



WHERE THE OLEFINS AND POLYOLEFINS MARKETS ARE HEADED IN 2022

Wood Mackenzie experts highlight key trends.

Key trends in the olefins market in 2022

2021 saw a surge in oil, natural gas, and petrochemical feedstock prices, which simultaneously led to a significant rise in olefins' cost of production vs 2020. Despite this, many major olefins producers posted all-time high revenues from the petrochemical segment in 2021, largely due to the downstream integration into PE and PP and capacity additions in the Atlantic basin. In 2022, the following five key trends will shape the olefins market:

1. Energy and petrochemical feedstock prices will remain volatile

In 2021, the recovery from the pandemic was uneven, with oil, NGL, and olefin prices trending upward. Oil prices are expected to grow slightly in 2022, staying volatile from month to month as the global economy picks up coming out of the pandemic and global supply/demand balances out. Gas prices, which skyrocketed in 2021, will climb further over the next few months until they stabilise. Competition between commodities, particularly between naphtha and LPG, will continue throughout the year, and the flexibility to adapt to changing markets will be an effective tool for achieving operational efficiency.

COMPETITION BETWEEN COMMODITIES, PARTICULARLY BETWEEN NAPHTHA AND LPG, WILL CONTINUE THROUGHOUT THE YEAR

2. Annual olefins capacity additions will peak in 2022

Additions are expected to total 13.3 million tonnes of ethylene and 10.5 million tonnes of propylene capacity. China will account for the largest share of new olefins capacity in 2022, launching six crackers, eight PDH units, and one MTO* plant. In North America, the second wave of ethane crackers will come online. Asia (excluding China) will also actively expand its olefins production capacity. In some regions (e.g., Europe), crackers will begin to close in 2022. With the start of China's 14th five-year plan (running from 2021 to 2025), the government issued a series of regulations and standards, particularly focusing on controlling energy consumption and greenhouse gas emissions. This will lead to stricter requirements for new projects, especially for those using CTO technology, and a significant slowdown in capacity growth after 2025.



Expected global capacity utilisation is forecast at 86% for ethylene and 80% for propylene, slightly lower than in 2021.

3. Global demand for olefins will remain stable in 2022

Total global demand for ethylene and propylene is predicted to grow by 16 million tonnes in 2022, with the global olefins market exceeding 300 million tonnes. The key potential risks to olefins consumption growth still include the spread of Omicron, energy crises, rising inflation, and disruptions to the global supply chain. Expected global capacity utilisation is forecast at 86% for ethylene and 80% for propylene, slightly lower than in 2021.

4. The decarbonisation of olefins production and increased use of recycled content

A number of companies operating large crackers have already announced that they use materials derived from the chemical recycling of plastic waste. Although such claims are still rather few and far between, recycling capacity in Europe and the USA is expected to grow substantially in 2022. Olefins producers will increasingly focus on carbon management and emission reduction or mitigation options, such as energy efficiency, resource efficiency, and CCS technologies.**



While there are still risks associated with the rapid rise in coronavirus cases due to Omicron, most factors indicate a recovery in the global supply chain in 2022.

5. Strain on the global supply chain will ease, unlocking higher olefins market efficiency

In 2021, multiple supply chain disruptions hindered olefins trade patterns, and high container shipping rates and port congestion further complicated logistics operations. While there are still risks associated with the rapid rise in coronavirus cases due to Omicron, most factors indicate a recovery in the global supply chain in 2022.

* MTO – methanol-to-olefins.

** Carbon capture and sequestration/storage.

OVER 80% OF NEW CAPACITY WILL COME ONLINE IN ASIA, WITH CHINA ACCOUNTING FOR 60%. WITH LARGE CAPACITY ADDITIONS IN 2021, CHINA WAS ABLE TO RAISE ITS EXPORTS FOURFOLD YEAR-ON-YEAR

Trends in the global polyolefins market in 2022

In 2022, there are five factors to be considered, as they will have a significant impact on the global polyolefins market:

1. Further demand growth in 2022

In 2022, global demand for PE is expected to grow by 6.0 million tonnes, or 5.3%, and for PP by 5.1 million tonnes, or 6.2%.

With Omicron, lockdowns are likely to be reintroduced even in developed countries, although their impact will hardly be as severe as in previous waves. While lockdown restrictions and an increasing number of cases may reduce the overall demand for polymers, especially in countries with low vaccination rates, they will support strong demand in segments such as packaging, healthcare products, and e-commerce. Wood Mackenzie forecasts that in 2022, demand for PE will show strong growth in China and Asia while slowing

down in North America and Europe. Analysts expect significant growth in demand for PP in most regions except North and Latin America. China will continue to drive global PE and PP demand growth in 2022, with demand for PE and PP expected to increase by 2.8 million tonnes (+7.0%) and 2.2 million tonnes (+6.1%), respectively.



Global average PP capacity utilisation is expected to drop from 86.6% in 2021 to 83.3% in 2022.

2. Substantial capacity additions in 2022

In 2022, as global demand will continue to strengthen, PE capacity will expand more actively while the global average capacity utilisation will drop to 84.7% from 86.3% in 2021. PE capacity additions are expected to hit 9.1 million tonnes (+6.8%) in 2022, with HDPE accounting for about a half of that total. HDPE and LLDPE capacity expansion will outpace demand growth, which will also reduce capacity utilisation. LDPE will have the smallest capacity expansion among all PE types, adding 1.6 million tonnes of capacity in 2022 and even less in 2023. The LDPE price premium over HDPE and LLDPE is likely to remain in 2022 due to supply shortages and less new capacity added.

PP capacity will expand by 7.5 million tonnes (+7.7%) in 2022, once again outpacing demand growth. Over 80% of new capacity will come online in Asia, with China accounting for 60%. With large capacity additions in 2021, China was able to raise its exports fourfold year-on-year. Global average PP capacity utilisation is expected to drop from 86.6% in 2021 to 83.3% in 2022.

IN 2021, GLOBAL TRADE WAS HIT BY A SURGE IN FREIGHT RATES, AND AS COUNTERMEASURES ARE SLOWLY BEING ROLLED OUT, TRADE IS UNLIKELY TO GET BACK ON TRACK BEFORE THE SECOND HALF OF 2022

3. Gradual resolution of supply chain issues

Disruptions to production will decrease, with inventory restocking taking place throughout the value chain. New capacity additions will also boost polymer supply, facilitating the recovery of the global supply chain in the first half of 2022 following significant disruptions in 2021.

Increased supply and lower raw material costs will drive down polymer prices, which, according to Wood Mackenzie, have already passed their peaks. However, the risk of high energy prices remains in Q1 2022, which may put the brakes on the fall in polymer prices. In 2021, global trade was hit by a surge in freight rates, and as countermeasures are slowly being rolled out, trade is unlikely to get back on track before the second half of 2022. In addition, there are also risks associated with port closures due to new waves of coronavirus, as was the case in Asia in 2021, and the storms that disrupted shipping last winter in the USA.



In addition to overcapacity, rising oil prices will further reduce the margins of naphtha-based production, especially in Asia and Europe.

4. Lower margins on the back of overcapacity and higher raw material prices

Over the past two years, polyolefins producers have enjoyed high margins amid 2020's falling oil prices and 2021's supply chain disruptions. In 2022, world-scale capacity additions will outpace global demand growth, which will translate to lower production capacity utilisation and shrinking margins while also making obsolete, expensive, and less efficient assets less competitive, mounting pressure on them to be closed.

IN ADDITION TO OVERCAPACITY, RISING OIL PRICES WILL FURTHER REDUCE THE MARGINS OF NAPHTHA-BASED PRODUCTION, ESPECIALLY IN ASIA AND EUROPE

In addition to overcapacity, rising oil prices will further reduce the margins of naphtha-based production, especially in Asia and Europe. Plants using gas will face a more moderate rise in raw material costs, staying more competitive in the global market.

5. Sustainability in the spotlight

Single-use applications currently account for 55%, 88%, 76%, and 29% of the total global consumption of HDPE, LLDPE, LDPE, and PP, respectively. In this context, 33%, 39%, 43%, and 19% of demand for HDPE, LLDPE, LDPE, and PP, respectively, may be affected by bans on single-use plastics, which have already been introduced or are in the works in many countries. China has started to phase

out single-use plastic, with 2022 being a key milestone when non-biodegradable plastic packaging will be banned for use in courier delivery in major cities (70% of the national courier delivery market).