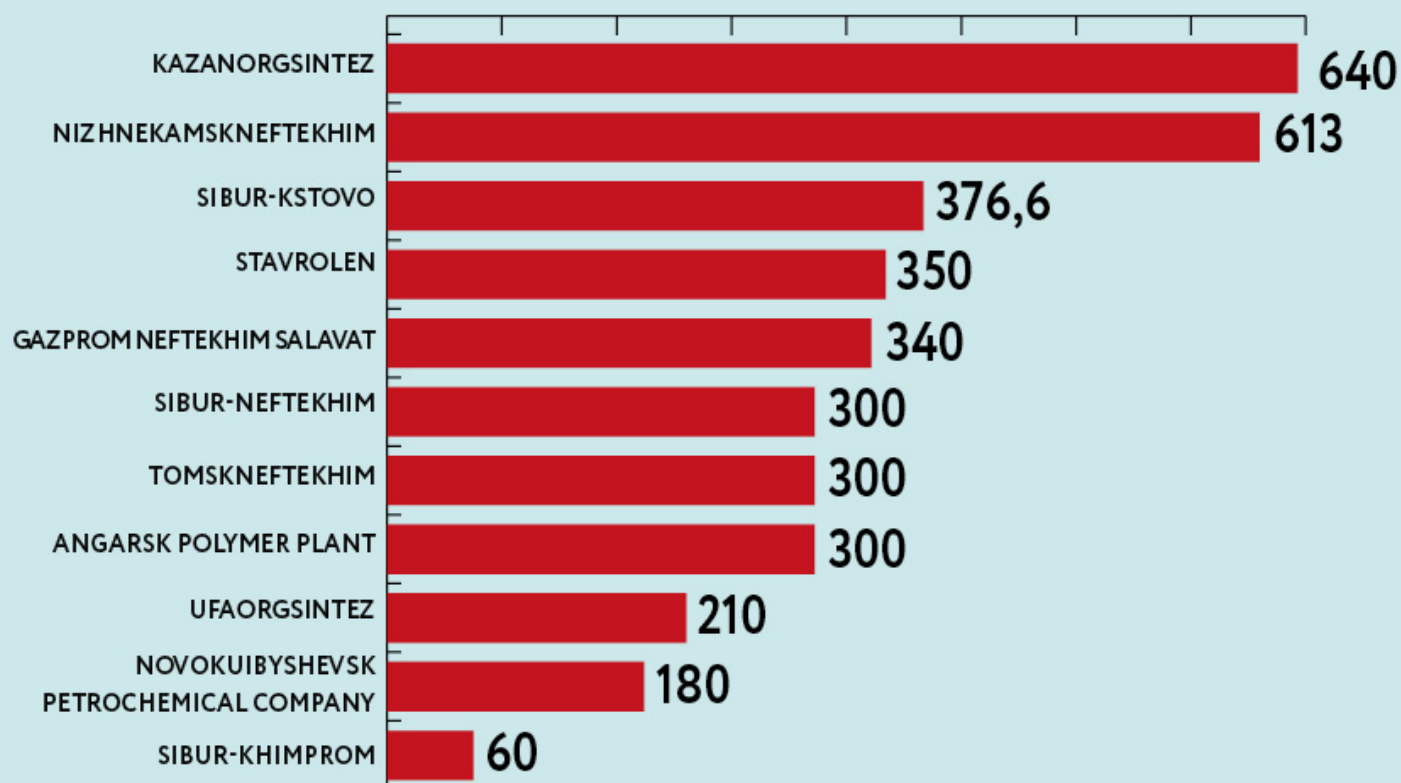
Russian ethylene: pricing specifics

According to experts, the Russian ethylene is becoming increasingly expensive – since 2015, its price gained 58%, rising from RUB 25,527.8 per tonne to RUB 40,333.8 per tonne.

At the same time, ethylene imports moved into high gear: in 2017, they increased by a whopping 254% from 57 t to 202 t, or USD 353,000 in value terms. Most of imported ethylene was purchased from Serbia (over 126,000 t) and the neighbouring Belarus (78,000 t).

As for domestic production, 74.4% of Russia's ethylene comes from the Volga Federal District. Top ethylene producers and their production capacity as at the end of 2017 (based on publicly available data, and the Bulatov Readings conference materials, 2018).

RUSSIA'S TOP ETHYLENE PRODUCERS IN 2017, '000 TONNES



US competition

In 2014–2015, the US had brought new capacities on stream and by the end of 2017 they released their first ethylene onto the global market.

The major US players are based in Texas and Louisiana and their combined ethylene sales exceed USD 46 bn. Among the leaders are Sasol Limited (USD 15 bn) and Exxon Mobil Corporation (USD 2.5 bn). The latter is developing a new petrochemical complex in San Patricio County, Texas, in partnership with Saudi Basic Industries Corp (SABIC). The project is scheduled for completion in July 2020 and boasts the projected capacity of 113,000 tonnes of ethylene per year.

Fluor Daniel is building in Westlake, Louisiana, a USD 4 bn ethane cracker, which is designed to produce 1.5 mt per year and will go online in 2019. Another large construction project is underway in Port Arthur, Texas, by Bayport Polymers and Nova Chemicals. Starting from 2020, the new capacities will be producing 1.1 mtpa of ethylene.



Fluor Daniel is building a new ethane cracker in Louisiana.

THE COMPETITIVE ADVANTAGE DELIVERED BY THE SHALE BOOM, RESULTING IN LOW NATURAL GAS PRICES RELATIVE TO CRUDE OIL PRICES, SAW THE US MARKET BUILD CAPACITY THAT IS NOW STARTING TO MATERIALISE.

“For US producers, market access is a key limitation, particularly for surplus ethylene monomer for the time being,” believes Vince Sinclair. “Construction of ethylene export terminal infrastructure is in progress but until it is ready, producers will need to turn to easier-to-export derivatives, such as polyethylene and MEG. As the demand for ethane feedstocks grows, prices will rise... China remains a critical outlet for export surpluses.”

Market potential

Though worth over USD 18 bn, the Middle East ethylene market shows very moderate growth, curbed by a complicated permit system.

The key regional players by sales are Kiran Petrochemical (USD 800 m), Dehloran Sepehr Petrochemicals (USD 550 m), Qatar Petrochemical (USD 2 m), and Oman Oil Company (USD 1.5 bn sales), which built an ethylene plant in Oman. Their current main competitors in the Middle East market are building ethylene steam crackers using new methanol processing technology. Among them are Shandong Chemicals (USD 900 m), Pucheng Clean Energy (USD 600 m) and Lianyungang Petrochemical (USD 1 m).

Market liberalisation has enabled private companies to invest alongside large producers, triggering an investment boom and letting the market players capitalise on the growing ethylene demand. “If the market continues to grow, North America will benefit most,” the experts believe.



Qatar Petrochemical Co. is currently one of the key players in the Middle East market. Photo: facebook.com/pg/Qapco

BUT AS PLAYERS RUSH TO INVEST IN PRODUCTION, THERE IS A CLEAR DOWNSIDE RISK OF OVERCAPACITY.

“The competitive advantage delivered by the shale boom, resulting in low natural gas prices relative to crude oil prices, saw the US market build capacity that is now starting to materialise,” believes Vince Sinclair, Vice President of Chemical Research, Wood Mackenzie Chemicals. “But as players rush to invest in production, there is a clear downside risk of overcapacity.”

Massive investment is partly driven by the oil industry. The anticipated electric vehicle boom made oil companies seek new paths to growth, with the surge in demand for plastics coming in very handy. If, as expected, the oil price remains high into the 2020s, this could also affect prices of petrochemical products and impact their competitiveness.