# CIREC MONTHLY NEWS

*Chemical Industry Reporting for Russia, regional partners, and Central Europe*

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**Russia-Ukraine-Belarus-Kazakhstan-Uzbekistan-Azerbaijan Czech Republic-Hungary Poland-Romania-Serbia-Slovakia**

**Issue No: 383, 24 October 2022**

**Key points from this issue:**

**Central European petrochemical markets**

- PKN Orlen increased ethylene production in the first eight months to 317,700 tons against 175,400 tons in the same period in 2021, whilst propylene rose from 185,500 tons to 294,800 tons
- Czech exports of ethylbenzene declined in the first eight months in 2022 to 68,536 tons from 83,929 tons in the same period in 2021
- Orlen close to incorporating PGNiG into the group, creating a huge oil-gas, refining and petrochemical major player
- Slovnaft restarted petrochemical production in October after a two-months shutdown
- Propylene imports into the Czech Republic dropped from 29,463 tons in January to August 2021 to 26,686 tons in the same period this year

**Central European polymer and organic chemical markets**

- Poland imported 415,339 tons of polypropylene homo grade in the first eight months in 2022 for a total value of €733.989 million
- Imports of synthetic rubber from Russia into Central Europe drop sharply in August due to sanctions
- Orlen Unipetrol starts new unit for dicyclopentadiene production at Litvinov
- Grupa Azoty restarts production of fertilisers and caprolactam in October after gas price fall .

**Russian chemical production**

- Nearly half of the chemical products sanctioned by the EU's fifth package back in April are not produced in Russia. From the list of 79 products, only 38 are produced at Russian plants
- Russian ethylene production decreased in the first eight months from 2.988 million tons in 2021 to 2.928 million tons
- Russian propylene production dropped from 2.048 million tons to 1.886 million tons
- Russian production of synthetic rubber dropped to 902,000 tons in the first eight months in 2022 from 999,000 tons in the same period in 2021
- Russian acetone production amounted to 100,900 tons in the first eight months in 2022 against 100,900 tons in the same period in 2021

**Eurasian chemical trade**

- The introduction of sanctions by the EU against Russian methanol exports to the region states that all transactions need to be completed by 8 January 2023
- Shchekinoazot is the methanol producer most vulnerable to restrictions on exports to the EU
- Exports of HDPE from Russia to China fell in value terms from $238.3 million in the first eight months in 2021 to $155.9 million in the same period in 2022, with Russia's share dropping from 4.8% of total Chinese imports to 3.3%
- SOCAR Methanol produced 357,500 tons of methanol in the first eight months in 2022, which is 81.3% times higher than in the same period last year

# CENTRAL and SOUTH EAST EUROPE

**PKN Orlen-petrochemical production Jan-Aug 2022**

PKN Orlen increased ethylene production in the first eight months to 317,700 tons against 175,400 tons in the same period in 2021, whilst propylene rose from 185,500 tons to 294,800 tons. The increase in olefin production enabled an increased in polymer production at Plock, including a rise of 118,500 tons in January to August 2021 to 215,100 tons and for polypropylene from 175,000 tons to 233,900 tons. PVC production at Wloclawek increased from 120,700 tons to 233,000 tons.

| PKN Orlen Production (unit-kilo tons) | | |
|---|---|---|
| ***Product*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Ethylene | 317.7 | 175.4 |
| Propylene | 294.8 | 185.5 |
| Butadiene | 42.8 | 21.6 |
| Toluene | 5.2 | 7.8 |
| Phenol | 29.7 | 33.0 |
| Polyethylene | 215.1 | 118.5 |
| PVC | 203.0 | 120.7 |
| Polypropylene | 233.9 | 175.0 |

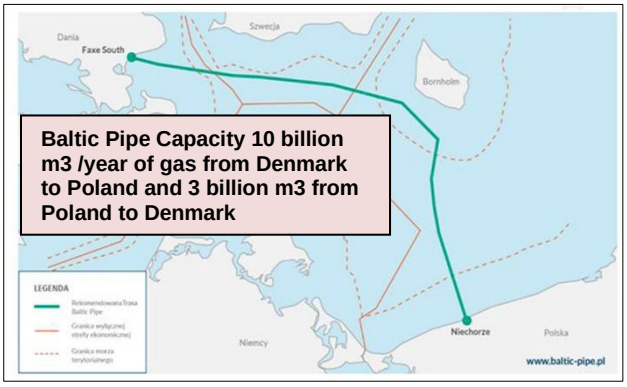
**PKN Orlen-PGNiG agreement**

PKN Orlen signed an agreement on 27 September with the State Treasury regarding the planned merger with PGNiG. The agreement will enter into force in principle on the date of the merger which paves the way for unlocking synergies in the potential of the two companies. After the completion of the merger with the Lotos Group and the pending merger of the company with PGNiG, Orlen announces further development of the petrochemical complex in Gdansk. Work on the feasibility study is expected to start soon.

Its merger with Grupa Lotos, and eventually with PGNiG, will strengthen PKN Orlen's position as the leader in energy transition through investments in low- and zero-carbon energy sources. PKN Orlen and PGNIG signed the merger plan on 29 July where the transfer of all assets and liabilities of PGNiG will be exchanged for shares issued to the shareholders of PGNiG. The company will be made a public offer of the Merger Shares addressed to the shareholders of PGNiG on the base of the prospectus approved by the Polish Financial Supervision Authority.

**Opening of Baltic Pipe & impact on gas supplies**

The new gas pipeline Baltic Pipe was officially launched on 27 September connecting Norway and Poland, providing a substitute for supply from Gazprom. In 2023, PGNiG aims to be able to import at least 6.5 billion cubic metres from Norway to Poland via the Baltic Pipe from the 10 million tpa capacity which could rise to 8 billion in 2024.




Supplies from Norway are designed to replace gas supplies from Russia, which amounted to an average of 8.3 billion cubic metres per annum. In addition, PGNiG has also booked the capacity of the Lithuanian LNG terminal at Klaipeda, which has the ability to buy gas on the German stock exchange.

The Świnoujście gas terminal in Poland has been in operation since 2015 which allows Poland to purchase LNG mainly from the US, Qatar and Norway. At the same time, Gaz-System is working on another project the construction of an LNG floating terminal near Gdansk. Originally, the investment was to be ready by the end of 2027, but it has been accelerated by two years due to the crisis in Ukraine.

Plans to diversify gas supplies in Poland and Central Europe were underway prior to the Russian aggression this year but are now moving much quicker due to these events. From May 2022 the GIPL gas pipeline was launched via a new gas pipeline connecting Poland with Lithuania. The GiPL will reach its full capacity in October 2022 which will amount to 2 billion cubic metres towards Poland and 2.5 billion cubic metres towards Lithuania. Another pipeline connection to Slovakia was completed at the end of August with the launch planned in October. This will allow transmission of 4.7 billion cubic

metres of gas per annum to Slovakia. Due to this connection, Poland will gain access to gas sources in Southern Europe, North Africa and the Caucasus, while Slovakia will have the opportunity to obtain gas from the Baltic Pipe and from the LNG terminals in Świnoujście and Klaipeda. Poland consumes about 20 billion cubic metres annually of which Grupa Azoty is the largest consumer, taking more than 10%. Domestic gas production amounts to approximately 4 billion cubic metres annually.

## Central European Olefins

| MOL's Propylene Exports Jan-Jul 2022 | | |
|---|---|---|
| ***Country*** | ***Kilo tons*** | ***€ million*** |
| Germany | 3.184 | 2.863 |
| Poland | 3.918 | 5.098 |
| Slovakia | 36.351 | 50.009 |
| Total | 43.453 | 57.969 |

**Central European propylene trade**

In the first seven months this year MOL's propylene export price rose to €1334 per ton against €931 per ton in the same period in 2021. By volume exports fell in the first seven months to 43,453 tons versus 64,495 tons in January to July 2021, whilst due to the higher sales price meant revenues only dropped slightly to €57.969 million from €60.028 million. Spot prices of propylene rose 29% in the first quarter and then rose again in the second quarter before starting to soften in the third quarter.

| Polish Imports of Propylene (unit-kilo tons) | | |
|---|---|---|
| ***Country*** | ***Jan-Aug 22*** | ***Jan-Aug*** |
| Lithuania | 0.000 | 6.415 |
| Bulgaria | 3.983 | 0.000 |
| Croatia | 2.851 | 0.000 |
| Germany | 42.506 | 71.385 |
| Russia | 23.132 | 36.285 |
| Ukraine | 19.020 | 48.043 |
| Hungary | 3.918 | 0.000 |
| Others | 5.396 | 0.012 |
| Total | 100.806 | 162.141 |

| Czech Imports of Propylene (unit-kilo tons) | | |
|---|---|---|
| ***Country*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Germany | 14.614 | 11.916 |
| Poland | 3.926 | 8.001 |
| Romania | 5.253 | 0 |
| Russia | 1.220 | 0 |
| Slovakia | 0.993 | 3.732 |
| Ukraine | 0.524 | 3.388 |
| Others | 0.157 | 2.321 |
| Total | 26.686 | 29.363 |

Imports of propylene into Poland dropped in the first eight months to 100,806 tons against 162,141tons in the same period last year, which was due mostly to the higher production undertaken at Plock. A similar trend followed for butadiene, dropping from 90,076 tons to 70,509 tons. Although propylene monomer has not been sanctioned by the EU, Russia has exported only small volumes to Poland in the past few months.

The supply of and demand for propylene was fairly stable in the first half of the year. Despite unscheduled shutdowns at some producers, the availability of propylene was good also due to higher imports to Europe as high prices of propylene in Europe supported its imports. The pandemic also sparked off certain logistics problems on the propylene market. Demand for polymer and chemical propylene remained relatively high. The launch of the invasion of Ukraine led to a significant increase in the prices of crude oil and naphtha, which translated into higher prices of propylene. That factor, as well as the sanctions, significantly reduced the possibility of purchasing the product from suppliers in the countries east of Poland. In the second half of the second quarter, demand for propylene fell gradually in all areas where it is processed. This resulted in a significant increase in the amount of propylene available on the European market and a decline in its prices on the spot market.

Czech imports of propylene were reduced from 29,363 tons in the first eight months in 2021 to 26,685 tons in the same period this year. Imports from Germany increased from 11,916 tons to 14,614 tons. Overall average costs rose from €934 per ton last year to €1563 per ton, with total costs rising from €27.435 million to €41.706 million.

| Orlen Unipetrol Polyolefin Exports | | |
|---|---|---|
| ***HDPE*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Vol (ktons) | 237.2 | 208.8 |
| Value (€ mil) | 386.0 | 285.8 |
| | | |
| ***PP*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Vol (ktons) | 167.7 | 183.4 |
| Value (€ mil) | 292.6 | 248.7 |

## Central European polyolefins

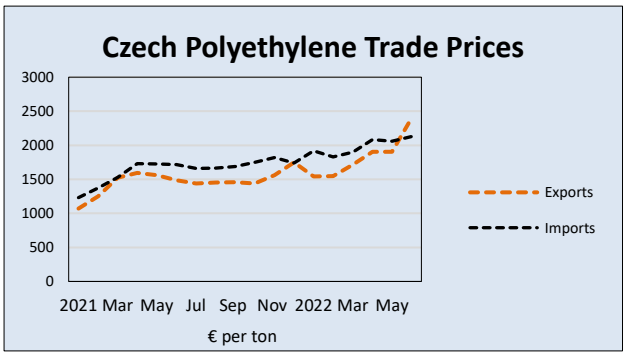
**Orlen Unipetrol Jan-Aug 2022**

Orlen Unipetrol increased HDPE exports from 208,800 tons in the first eight months in 2021 to 237,200 tons in the same period

in 2022, with revenues rising from $285.8 million to $386.0 million. Polypropylene exports from Orlen Unipetrol dropped from 183,438 tons in the first eight months in 2021 to 167,740 tons in January to August this year whilst values rose from $248.7 million to $292.618 million.

**Slovnaft restart of polymer production**

Slovnaft restarted petrochemical production in the first half of October after a two month shutdown during which maintenance and modernisation was undertaken costing more than €60 million. Breaking the total costs down, €36 million was spent on maintenance and €24 million on modernisation. The investment measures are part of a larger modernisation programme with which Slovnaft wants to gradually bring its aging production facilities up to the current state of the art.




Slovnaft selected Linde Engineering in July 2022 to conduct a complex large-scale revamp of the polypropylene (PP3) plant at Bratislava. The revamp will extend the plant's capacity by 18% or by 33,000 tpa to 300,000 tpa of polypropylene, and the storage facility will be expanded from the current 45 silos to 61 silos. Slovnaft is investing around €63 million in the expansion and modernisation of polypropylene production.

| Polish PP Exports (unit-kilo tons) | | |
|---|---|---|
| ***Type*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| PP homo | 137.577 | 122.007 |
| Polyisobutylene | 0.154 | 0.429 |
| Propylene copolymers | 58.455 | 43.807 |
| Other | 2.053 | 1.801 |
| Total | 198.238 | 168.043 |
| **Polish PP Imports (unit-kilo tons)** | | |
| ***Type*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| PP homo | 415.339 | 488.266 |
| Polyisobutylene | 2.789 | 2.958 |
| Propylene copolymers | 202.028 | 223.461 |
| Other | 13.701 | 16.830 |
| Total | 633.857 | 731.515 |

**Polish polyolefin trade Jan-Aug 2022**

Poland imported 415,339 tons of polypropylene homo grade in the first eight months in 2022 for a total value of €733.989 million. Russia provided 52,872 tons for €77.883 million, which was exceeded by Germany with 70,945 tons for €134,668. Imports from Russia dropped in the second quarter stopped completely in August in line with sanctions. In 2021 Poland imported 155,805 tons of polypropylene homo grade from Russia for a total grade €198.656 million. Shipments from Russia accounted for 21% of total Polish imports.

Exports of polypropylene homo grade from Poland amounted to 137,577 tons in the first eight months in 2022 for €233.331 million. The largest destination for Polish exports was Germany, taking 37,359 tons for €61.544 million.

For propylene copolymers Poland imported 202,028 tons in the first eight months in 2022 for €403.599 million whilst exports amounted to 58.455 tons for €118.183 million. Germany was the largest source of imported propylene copolymers, shipping 59,044 tons to Poland in January to August this year for €115.482 million.

| Polish PE imports (unit-kilo tons) | | |
|---|---|---|
| ***Type*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| LDPE & LLDPE | 411.351 | 422.075 |
| HDPE | 303.690 | 318.138 |
| EVA | 11.910 | 14.692 |
| EAC | 129.750 | 137.091 |
| Others | 40.508 | 34.076 |
| ***Total*** | 897.209 | 926.072 |

In the polyethylene sector imports into Poland totalled 897,209 tons in the first eight months in 2022 against exports of 234,814 tons. Import costs amounted to €1.661 billion million in January to August 2022 against export revenues of €396.580 million.

LDPE and LLDPE comprised the largest category of imports, totalling 411,351 tons of which LLDPE amounted to 170,730 tons for €301.285 million. Imports of LLDPE were sourced mostly from West Europe, including France, the Netherlands and Germany. LDPE imports totalled 240,622 tons in the first eight months in 2022 for €451.586 million.

| Polish PE Exports (unit-kilo tons) | | |
|---|---|---|
| ***Type*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| LDPE | 41.117 | 11.534 |
| LLDPE | 14.065 | 44.643 |
| HDPE | 160.016 | 87.629 |
| EVA | 2.277 | 1.359 |
| EAC | 14.202 | 13.110 |
| Other | 3.138 | 3.302 |
| Total | 234.814 | 161.577 |

HDPE is the largest export category from Poland, shipping 160,016 tons in the first eight months in 2022 for €257.197 million. Imports still outstripped exports though, amounting to 301,680 tons in the first eight months for €408.555 million.

Germany has been the largest origin source of imports of HDPE into Poland this year and also the largest destination for exports, with inward shipments totalling 64,347 tons against outward shipments of 54,689 tons. Poland imported 14,071 tons of HDPE from Russia in the first eight months.

**Orlen Unipetrol-recycling**
Orlen Unipetrol has signed an agreement for the purchase of the Italian-Czech company Remaq, a leader in the field of recycling in Central Europe. This transaction will allow the Orlen Group to achieve nearly 10% of its recycling capacity, as part of the strategic goal adopted by 2030. Plastic waste will be used to produce new petrochemical products that can be used in the construction, automotive or packaging industries. In accordance with the Orlen Group's Strategy, the aim is to have a recycling capacity of up to 400,000 tpa of plastics and natural waste by 2030.

## Central European Rubber Markets

### Central European rubber trade & sanctions

EU sanctions on numerous grades of Russian synthetic rubber exports and imports took effect from 10 July which meant that August was the first full month where Central European consumers had to find alternative suppliers. Some import numbers from Russia into Central European countries were shown in the August statistics, but these are most likely post-dated and refer to volumes already delivered.

| Polish Imports of Halogenated Butyl Rubber 2022 | | |
|---|---|---|
| | ***Ktons*** | ***€ million*** |
| Total Jan-Aug 22 | 10.917 | 27.265 |
| Imports from Russia Jan-Jul 22 | 10.424 | 25.591 |
| August Imports from Russia | 0.198 | **0.509** |
| August imports total | 0.275 | 0.787 |

One of the main imported types of synthetic rubber from Russia is isoprene, which has to date escaped sanctions. Those products affected mostly include butadiene rubber and particularly halogenated butyl rubber (HBR) where Russia has dominated most of the market share in Central Europe over the past decade. Poland had previously depended almost exclusively on Nizhnekamskneftekhim for supplies of HBR, purchasing 10,424 tons in the first eight months from a total 10,917 tons.

| Czech Imports of Halogenated Butyl Rubber 2022 | | |
|---|---|---|
| | ***Ktons*** | ***€ million*** |
| Total Jan-Aug 22 | 4.753 | 12.050 |
| Imports from Russia Jan-Jul 22 | 3.571 | 8.610 |
| August Imports from Russia | 0.000 | 0.000 |
| August imports total | 0.0862 | 0.279 |

The Czech Republic has been slightly more diverse in suppliers of halogenated butyl rubber, but still imported 3,571 tons from Russia of the total 4,753 tons imported in January to August this year. In August specifically the Czech Republic imported only 86 tons of HBRs, none of which came from Russia, whilst 198 tons of the total 275 tons imported by Poland came from Russia.

Other sanctioned grades of synthetic rubber include polybutadiene or butadiene rubber. Butadiene rubber exports from Russia to the EU amounted to $165.4 million in 2021, with the largest recipient countries including Poland, Hungary, Romania and Slovakia. Already consumers are negotiating with alternative suppliers. In response to the lack of Russian butadiene rubber Synthos has decided to expand its butadiene rubber capacity by 50% which will help to address ongoing market shortages. The programme involves projects at the group's facilities at Schkopau and Kralupy.

Imports of butadiene rubber from Russia into Poland in the first eight months totalled 17,083 tons for €30.268 million, from a total of 39,018 tons for a total of €81.189 million. Imports from Russia for August amounted to 938 tons from a total of 3,868 tons, although the Russian sources could refer to post-dated shipments. Butadiene rubber sources are thus far more diverse than halogenated butyl rubber. The Czech Republic imported a total of 8,908 tons in August 2022 for a total of €17.211 million, of which 1,488 tons were shipped in August, but once again these volumes may be post-dated. The

Czech Republic is also a major exporter of butadiene rubber, shipping 74,426 tons in the first eight months for €157.155 million, up from 70,910 tons in January to August 2021 for €103.064 million.

Hungary imported a total of 26,576 tons of butadiene rubber in the first seven months in 2022 for a total value of €53.690 million, of which Russia supplied 10,901 tons for €20.398 million. Imports of halogenated rubber totalled 10,446 tons in the period January to July 2022 for a total value of €28.869 million, of which Russia supplied 9,137 tons for €25.087 million.

| MOL's Butadiene Exports (unit-kilo tons) | | |
|---|---|---|
| ***Country*** | ***Jan-Jul 22*** | ***Jan-Jul 21*** |
| Czech Republic | 4.088 | 5.472 |
| Germany | 5.035 | 15.281 |
| Poland | 20.215 | 27.656 |
| Russia | 0.0 | 1.752 |
| Total | 29.338 | 50.163 |

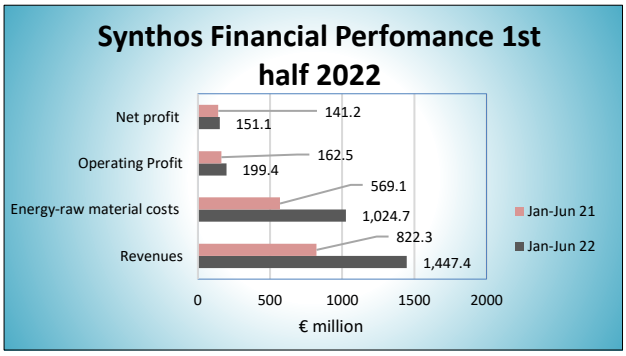
**Butadiene trade Central Europe**

In the Central European region Hungary is the only net exporter with most countries dependent on imports. MOL's butadiene exports dropped from 50,163 tons in the first seven months in 2021 to 29,338 tons in the same period this year. Exports were down mostly due to lower production at Tiszaujvaros and internal processing.

| Polish Butadiene Imports (unit-kilo tons) | | |
|---|---|---|
| ***Country*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Austria | 25.362 | 29.313 |
| Czech Republic | 1.746 | 4.057 |
| France | 3.248 | 0.000 |
| Germany | 17.569 | 23.874 |
| Hungary | 22.579 | 32.832 |
| Others | 0.005 | 0.000 |
| Total | 70.509 | 90.076 |

Both Poland the Czech Republic are net importers of butadiene, with Synthos acting as the main buyer in both countries. Czech imports of butadiene dropped from 52,814 tons in the first eight months in 2021 to 48,329 tons in the same period in 2022. Germany shipped 44,377 tons in January to August 2021, dropping to 41,613 tons in the same period in 2022.

Butadiene imports into Poland dropped from 90,076 tons in the first eight months in 2021 to 70,509 tons, the fall largely due to increased production at Plock. Demand for butadiene at Oswiecim was expected to fall in September and October due reduced production by Synthos to higher production costs. Synthos stated that it could no longer operate its ESBR production at full capacity due to unsustainable and unpredictable utility costs and was therefore reducing utilisation by around 30%.




In order to develop greater integration Synthos is working on its contract concluded with Air Liquide Engineering and Construction in 2021 in order to construct a new butadiene extraction unit at Plock with a capacity of 120,000 tpa. Furthermore, for 2026 Synthos is building project to build a 40,000 tpa bio-butadiene plant at Oswiecim. The project is aligned with Synthos goals to transition from the current 100% fossil-based to 100% bio-based synthetic rubber, in line with market requirements.

| Synthos Production Oswiecim (unit-kilo tons) | | |
|---|---|---|
| ***Product*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Polystyrene | 46.5 | 48.1 |
| EPS | 67.6 | 68.3 |
| Synthetic Rubber | 186.4 | 185.2 |

**Synthos Jan-Jun 2022**

In the first half of 2022 production costs for Synthos increased from €569.1 million to €1.025 billion. Revenues in the first half of 2022 increased to €1.447 billion against €822.3 million in the same period in 2021, whilst net profits rose slightly from €141.2 million to €151.1 million.

Synthos is expanding its butadiene rubber capacity by 50% to in order to help address ongoing market shortages after the blocking of Russian imports under EU sanctions. By the end of 2022, Synthos will add 20,000 tpa of new capacity for butadiene rubber production at Kralupy after debottlenecking. At the start of 2023, Synthos plans to restart a 30,000 tpa plant at Schkopau which was formerly operated under Trinseo. With the addition of plants purchased from Trinseo, Synthos' overall synthetic rubber

capacity increased to around 820,000 tpa rising to 870,000 tpa when two butadiene rubber expansions come on stream.

**NIS to purchase Petrohemija's rubber division**

Naftna Industrija Srbije at Novi Sad (NIS) has received the greenlight to acquire the synthetic rubber plant (HIPP) at Elemir which is owned by HIP-Petrohemija at Pancevo. At the end of September, the European Commission said it had approved, under the EU Merger Regulation, the acquisition by NIS which is majority owned by Gazprom Neft.

**Sanctions could delay Petrohemija's integration into NIS**

The United Branch Trade Unions Independence representing the workforce of Petrohemija has recommended that the takeover of Petrohemija to NIS should be postponed until the end of the Ukrainian war. Completion of the privatisation process and its acquisition by NIS could jeopardise production and jobs at the Pancevo plant, due to sanctions imposed by the European Union against Russia. NIS is owned by Gazprom Neft and it is pointed out there is already a problem with the placement of HIP's products.

The Union fears that the full takeover by NIS could disrupt the placement of Petrohemija's products in its most important EU markets. It could also make it difficult to repair existing equipment, purchase new parts and assist experts from abroad, which would certainly result in reduced business volumes and the layoff of workers. Union representatives are ready to explain their request in more detail to the Serbian PM.

Although Serbia is not a current member of the European Union it is a potential candidate which means it has to adhere to EU rules. The Commission concluded that the proposed acquisition would raise no competition concerns given the companies' moderate combined market positions resulting from the proposed transaction.

NIS announced plans to increase its ownership in HIP Petrohemija from 20.86% to 90% of shares in December last year. At the time, the company said the deal came with the obligation of a €150-million monetary recapitalisation and the construction of a polypropylene production plant with a capacity of at least 140,000 tpa. The strategy, it said, was to further develop HIP Petrohemija by modernising basic production capacities and building new plants as well as increasing energy efficiency and business efficiency.

| Serbian Chemical Exports (unit-kilo tons) | | |
|---|---|---|
| ***Product*** | ***Jan-Jun 22*** | ***Jan-Jun 21*** |
| Polyethylene | 63.7 | 49.5 |
| Polypropylene | 8.3 | 12.8 |
| Styrene Butadiene Rubber | 9.9 | 9.2 |

Operational since 1983, the company's Elemir site produces 45,000 tpa of 1.3-butadiene and 40,000 tpa of styrene-butadiene rubber (SBR). The company markets its emulsion SBR (E-SBR) products under the Hipren brand, which includes two types of series 1500 and one type of series 1700.

**HIP-Petrohemija Jan-Jun 2022**

In the first half of 2022 HIP-Petrohemija accounted for 23.8 billion dinars ($202.8 million) of NIS's turnover which totalled 156.2 billion dinars ($1.331 billion). In the first five months this year Petrohemija's polyethylene export revenues totalled $90.6 million against $64.3 million in the same period in 2021.

| Czech Petrochemical Exports (unit-kilo tons) | | |
|---|---|---|
| ***Product*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Ethylene | 9.515 | 17.635 |
| Propylene | 0.027 | 4.012 |
| Butadiene | 1.100 | 1.434 |
| Benzene | 29.186 | 30.022 |
| Toluene | 5.009 | 5.660 |
| Ethylbenzene | 68.536 | 83.929 |

## Central European Petrochemical & Organic Chemicals

**Czech petrochemical trade, Jan-Aug 2022**

Czech exports of ethylbenzene declined in the first eight months in 2022 to 68,536 tons from 83,929 tons in the same period in 2021. All the ethylbenzene was shipped from Kralupy to Oswiecim in Poland, all within the structures of the Synthos Group.

| Czech Petrochemical Imports (unit-kilo tons) | | |
|---|---|---|
| ***Product*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Ethylene | 16.011 | 3.180 |
| Propylene | 26.686 | 29.463 |
| Butadiene | 48.328 | 52.844 |
| Benzene | 52.999 | 54.387 |
| Toluene | 4.841 | 4.719 |
| Styrene | 13.374 | 51.006 |

Ethylene exports from the Czech Republic amounted to 9,515 tons in the first eight months against 17,635 tons in the same period 2021 whilst ethylene imports rose from 3,180 tons to 16,011 tons. Germany supplied 15,898 tons to the Czech Republic in January to August 2022, supplied from the Boehlen plant to Litvinov.

Propylene imports into the Czech Republic dropped from 29,463 tons in January to August 2021 to 26,686 tons in the same period this year. Costs of propylene imports rose to €41.706 million against €27.435, with average prices rising from €934 per ton last year to €1562 this year.

Germany has been the leading supplier of propylene to the Czech market in 2022, supplying 14,614 tons in the first eight months for €22.534 million. Other suppliers included Romania which shipped 5,251 tons from the Petromidia refinery for €7.528 million, followed by Poland shipping 3,925 tons for €5.452 million.

| Spolana Caprolactam Exports Jan-Aug 2022 | | |
|---|---|---|
| ***Country*** | ***Volume*** | ***€ million*** |
| Belgium | 4.735 | 12.196 |
| Germany | 5.630 | 14.655 |
| Italy | 9.961 | 25.679 |
| Slovenia | 3.043 | 6.873 |
| Switzerland | 1.754 | 4.592 |
| Others | 0.069 | 0.183 |
| Total | 25.334 | 64.616 |

Czech imports of butadiene dropped from 52,844 tons in the first eight months in 2021 to 48,328 tons in the same period in 2022. Germany shipped 41,377 tons in January to August 2021, dropping to 41,611 tons in the same period in 2022.

**Spolana caprolactam exports Jan-Aug 2022**

Spolana exported 25,334 tons of caprolactam in the first eight months this year against 29,954 tons in the same period in 2021. Revenues from caprolactam exports increased from €52.716 million to €64.616 million, after average prices rose from €1760 per ton to €2551 per ton. Italy was the largest destination for Spolana's exports this year, with volumes to Germany reduced from 11,167 tons in January to August 2021 to 5,630 tons.

| Hungarian imports of styrene Jan-Jul 2022 | | |
|---|---|---|
| ***Country*** | ***Ktons*** | ***Value (€ million)*** |
| Germany | 2.260 | 4.004 |
| Italy | 52.398 | 92.088 |
| Netherlands | 2.062 | 3.556 |
| Others | 0.036 | 0.060 |
| Total | 56.755 | 99.708 |

| Hungarian imports of acrylonitrile Jan-Jul 2022 | | |
|---|---|---|
| ***Country*** | ***Ktons*** | ***Value (€ million)*** |
| Germany | 1.661 | 4.165 |
| France | 3.869 | 9.585 |
| Netherlands | 15.883 | 38.481 |
| Russia | 1.985 | 3.668 |
| Total | 23.399 | 55.899 |

**Hungarian organic chemical trade 2022**

Hungary exports a range of organic chemicals including propylene, isocyanates, maleic anhydride, etc, whilst imports include styrene, methanol, acrylonitrile, etc. In the first seven months in 2022 imports of styrene totalled 56,755 tons against 75,555 tons in the same period in 2021. Italy supplied 52,398 tons this year which is directed by Versalis to its polystyrene plant in Hungary, down from 71,937 tons in January to July 2021.

Acrylonitrile imports into Hungary increased in the first seven months to 23,399 tons against 19,083 tons in the same period last year, whilst costs increased from €31.738 million to €55.899 million. The largest supplier of acrylonitrile to Hungary this year has been the Netherlands, accounting for 15,883 tons for €38.481 million.

**Hungarian maleic anhydride exports**

Maleic export prices from Hungary averaged €2.281 per ton in the first seven months in 2022 against €1.565 for the same period last year. Revenues from sales of 12,636 tons in January to July 2022 totalled €28.829 million versus 12,381 tons in the same period last year for €19.375 million. Poland was the largest consumer of Hungarian maleic anhydride which is produced at Szazhalombatta.

| MOL's Maleic Anhydride Exports (unit-kilo tons) | | |
|---|---|---|
| ***Country*** | ***Jan-Jul 22*** | ***Jan-Jul 21*** |
| Austria | 1.818 | 1.791 |
| Czech Republic | 0.252 | 0.280 |
| France | 0.712 | 0.573 |
| Germany | 0.937 | 1.217 |
| Italy | 1.973 | 1.813 |
| Poland | 3.722 | 3.657 |
| Slovenia | 1.359 | 1.176 |
| Others | 1.862 | 1.874 |
| Total | 12.636 | 12.381 |

**Grupa Azoty 2-EH & plasticizer prices**

Grupa Azoty reported that the prices of 2-ethylhexanol (2-EH) rose by 18% in the first eight months this year chiefly on the back of much higher prices of production inputs such as propylene and energy. The prices of 2-EH rose by 8% in the

second quarter compared with the first quarter of 2022 but still not enough to cover costs. DOTP plasticizer prices rose 9% in the first eight months this year in spite of lower demand.

| Polish imports of chemicals & polymers from Russia (unit-tons) | | | |
|---|---|---|---|
| ***Product*** | ***Jan-Dec 21*** | ***Jan-Jul 22*** | ***Aug 22*** |
| Methanol | 467.624 | 551.932 | 64.468 |
| PP-homo | 155.805 | 52.623 | 0.049 |
| Propylene | 48.512 | 22.433 | 0.000 |
| Paraxylene | 40.085 | 6.905 | 0.000 |
| Isoprene rubber | 37.821 | 21.446 | 1.455 |
| HDPE | 32.442 | 13.670 | 0.348 |
| Butadiene rubber | 18.254 | 16.022 | 0.939 |
| Halogenated butyl rubber | 14.474 | 10.226 | 0.198 |
| LDPE | 13.746 | 6.013 | 0.000 |
| Phthalic anhydride | 12.280 | 4.576 | 0.160 |
| Phenol | 9.746 | 14.105 | 0.000 |

Continuing high costs of freight and overall logistics problems gave rise to both import and export constraints. The European market continued to experience logistics problems caused by the pandemic.

**Orlen Unipetrol launches new DCPD plant**

Orlen Unipetrol has launched its new installation for the production of dicyclopentadiene (DCPD), with a capacity of up to 26,000 tpa. This will make Orlen Unipetrol one of the four largest DCPD producers in Europe. DCPD has a wide application in automotive, construction, electrical engineering, medicine and pharmacy.

**Polish organic chemical imports Jan-Aug 2022**

In the first eight months in 2022 Polish trade in organic chemicals comprised €1.593 billion for exports and €3.530 billion in imports.

The largest increase in imports of organic chemicals this year has been for methanol where volumes rose to 620,237 tons in the first eight months in 2022 from 458,095 tons in the same period in 2021. This significant rise was attributed directly to the war in Ukraine which has meant that Poland has been used as a transit route for Russian origin methanol for delivery to South East Europe.

In particular Orlen Unipetrol will produce DCPDs with a distillation purity of 80 to 94% which can be used for the further production of polymeric materials, resins or other chemicals used in the production of wind turbine propellers, automotive and marine components.

DCPD is to be produced in technology developed by Orlen Unipetrol in cooperation with scientists from the University of Chemistry and Technology in Prague. The cost of building a new production unit at the Plant at Litvinov amounted to Kc 831 million (€33 million). DPCD demand is expected to increase further by 26% in Europe, by 40% in the US markets, and in Asian markets by up to 60%.

| Polish Imports of Aromatics (unit-kilo tons) | | |
|---|---|---|
| ***Product*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Ethylbenzene | 74.323 | 89.818 |
| Paraxylene | 34.150 | 58.012 |
| Phenol | 75.738 | 25.700 |
| Phthalic Anhydride | 22.688 | 25.742 |
| PTA | 1.298 | 37.975 |
| Styrene | 69.364 | 73.592 |
| TDI | 50.251 | 54.384 |
| Toluene | 16.119 | 14.516 |

**Polish aromatic chemical trade Jan-Aug 2022**

In the aromatics sector phenol imports into Poland recorded a large increase in the first eight months to 75,738 tons, of which 14,106 tons came from Russia. Supplies from Russia have however now been sanctioned by the EU and in August no deliveries were made to Poland.

In other product areas, styrene imports amounted to 69,364 tons in the period January to August 2022 versus 73,592 tons in 2021 whilst ethylbenzene imports dropped from 64,851 tons to 52,602 tons. Paraxylene imports into Poland amounted to 34,150 tons in January to August 2022 against 58,012 tons in 2021. Imports were divided between France and Russia for supply.

| Polish PTA Exports (unit-kilo tons) | | |
|---|---|---|
| ***Country*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Belarus | 5.762 | 11.901 |
| Germany | 233.875 | 273.316 |
| Lithuania | 28.658 | 22.909 |
| Switzerland | 6.250 | 3.291 |
| Turkey | 5.060 | 0.000 |
| Others | 15.429 | 5.775 |
| Total | 295.034 | 317.191 |

**Polish PTA sales Jan-Aug 2022**

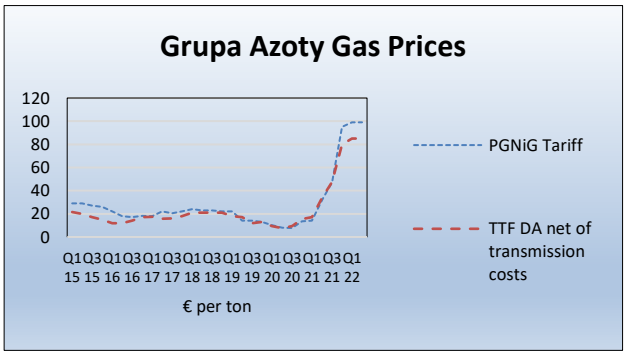
PTA exports from Poland amounted to 295,034 tons in the first eight months in 2022 against 317,1917 tons in the same period in 2021. PTA imports into Poland dropped in the first eight months to 1,298 tons versus 37,975 tons in the same period last year.

Average prices for Polish PTA exports amounted to €990 per ton in the first wight months against €763 in the same period in 2021. Germany remained the main customer for Polish PTA, taking 233,875 tons in January to August 2022 against 273,316 tons in the same period in 2021. Lithuania was the second largest destination for PTA export shipments, taking 28,658 tons versus 22,909 tons.

**Grupa Azoty restores production after fall in gas prices**

Grupa Azoty restarted fertiliser production and other facilities on 12 October due to the fall in gas prices to more manageable levels. This involved caprolactam and polyamide 6. After the restoration of production at Tarnow and Puławy, Grupa Azoty reduced the prices of nitrogen fertilisers to significantly below zl 4,000 per ton. The communication states that this is in line with market expectations and at the same time allows for the continuation of profitable agricultural production.

In August, Grupa Azoty announced the temporary shutdown of installations for the production of nitrogen fertilisers, caprolactam and polyamide 6. The plant at Puławy limited the production of ammonia to about 10%. production capacity and stopped part of the production in the plastics and agro segments.




**Grupa Azoty Jan-Jun 2022**

Raw material costs, particularly gas, may have started to peak for Grupa Azoty after a difficult first half of 2022. Grupa Azoty's second-quarter 2022 results were strongly impacted by the turmoil caused by Russia's invasion of Ukraine, which adversely affected the availability and prices of feedstocks. This pushed up the prices of final products across all business segments. The average market price of natural gas in the second quarter of 2022 increased by around 290%.

Prices in the chemical sector increased in the second quarter driven largely by the increase in the costs of energy and raw materials which impacted on demand. In the middle of the third quarter Grupa Azoty stopped the production of nitrogen fertilisers, caprolactam and polyamide 6, partly because of higher costs which Azoty finds it difficult to pass onto end-users.

**Grupa Azoty capital expenditures**

In the first half of 2022 the Grupa Azoty Capital Group's largest investment concentrate on the construction of Polimery Police with costs of zl 918.79 million (€190.850 million). In addition to Polimery Police, other investments are taking place at Puławy where besides construction of a coal power unit around €100 million was spent on the modernisation of nitric acid and fertiliser installations. Grupa Azoty Kedzierzyn is focused on a combination of energy and products, particularly 2-EH.

Grupa Azoty's plastics division recorded price increases of key feedstocks in the second quarter, particularly benzene and phenol which rose 18% and 24% respectively. Polyamide sales volumes were slightly down in the second quarter as demand from the automotive industry weakened.

Demand for oxo alcohols declined in the third quarter after an increase in sales was recorded in the second quarter. The EBITDA margin for the oxo alcohol department located at Kedzierzyn-Kozle achieved 22% in the three months April to June.

**Consumption of raw materials for Grupa Azoty (unit-tons)**

| *Product* | *2021* | *2020* |
|---|---|---|
| Liquid ammonia | 297,747 | 363,845 |
| Benzene | 62,525 | 53,554 |
| Phenol | 87,656 | 84,179 |
| Propylene | 129,500 | 122,868 |
| Liquid sulphur | 365,451 | 363,209 |
| Sulphuric acid | 419,158 | 424,727 |
| Methanol | 8,813 | 9,969 |

The plastics segment also experienced an increase in the prices of the main production raw materials which drove down the EBITDA in the second quarter to 8.6%.

Overall, for the second quarter Azoty's results were bolstered by product prices prevailing in the European markets but were adversely affected by record prices of feedstocks used in production processes and lower sales volumes of most fertilisers, chemical and plastic product categories. In the

first half of 2022, the Grupa Azoty Group reported consolidated revenue of zl 13,237 million, EBITDA of zl 2,575 million, EBITDA margin of 19.5% and net profit of zl 1,682 million.

In the second quarter the fast-growing prices of feedstocks used in the production of chemicals strongly pushed up product prices, leading to weaker demand. The melamine market was affected by the impending expiry of anti-dumping duties on imports of melamine from China to the European Union. Higher sales volumes were reported mainly for technical-grade urea and oxo alcohols.

## Central European Methanol

| Polish Methanol Imports (unit-kilo tons) | | |
|---|---|---|
| ***Country*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Azerbaijan | 1.138 | 0.000 |
| Belarus | 0.044 | 1.295 |
| Finland | 33.699 | 42.024 |
| Lithuania | 0.856 | 3.756 |
| Germany | 76.140 | 52.209 |
| Netherlands | 0.650 | 25.692 |
| Norway | 16.787 | 6.299 |
| Russia | 479.760 | 305.286 |
| Others | 2.857 | 9.801 |
| Total | 620.239 | 458.095 |

**Central European methanol trade Jan-Aug 2022**

Exports of methanol from Poland totalled 290,915 tons in the first eight months in 2022 for €126.138 million, based on an average price of €434 per ton. This compares against 192,469 tons in the same period in 2021 for $71.672 million at an average price of €372 per ton.

Imports of methanol into Poland totalled 620,237 tons in the first eight months in 2022 versus 458,095 tons in the same period in 2021. Costs totalled €178.813 million in January to August. The average price for Polish imports comprised €374 per ton in the first eight months this year, and for Russia in particular €372 per ton.

Polish traders are now trying to diversify methanol sources prior to 8 January 2023 when EU sanctions preventing the purchase of methanol from Russia take effect. Russia increased exports to Poland in the first eight months in 2022 to 479,960 tons whilst Norway increased shipments from 6,299 tons to 16,787 tons. Germany increased exports to Poland in the first eight months in 2022 to 76,140 tons from 52,909 tons in the same period last year.

| Czech Methanol Imports (unit-kilo tons) | | |
|---|---|---|
| ***Country*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Germany | 3.868 | 8.082 |
| Russia | 21.299 | 37.633 |
| Poland | 22.692 | 15.001 |
| Others | 1.586 | 1.108 |
| Total | 49.445 | 61.825 |

Czech imports of methanol amounted to 49,445 tons in the first eight months in 2022 against 61,825 tons in the same period in 2021. Russia accounted for 22,692 tons in January-August 2022 against 15,001 tons in the same period last year, followed by Poland which increased from 15,001 tons to 22,692 tons. Prices per ton for methanol imports into the Czech Republic increased from €349 in the first eight months in 2021 to €486 this year. Prices rose sharply in August reaching €642 per ton, from €577 per ton in July and €472 in June.

Hungarian imports of methanol totalled 43,665 tons in the first seven months for a total cost of €22.069 million. Prices averaged €505 per ton in the first seven months against €319per ton in the same period in 2021, when volumes were much higher at 75,551 tons for costs of €24.444 million. Imports from Russia fell from 32,760 tons in the first seven months in 2021 to 10,762 tons in the same period this year. The drop in exports from Russia was due to war in Ukraine and the difficulties in shipping product by rail.

## Central European Isocyanates

**Central European isocyanates, Jan-Aug 2022**

MDI imports into the Czech Republic totalled 23,767 tons in the first eight months in 2022 against 30,593 tons in the same period in 2021. Total costs for MDI imports dropped from €70.545 million in January to August 2021 to €63.693 million in the same period in 2022, with average prices rising from €2306 per ton to €2680.

| Czech MDI Imports (unit-kilo tons) | | |
|---|---|---|
| ***Country*** | ***Jan-Jun 22*** | ***Jan-Jun 21*** |
| China | 1.604 | 1.451 |
| Belgium | 6.580 | 6.656 |
| Germany | 5.315 | 9.117 |
| Italy | 0.022 | 0.045 |
| Hungary | 3.303 | 4.097 |
| Netherlands | 1.666 | 1.229 |
| Others | 0.687 | 1.071 |
| Total | 19.177 | 23.666 |

| Polish MDI Imports (€ million) | | |
|---|---|---|
| Country | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Germany | 74.426 | 84.354 |
| Netherlands | 37.973 | 32.224 |
| Hungary | 68.790 | 80.521 |
| Belgium | 53.567 | 45.621 |
| Saudi Arabia | 3.586 | 6.034 |
| Others | 19.040 | 19.555 |
| Total | 257.381 | 268.308 |
| Ktons | 96.765 | 130.370 |
| Av Price | 2.660 | 2.058 |

| Polish TDI Imports (€ million) | | |
|---|---|---|
| ***Country*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Belgium | 3.613 | 1.947 |
| Germany | 40.169 | 40.447 |
| Hungary | 66.022 | 65.436 |
| Netherlands | 10.961 | 13.507 |
| Saudi Arabia | 4.750 | 4.916 |
| Others | 15.124 | 10.932 |
| Total | 140.638 | 137.184 |
| Ktons | 51.040 | 52.734 |
| Av Price | 2755 | 2601 |

MDI imports into Poland totalled 96,765 tons in the first eight months in 2022 for a total value of €257.381 million. Average prices amounted to €2660 per ton, with August numbers amounting to €2730. TDI imports into Poland amounted to 51,040 tons in the first eight months in 2022 at an average price of €2755 per ton. Polish polyurethane producers reported reasonable results for the first two quarters this year but demand has slowed over the third quarter and this trend is expected to continue into 2023. Regarding safety issues for isocyanates REACH has introduced stipulations for mandatory training requirements for industrial and professional users of isocyanatos in the EU from 24 August 2023.

## New energy sources for chemical producers

**Chimcomplex-cogeneration and green hydrogen**

Chimcomplex has received approval for establishing new energy capacity on the Oltchim platform at Ramnicu Valcea. Chimcomplex plans to build a high-efficiency cogeneration plant with a capacity of 46.2 MW, designed to provide cheaper energy with a lower carbon footprint.

Chimcomplex has also received the approval to develop their capacity for the production of green hydrogen. The commissioning of a capacity of at least 100 MW in electrolysis installations, with an estimated generated quantity of at least 10,000 tpa of renewable hydrogen, must be carried out by the fourth quarter of 2025. Chimcomplex currently produces hydrogen from water by electrolysis of brine and brings into chemistry the hydrogen vector together with the capture of CO2. Annual production of hydrogen amounts to around 6,000 tons and close to 100% of the hydrogen produced from water in Romania.

**Duslo to invest in green energy**

Duslo at Sala in Slovakia stopped production two months ago due to high gas prices and since then has undertaken a major shutdown and is waiting for the government's help to restart. At the same time, due to the energy crisis, the company wants to build its own wind farm in which has earmarked €60 million in investment.

In addition to the wind farm Duslo is also considering s project the construction of a solar collector park to it in the future. Duslo also wants to build its own storage facilities, in which they would also be able to store the overproduction of windier periods in batteries, which would be immersed in the windless periods.

| Polish Chemical Production (unit-kilo tons) | | |
|---|---|---|
| ***Product*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Caustic Soda Liquid | 283.5 | 222.8 |
| Caustic Soda Solid | 44.6 | 55.0 |
| Caprolactam | 107.0 | 109.1 |
| Acetic Acid | 1.6 | 3.7 |
| Ammonia (Gaseous) | 1583.0 | 1734.0 |
| Ammonia (Liquid) | 72.7 | 70.8 |
| Pesticides | 47.0 | 47.5 |
| Nitric Acid | 1494.0 | 1616.0 |
| Nitrogen Fertilisers | 1284.0 | 1391.0 |
| Phosphate Fertilisers | 228.6 | 341.8 |
| Potassium Fertilisers | 214.9 | 232.9 |

**Synthos Green Energy**

Canada's Laurentis Energy Partners and Synthos Green Energy, have signed a Master Services Agreement (MSA) to support the development and deployment of small modular reactors (SMRs) in Poland. The agreement enables international collaboration between Laurentis and Synthos Green Energy, beginning with early project planning. Synthos Green Energy, together with its partner PKN Orlen S.A., the largest multi-energy company in Central Europe.

# RUSSIA

| Russian Chemical Production (unit-kilo tons) | | |
|---|---|---|
| ***Product*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Caustic Soda | 856.0 | 853.1 |
| Soda Ash | 2,318.0 | 2,233.0 |
| Ethylene | 2,928.2 | 2,987.7 |
| Propylene | 1,885.9 | 2,047.6 |
| Benzene | 795.0 | 865.6 |
| Styrene | 479.5 | 484.6 |
| Phenol | 162.4 | 171.4 |
| Ammonia | 11,400.0 | 11,828.0 |
| Nitrogen Fertilisers | 7,831.0 | 7,528.0 |
| Phosphate Fertilisers | 2,838.0 | 2,816.0 |
| Potash Fertilisers | 5,203.0 | 7,186.0 |
| Plastics in Bulk | 6,948.0 | 7,307.0 |
| Polyethylene | 2,302.0 | 2,347.0 |
| Polystyrene | 383.2 | 364.3 |
| PVC | 687.0 | 714.0 |
| Polyamide | 115.8 | 132.0 |
| Synthetic Rubber | 1,023.0 | 1,127.0 |
| Synthetic Fibres | 126.9 | 134.2 |

**Russian chemical production Jan-Aug 2022**

Chemical and polymer production in Russia has been sustained at reasonable levels in the first eight months this year although most products have recorded slightly lower volumes than posted in 2021.

Russian ethylene production decreased slightly in the first eight months from 2.988 million tons in 2021 to 2.928 million tons whilst propylene dropped from 2.048 million tons to 1.886 million tons. Demand for olefins for the production of derivatives came under pressure in the third quarter, as the impact of sanctions feed through to the market.

Polyethylene production followed ethylene dropping from 2.347 million tons in January to August 2021 against 2.302 million tons in the same period in 2022. Synthetic rubber production fell from 1.127 million tons versus 1.023 million tons as sanctions have impacted on export sales to Europe, particularly butadiene rubber and halogenated butyl rubber.

Production of chemicals and polymers could become more difficult in 2023 as producers are required to replace key components for technical processes that are only available in countries that have imposed sanctions. This year producers have been dependent on usage of stockpiles of additives, catalysts, etc, but some of these supplies are running out and may prove hard to replace. Furthermore, aggregate demand for chemical industry products is slowing down in the domestic market making exports more important for producers who are already encountering the effects of sanctions.

Methanol is one of the products that escaped the fifth round of EU sanctions and has maintained stable export volumes. China has become a new market for Russian methanol exports this year, in order to replace some European customers, but such trade is conducted only at a heavily discounted price. Sanctioned products such as rubber have forced producers to seek out new customers in Asia, incurring higher logistics costs, longer lead times and lower profits.

| Expanded list EU sanctions for Russian petrochemicals | |
|---|---|
| Butadiene | Methanol |
| Toluene | Phenol |
| Orthoxylene | Acetone |
| Paraxylene | PTA |
| Styrene | Caprolactam |

**EU sanctions on Russian chemicals & eighth package**

Slightly under half of the chemical products sanctioned by the EU's fifth package back in April are not produced in Russia. From the list of 79 products, only 38 are produced at Russian plants, and thus consumers have been forced to seek out alternative sources.

An eighth package of EU sanctions against Russia was introduced on 5 October, including a new range of speciality chemicals but also widening the category of mainstream chemicals to include methanol which had previously been excluded. Methanol is the most important organic chemical exported from Russia by volume and value. Already products from the polymer and synthetic rubber sectors had been sanctioned by the EU in the fifth package, and the eight package has only expanded this list. Benzene is not included, but main derivatives such as caprolactam, phenol and styrene are included. Propylene monomer remains one of the few commodity chemicals in the organic sector which has not been placed under sanctions. Russia exports on average around 100,000 tpa of propylene.

## Russian petrochemical markets

| Russian Ethylene Production (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Angarsk Polymer Plant | 131.0 | 130.2 |
| Kazanorgsintez | 445.9 | 403.3 |
| Stavrolen | 212.3 | 232.7 |
| Nizhnekamskneftekhim | 435.5 | 432.2 |
| Novokuibyshevsk Petrochemical | 29.2 | 31.5 |
| Gazprom n Salavat | 220.4 | 198.0 |
| SIBUR-Kstovo | 269.3 | 272.6 |
| SIBUR-Khimprom | 36.2 | 36.7 |
| Tomskneftekhim | 176.3 | 193.5 |
| Ufaorgsintez | 68.2 | 56.8 |
| ZapSibNeftekhim | 903.9 | 1000.2 |
| Total | 2928.2 | 2987.7 |

| Russian Propylene Production (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Angarsk Polymer Plant | 72.4 | 72.4 |
| Kazanorgsintez | 36.2 | 33.4 |
| Lukoil-NNOS | 207.0 | 159.7 |
| Stavrolen | 105.1 | 92.6 |
| Nizhnekamskneftekhim | 215.8 | 214.4 |
| Novokuibyshevsk | 18.1 | 46.1 |
| Omsk Kaucuk | 36.8 | 19.9 |
| Polyom | 127.6 | 131.8 |
| Gazprom Neftekhim Salavat | 96.6 | 73.7 |
| SIBUR Kstovo | 116.4 | 117.7 |
| SIBUR-Khimprom | 54.5 | 39.3 |
| Tomskneftekhim | 91.6 | 103.3 |
| SIBUR Tobolsk | 0.0 | 3.0 |
| Ufaorgsintez | 112.5 | 118.2 |
| ZapSibNeftekhim | 590.2 | 822.3 |
| Total | 1880.7 | 2047.6 |

**Russian ethylene production, Jan-Aug 2022**

Russian ethylene production totalled 2.928 million tons in the first eight months in 2022 against 2.988 million tons in the same period in 2021. Supply appears to be exceeding demand, with producers under pressure to reduce prices for merchant ethylene in the Volga-Urals region. ZapSibNeftekhim at Tobolsk produced 903,900 tons in January to August 2022 down from 1.000 million tons in 2021. Nizhnekamskneftekhim produced 435,500 tons of ethylene against 432,200 tons in 2021 whilst Kazanorgsintez increased from 403,300 tons to 445,900 tons.

Other important ethylene producers included SIBUR-Kstovo which produced 269,300 tons versus 272,600 tons. In Bashkortostan Gazprom neftekhim Salavat produced 198,000 tons against 220,400 tons, whilst Ufaorgsintez increased production from 56,800 tons to 68,200 tons. Stavrolen at Budyennovsk reduced ethylene production to 212,300 tons against 232,700 tons in the first eight months in 2021.

Tomskneftekhim completed scheduled stop repairs in September and is switching to an increased overhaul interval from a two-year to a four-year cycle. Investments in the modernisation of equipment amounted to about 1 billion roubles. During the stoppage, Tomskneftekhim continued to implement digital tools, such as an ultrasonic detector for detecting leakage of gas media and video surveillance systems.

**Russian propylene production, sales and exports, Jan-Aug 2022**

Russian propylene production amounted to 1.881 million tons in the first eight months in 2022 against 2.048 million tons in the same period in 2021. The combined ZapSibNeftekhim and SIBUR Tobolsk plants reduced production from 825,300 tons in the first eight months in 2021 to 590,200 tons in 2022 due to extended maintenance. In Tatarstan Nizhnekamskneftekhim produced 215,800 tons of propylene in the first eight months in 2022 whilst Kazanorgsintez increased production from 33,400 tons to 36,200 tons. In Bashkortostan Gazprom neftekhim Salavat produced 96,600 tons of propylene versus 73,700 tons whilst Ufaorgsintez reduced production from 118,200 tons to 112,500 tons. In the Nizhny Novgorod region SIBUR-Kstovo reduced production of propylene from 117,700 tons to 116,400 tons in 2022. Lukoil-NNOS at Kstovo increased production from 159,700 tons to 207,000 tons.

| Russian Propylene Exports (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Lukoil-NNOS | 54.5 | 62.9 |
| SIBUR-Kstovo | 10.6 | 14.4 |
| Angarsk Polymer Plant | 5.1 | 4.2 |
| Stavrolen | 18.7 | 22.1 |
| Total | 88.8 | 103.6 |

**Russian propylene sales Jan-Aug 2022**

Propylene exports from Russia amounted to 88,800 tons in the first eight months in 2022 against 103,600 tons in the same period in 2021. Lukoil-NNOS reduced export shipments from 62,900 tons to 54,500 tons whilst SIBUR-Kstovo shipped 10,600 tons against 14,400 tons in January-August 2021.

| Russian Propylene Domestic Purchases (unit-kilo tons) | | |
|---|---|---|
| ***Consumer*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Saratovorgsintez | 117.0 | 81.9 |
| Volzhskiy Orgsintez | 7.7 | 7.6 |
| Akrilat | 17.8 | 1.1 |
| SIBUR-Khimprom | 24.5 | 34.4 |
| Omsk-Kaucuk | 5.0 | 9.9 |
| Tomskneftekhim | 1.7 | 3.3 |
| ZapSibNeftekhim | 78.9 | 37.3 |
| Ufaorgsintez | 7.5 | 7.4 |
| Khimprom Kemerovo | 4.9 | 4.3 |
| Plant of Synthetic Alcohol | 3.4 | 8.2 |
| Others | 4.4 | 15.8 |
| Total | 272.8 | 212.3 |

In the first eight months in 2022 ZapSibNeftekhim purchased 78,904 tons of propylene on the merchant market against 37,300 tons in the same period in 2021. Russia's largest merchant consumer Saratovorgsintez increased purchases of merchant propylene from 81,900 tons last year when the acrylonitrile plant underwent an extended shutdown to 117,000 tons, and SIBUR-Khimprom at Perm reduced purchases from 34,400 tons to 24,500 tons. Other merchant consumers included Akrilat at Dzerzhinsk which is part of SIBUR-Neftekhim.

| Russian Propylene Domestic Sales (unit-kilo tons) | | |
|---|---|---|
| ***Company*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Angarsk Polymer Plant | 17.0 | 24.2 |
| SIBUR-Kstovo | 91.9 | 83.0 |
| Lukoil-NNOS | 122.7 | 88.2 |
| Stavrolen | 17.7 | 3.6 |
| Others | 23.1 | 13.3 |
| Total | 272.8 | 212.3 |

Russian sales of propylene on the domestic merchant market amounted 272,800 tons in the first eight months in 2022 against 212,300 tons in the same period in 2021. The largest propylene supplier to the domestic market was Lukoil-NNOS, shipping 93,000 tons against 73,900 tons in January to August 2021.

**Russian styrene production, sales and exports, Jan-Aug 2022**

| Russian Styrene Production (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Jun 22*** | ***Jan-Jun 21*** |
| Nizhnekamskneftekhim | 154.6 | 155.4 |
| Angarsk Polymer Plant | 19.5 | 22.5 |
| SIBUR-Khimprom | 75.2 | 72.8 |
| Gazprom n Salavat | 97.0 | 104.2 |
| Plastik, Uzlovaya | 24.4 | 35.3 |
| Total | 370.8 | 390.4 |

Russian styrene production declined slightly from 390,400 tons in the first eight months in 2021 to 370,800 tons in the same period this year. Nizhnekamskneftekhim reduced production from 155,400 tons to 154,600 tons, where most of the styrene is used internally for polystyrene and synthetic rubber output. Gazprom neftekhim Salavat reduced styrene production from 104,200 tons to 97,000 whilst SIBUR-Khimprom increased 72,800 tons to 75,200 tons.

| Russian Styrene Exports (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Angarsk Polymer Plant | 3.7 | 1.8 |
| Plastik Uzlovaya | 0.0 | 0.5 |
| Gazprom neftekhim Salavat | 47.1 | 55.1 |
| Nizhnekamskneftekhim | 2.0 | 1.0 |
| SIBUR-Khimprom | 6.9 | 0.6 |
| Total | 59.8 | 59.0 |

Styrene was included on the list of EU sanctions and thus exports to Europe will drop in the second half of 2022. For the first eight months in 2022 exports amounted to 59,800 tons against 59,000 tons in the same period last year.

| Russian Styrene Domestic Sales | | |
|---|---|---|
| ***Producer*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Angarsk Polymer Plant | 14.5 | 16.6 |
| Plastik | 0.4 | 1.5 |
| Gazprom n Salavat | 33.2 | 38.9 |
| SIBUR-Khimprom | 21.4 | 24.9 |
| Nizhnekamskneftekhim | 0.5 | 1.7 |
| Total | 70.1 | 83.6 |

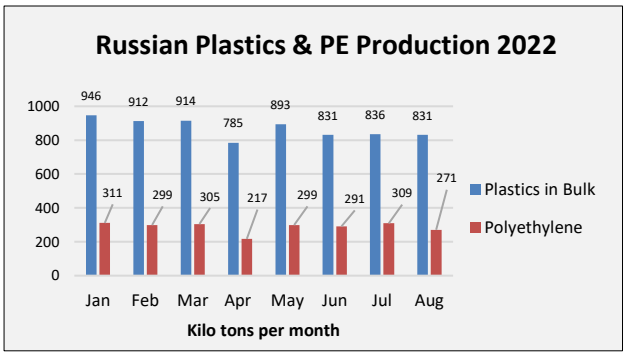
Domestic merchant sales of styrene reduced from 83,600 tons in the first eight months in 2021 to 70,100 tons in the same period in 2022. Angarsk Polymer Plant reduced sales from 16,600 tons to 15,100 tons whilst Gazprom neftekhim Salavat reduced sales from 38,900 tons to 33,200 tons.

Polystyrene producer and styrene merchant buyer Penoplex shut down its Kirishi plant in mid-August for a two-week shutdown for scheduled repairs. The Angarsk Polymer Plant resumed styrene production by 10 August after a scheduled overhaul. In early August, the Angarsk Polymer Plant announced a tender for the sale of styrene monomer in the domestic and foreign markets comprising a total of 900 tons.

## Russian bulk polymers

### Russian polyethylene production Jan-Aug 2022

Russian polyethylene production totalled 2.302 million tons in the first eight months in 2022 against 2.347 million tons in the same period in 2021. Even though export activity to the EU countries was strong until Jul this year production was lower due to outages, particularly ZapSibNeftekhim at Tobolsk.




### Kazanorgsintez shutdown of HDPE and LDPE plants

Kazanorgsintez started maintenance at its ethylene complex and ethylene-consuming industries in late September, including the production of HDPE and LDPE. Production resumed in the second half of October. The repairs consisted of routine maintenance, combined with the preparation to increase the capacity of ethylene and HDPE to 660,000 tpa. Kazanorgsintez is currently able to produce 640,000 tpa of ethylene, 510,000 tpa of HDPE and 230,000 tpa of LDPE.

Having been merged into the SIBUR Group in 2021 Kazanorgsintez is now benefiting from improved feedstock arrangements allowing the polyethylene facilities to run at full capacity. Kazanorgsintez has been fully included in the unified system of sales, service and logistics of SIBUR. Ethane supply is the main problem for Kazanorgsintez, which it sources from Orenburg and Minnibayevo gas processing plants owned by Gazprom and Tatneft respectively. It is not clear precisely how SIBUR could have improved the flow of ethane where the options are limited. Propane can act as an alternative feedstock but not all furnaces at Kazanorgsintez are configured to use other raw materials. Nizhnekamskneftekhim has also benefited from inclusion into SIBUR's structure, stabilising the naphtha feedstock position with the local Taneko refinery. This is in addition to support and organisation in the completion of the new 600,000 tpa ethylene cracker after a change in contractor became necessary.

| Russian Imports of LLDPE from South Korea | | | |
|---|---|---|---|
| ***Period*** | ***Ktons*** | ***$ million*** | ***Av price $/ton*** |
| **Jan-Aug 22** | 39,685 | 65.462 | 1650 |
| **Jan-Aug 21** | 30,130 | 41.138 | 1361 |

### Russian LLDPE trade-Jan-Aug 2022

Russian imports of LLDPE from South Korea totalled 39,685 tons in the first eight months in 2022 against 30,130 tons in the same period in 2021, with average prices rising from $1361 per ton to $1650. Imports have risen from South Korea this year due to lower shipments from Europe. South Korea was the largest supplier of LLDPE to Russia in 2021, providing 39.4% of the total 61,000 tons of imported product. Other suppliers included Finland with 24% and the US with 15%, but volumes from both of those sources have declined this year.

| Chinese HDPE Imports ($ million) | | |
|---|---|---|
| ***Country*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Saudi Arabia | 960.9 | 976.4 |
| Iran | 791.8 | 894.1 |
| UAE | 949.6 | 835.4 |
| South Korea | 738.7 | 604.9 |
| **Russia** | **155.9** | **238.3** |
| US | 138.1 | 184.4 |
| Qatar | 113.9 | 146.2 |
| Thailand | 143.1 | 162.6 |
| Kuwait | 135.5 | 144.1 |
| Others | 556.6 | 749.6 |
| Total | 4684.3 | 4936.1 |

### Russian HDPE trade-Jan-Aug 2022

Exports of HDPE from Russia to China fell in value terms from $238.3 million in the first eight months in 2021 to $155.9 million in the same period in 2022, with Russia's share dropping from 4.8% of total Chinese imports to 3.3%. Although volumes into China were down overall Russian exporters lost some market share to other producers, largely from the Middle East.

In the first half of the year Russian producers significantly increased the export of polyethylene and polypropylene to Europe, but this direction of trade has seen falls since the start of the third quarter. In the meantime, China's HDPE and LLDPE markets head for their lowest levels of growth in 2022 for at least two decades. Thus, any gains for Russian polyethylene producers from extra sales to the EU and Turkey were offset by the drop in purchases from China.

**EU sanctions for more plastic products to take effect on 8 January 2023**

The European Union, as part of the eighth package of sanctions against Russia, banned from next year the import of primary polymers and products, including plates, sheets, films, tapes, pipes, hoses, etc. In 2021 Russia supplied a total of $948 million worth of these materials to Europe (an average of $80 million per month). The largest category of exports consisted of polymers $327 million, and in second place plates, sheets, films and tapes of plastics ($109 million). In accordance with the new European sanctions, the export of such products can continue until 8 January 2023 under contracts concluded by 7 October 2022.

**ZapSibNeftekhim increases production of polyethylene pipe grade**

ZapSibNeftekhim reported an increase in the third quarter this year by 40% in the production of raw materials for the production of polyethylene pipes. By the end of the year, the volume of production of all pipe grades of SIBUR's polymers will grow by 52%, as reported by the company. It is expected that from 2023, after passing the brand certification, ZapSibNeftekhim will be able to produce up to 40,000 tpa of pipe grade polyethylene.

**Polyethylene manufacturers in Russia encounter raw material shortages**

Russian manufacturers of polyethylene pipes claim to be faced with a shortage of raw materials, affecting up to 100 companies of various sizes in the pipe sector. Some of the plants which produce pipes for gas pipelines, water pipelines and sewerage, face serious difficulties in securing feedstocks. Despite all the assurances of producers of raw materials, particularly SIBUR, processors are struggling to secure polymers. In October, raw materials were distributed to around 45 of the 100 pipe manufacturers. The remainder will either be forced to suspend production or produce a pipe from a material that does not meet the requirements.

Polyethylene pipes are used in Russia to replace steel and cast-iron pipes. They are more durable and easier to use, and in terms of strength they are not inferior to comparative products made of other materials. SIBUR is the only producer in Russia, and thus without imported suppliers means it holds an essential role.

For consumers, there are specific signed gasification contracts with Gazprom and other groups that need to be completed for the supply of polyethylene pipes which are also used in different applications such as irrigation systems, water treatment systems, and housing and communal services. SIBUR has not officially acknowledged that it cannot supply the raw material grades necessary for the market, and has announced that they have actually increased the volume of pipe grades. One of the main short term problems of importing the additives for pipe grade polyethylene production is that it requires a long procedure for certification. Laboratory tests can take no less than six months, and even then there is no guarantee that it will pass the government standard.

**Polyethyene and gas processing projects at Ust Luga**

A decision on financing a complex for processing ethane-containing gas and producing LNG at Ust-Luga in the Leningrad Region is awaiting clarification of the technology issue as a result of sanctions. Even though power sources and other units are being installed at the Ust Luga site for a gas processing and gas chemical complex there are doubts whether the entire project can be completed.

| Capacities for Gas Processing and Gas Chemicals at Ust Luga | |
|---|---|
| ***Product*** | ***Capacity*** |
| Gas processing | 45 bcm |
| LNG | 13 million tpa |
| Ethane | 3.8 million tpa |
| LPG | 2.4 million tpa |
| Pentane-hexane fraction | 0.2 million tpa |
| Polyethylene (various grades) | 3 million tpa |

Licensed technology from Linde has been sanctioned which is difficult to replace, and thus whilst officially these projects are proceeding to schedule at the very least they are likely to incur long delays from the original 2024 target.

The project for the construction of a gas processing and liquefaction complex is being undertaken by Gazprom and Rusgazvydobuvannya (the operator is RusKhimAlliance, owned on a parity basis by Gazprom and Rusgazvydobuvannya). The project provides for the creation of an integrated complex for the processing and liquefaction of natural gas in the area of the seaport of Ust-Luga (Leningrad Region). The raw material for the enterprise will be ethane-containing natural gas from Gazprom's fields in the Nadym-Pur-Taz region, delivered through dedicated gas pipelines.

### Russian polypropylene trade Jan-Aug 2022

Russian imports of propylene copolymers from South Korea dropped in the first eight months to 14,205 tons from 23,034 tons in the same period in 2021. This is attributed to partly lower demand inside the Russian market and also a reorientation of Russian polypropylene producers towards the domestic market.

| South Korean Exports of Propylene Copolymers to Russia | | |
|---|---|---|
| | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Ktons | 14,204.8 | 23,033.9 |
| $ million | 25,865.0 | 37,584.0 |

| Expanded list of polymers placed under EU sanctions for Russia | |
|---|---|
| 3901 | polymers of ethylene |
| 3902 30 | propylene copolymers |
| 3902 90 | polymers of propylene |
| 3903 90 | polymers of styrene and ABS |
| 3904 10 | PVC in primary forms |
| 3904 50 | vinylidene chloride polymers |
| 3905 12 | polyvinyl acetate |
| 3905 19 | polyvinyl acetate |
| 3905 21 | vinyl acetate copolymers |
| 3905 29 | vinyl acetate copolymers |
| 3906 10 | polymethyl methacrylate |
| 3907 21 | polyethers |
| 3907 40 | polycarbonates |
| 3908 10 | polyamides |

SIBUR has established the domestic market as its chief priority SIBUR for this year but as sanctions on sales to EU take effect the group is looking to develop new external markets. The group hopes to increase exports to South East Asia, but needs to create transit points and distribution centres. Russian producers are trying to compensate for sanctions and reduce dependency on other imports for a wide range of industries and applications such as automotive, food packaging, etc.

### Polypropylene project Voronezh?

In the absence of Western technology Russian investors have been forced to think of alternative solutions in order to build more polymer capacity. One such case involves RIF Corporation at Voronezh which has formed a provisional agreement with China Power Engineering Consulting Group (CPECGC) to build a gas processing complex. The complex has been set a completion date of 2026 will be capable of producing around 100,000 tpa of polypropylene. Investment costs have been estimated at 24 billion roubles ($389 million). The last major investment project for gas processing announced in the Voronezh region was unsuccessful. In 2018, the Moscow-based Cryomashgaz LLC announced the construction of liquefied natural gas (LNG) production in the Anninsky district worth 5.5 billion roubles. The company abandoned the project later due to disagreements with local authorities.

### Astrakhan PVC complex

In the PVC sector a new complex is planned for construction at the Astrakhan Gas Processing Plant, with a capacity of 650,000 tpa, has been set a completion target for construction by 2026. The PVC plant is intended to be combined with 440,000 tpa of liquid and solid caustic soda. The complex investors include the Caspian Innovation Company LLC and Gazprom Pererabotka (Refining). Ethane fraction extracted from the Astrakhan GPP, will then be processed into ethylene and then PVC using the technology of cryogenic gas separation. Gazprom Linde Engineering has been entrusted with synchronizing engineering solutions and technologies for the future complex, with possible Chinese involvement in creating an ethylene facility. Furnaces could be delivered by barge along the Volga. If this project goes ahead the Astrakhan plant would make it largest PVC producer in Russia. The Caspian Innovation Company intends to export about 80% of its products, in particular, to India, Turkey and North Africa.


### Kazanorgsintez-polycarbonate

As part of the modernisation of the polycarbonate plant Kazanorgsintez has m received advanced pumps from Japan which are used to transport the polymer melt from the extruder through the polymer filter to granulation. This equipment is part of the expansion of polycarbonate capacity at Kazan to 100,000 tpa and the pumps will be installed during the next shutdown repair. Delivery of the equipment followed the route Japan-Vladivostok-Kazan.

## Russian PET recycling

### Russian PET recycling market overview

PET producers in Russia are striving to utilise more recycled waste, and only Ekopet is yet to use secondary materials in its production. The resulting granulate from PET waste processing is in wide demand among a broad range of industries. These recycled plastic materials can be sold to manufacturers of containers and packaging materials, PET bottles, ventilation ducts, pipes and plastic furniture. Recycled plastic is also actively used by factories for the manufacture of synthetic fabrics.

**LMR Plast-PET recycling**

Plastics processor LMR Plast in Tatarstan has started processing of PET waste and the production of secondary plastic granules. Due to price increases in prices for the company's main raw materials polypropylene, which it purchased from Nizhnekamskneftekhim, LMR Plast decided to install equipment for the processing of PET waste and the production of granules. These cannot be used for all products but the processed granules can make some products at a low cost and price.

Currently 23 companies operating inside Russia for PET recycling, with a total capacity of 233,000 tpa. The main obstacle to using this capacity is the lack of PET waste. Many regions in Russia have started collecting PET bottle waste to be sent for recycling but investments are required in the infrastructure and logistics of moving this waste to plants.

In 2021 the Russian market of injection moulding PET amounted to around 729,000 tons. The production capacity of PET for the production of preforms by Russian players is 640,000 tpa, and thus the missing raw materials are imported by processors most of which comes from the countries of Southeast Asia.

| Russian PET Recycling Capacity | | |
|---|---|---|
| ***No of companies*** | ***Capacity (ktpa)*** | ***Flex consumption*** |
| 23 | 233 | 200-220 |
| Polief | 144 | Vivilen |

PET-flex consumption market in Russia is estimated at 200-220,000 tpa of secondary raw materials. Due to the low volumes of collection and processing of secondary raw materials, the cost of such raw materials in Russia is higher than abroad.

### Senezh usage of secondary PET

The Plant of New Polymers "Senezh" at Solnechnogorsk, which is part of the group Europlast, achieved a record daily capacity of 350 tons of PET granulate per day in September 2022. A significant increase in production volume was made possible through usage of a new technology FTR (flakes-to-resin). FTR allows up to 30% of secondary polyethylene terephthalate (rePET) to be added to primary raw materials to create food granulate under the new CleverPET brand. FTR is an environmentally oriented technology and refers to innovative methods of mixing primary and reduced raw materials. Senezh takes Flexa (PET flakes from recycled bottles) for the production of re-granulate from the Plarus plastics processing plant (part of Europlast). Senezh has already received a sanitary and epidemiological conclusion (FEZ) and confirmed compliance with high regulatory requirements for food safety.

| Russian PET Granulate Production | | | |
|---|---|---|---|
| ***Company*** | ***Capacity (ktpa)*** | ***Name of Product*** | ***Flex usage (Ktpa)*** |
| Senezh | 130 | CleverPET | 35 |
| Polief | 144 | Vivilen | 34 |

### Polief starts usage of secondary PET

SIBUR launched the production of PET granules from secondary raw materials in September 2022 at its subsidiary Polief at Blagoveshchensk. This is the first subsidiary for SIBUR to produce synthetic products using recycled materials.

Polief will now produce a new product entitled Vivilen rPET granule which contains up to 25-30% of reusable polymer. For the production of granules as recyclables, the company uses flex (cleaned and crushed plastic bottles), supplied by the partners of the holding. Polief possesses production capacities for PTA at 350,000 tpa and primary PET at 219,000 tpa. After reaching its design capacity and use of up to 34,000 tons of secondary materials or equivalent of 1.7 billion used plastic bottles, Polief will be able to produce up to 144,000 tpa of Vivilen PET granules. To launch this production, SIBUR needed to integrate a secondary raw material supply line into the existing technological chain of primary PET production at Polief. This raises the total capacity for PET to 253,000 tpa.

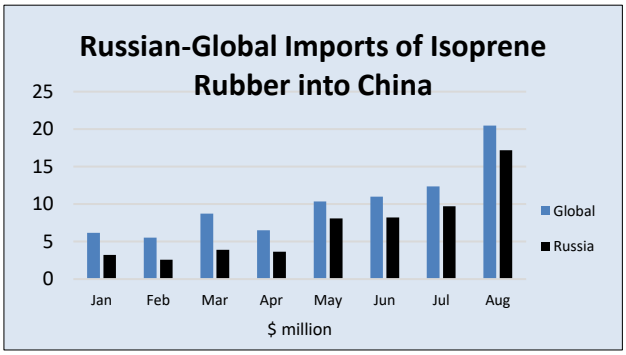
## Russian synthetic rubber


**Russian rubber production and consumption Jan-Aug 2022**

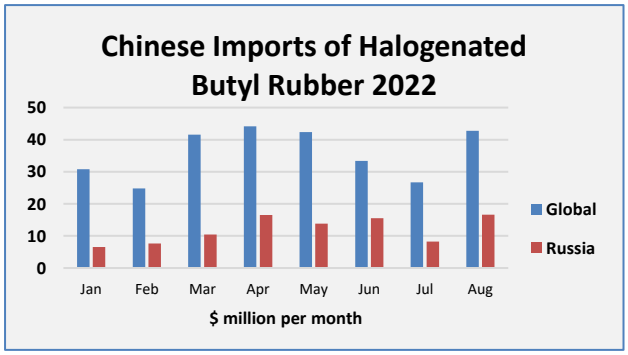
Russian production of synthetic rubber dropped to 902,000 tons in the first eight months in 2022 from 999,000 tons in the same period in 2021. Production has declined since the introduction of EU sanctions. August production levels stabilised after the declines in June and July but was still down on the same month last year.

**Russian exports of synthetic rubber**

Whilst Russian exports of butadiene rubber and halogenated rubber to Central Europe are affected by logistics and sanctions other regions such as China and Asia become more important for these products. Although not falling under EU sanctions, isoprene rubber exports to China from Nizhnekamskneftekhim have risen sharply this year by values and volume.




As a consequence of sanctions and Nizhnekamskneftekhim is being forced to change geographical direction of its sales and to move away from the EU market which accounted for around 20% of the company's total revenues in 2021. The takeover by SIBUR in 2021 provides Nizhnekamskneftekhim with a much stronger financial base in order to survive this year and beyond. This year Nizhnekamskneftekhim and SIBUR are working on the basis of a 5% fall in revenues and profits from 2021. In the second quarter sales of synthetic rubber by Nizhnekamskneftekhim to Europe dropped by around three-fold. Q3 and Q4 may be better than Q2 if new markets can be identified quickly.




**SIBUR challenges for rubber production**

According to SIBUR more than 700 European companies have refused to cooperate with the group over the past few months, including both customers and suppliers, against the background of Western sanctions,. SIBUR claims that it had managed to replace around 90% of the raw materials that they purchase for synthetic rubber production. Although not huge in value SIBUR has lost its traditional suppliers of the most important catalysts, part of the spare parts, suppliers of technologies, licenses. Officially the company says all is well, but private views may differ.

| Types of Russian Synthetic Rubber affected by EU sanctions-HS Code | |
|---|---|
| 4002 11 | Styrene-butadiene rubber SBR and XSBR |
| 4002 20 | Butadiene rubber |
| 4002 31 | Butyl rubber |
| 4002 39 | Halogenated butyl rubber |
| 4002 41 | Chlorobutadiene rubber |
| 4002 51 | Nitrile butadiene rubber |

One of SIBUR's reagent imports butyllithium had been blocked by European suppliers prior to be being sanctioned on 5 October by the EU.

Last year the UK and Germany were two of the largest suppliers, but both stopped transactions earlier this year to SIBUR without explanation. N-butyllithium is widely used as an initiator for anionic polymerization reactions for molecules like butadiene, isoprene, and styrene. SIBUR is now trying to buy more product from China even if quality is lower than from the European suppliers.

| Russian Methanol Production (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Shchekinoazot | 1014.2 | 646.5 |
| Gazprom Methanol | 489.3 | 660.0 |
| Metafrax Chemicals | 745.0 | 769.2 |
| Akron | 64.1 | 71.5 |
| Azot Novomoskovsk | 153.0 | 170.3 |
| Angarsk Petrochemical | 21.4 | 20.1 |
| Azot Nevinnomyssk | 74.4 | 83.6 |
| Tomet | 365.2 | 387.6 |
| Ammoni | 66.5 | 77.4 |
| Totals | 2993.2 | 2886.3 |

| Russian Methanol Exports by Producer (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Azot Nevinnomyssk | 1.4 | 4.8 |
| Azot Novomoskovsk | 55.4 | 61.4 |
| Akron | 4.9 | 6.1 |
| Metafrax Chemicals | 287.4 | 256.3 |
| Gazprom Methanol | 179.9 | 349.3 |
| Tomet | 119.9 | 132.9 |
| Shchekinoazot | 746.0 | 454.9 |
| Ammoni | 1.5 | 0.0 |
| Total | 1396.3 | 1265.9 |

| Russian Methanol Exports by Destination | | |
|---|---|---|
| ***Country*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Belarus | 162.1 | 84.3 |
| China | 38.6 | 0.0 |
| Finland | 487.0 | 631.5 |
| Germany | 1.2 | 1.6 |
| Kazakhstan | 25.9 | 16.5 |
| Latvia | 58.7 | 7.9 |
| Lithuania | 44.2 | 55.9 |
| Netherlands | 137.1 | 81.2 |
| Poland | 291.1 | 208.2 |
| Romania | 26.5 | 50.8 |
| Slovakia | 49.0 | 155.1 |
| Turkey | 70.1 | 6.4 |
| UK | 8.4 | 0.0 |
| Ukraine | 11.9 | 43.8 |
| Others | 0.5 | 1.5 |
| Total | 1412.6 | 1344.9 |

## Russian methanol market

**Russian methanol production Jan-Aug 2022**

Russia produced 2.993 million tons of methanol in the first eight months in 2022 against 2.886 million tons in the same period in 2021. Metafrax Chemicals at Gubakha produced 745,000 tons against 769,200 tons in January-August 2021, whilst Gazprom Methanol at Tomsk reduced production from 660,000 tons to 489,300 tons.

Tomet produced 365,200 tons of methanol in the first eight months in 2022 against 387,600 tons in the same period in 2021.

Shchekinoazot produced 1.014 million tons in the first eight months in 2022 against 646,500 tons in January to August 2021, the increase due to the addition of new capacity. Also, in the Tula Oblast Azot at Novomoskovsk reduced production from 170,300 tons to 153,000 tons. Ammoni in Tatarstan reduced methanol production from 77,400 tons in the first eight months in 2021 to 66,500 tons in the same period this year.

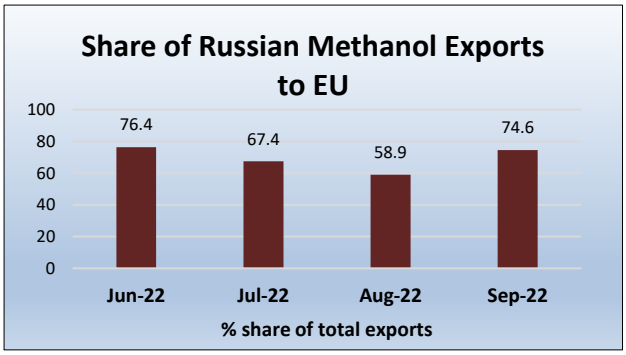
Effectively the difference in the Russian production volumes this year can be attributed to the restart of the second line at Tomet and the start of the third plant at Shchekinoazot, although Tomet's second line has been stopped again due inactivity in export markets. In August Tomet produced only 2,462 tons which now means that production for the first eight months dropped below the level recorded in the same period in 2021.

**Russian methanol exports, Jan-Aug 21022**

Russian producer exports of methanol rose from 1.266 million tons in the first eight months in 2021 to 1.396 million tons in January to August this year. Tomet exported 119,900 tons of methanol in the first eight months down from 132,900 tons in the same period in 2021.

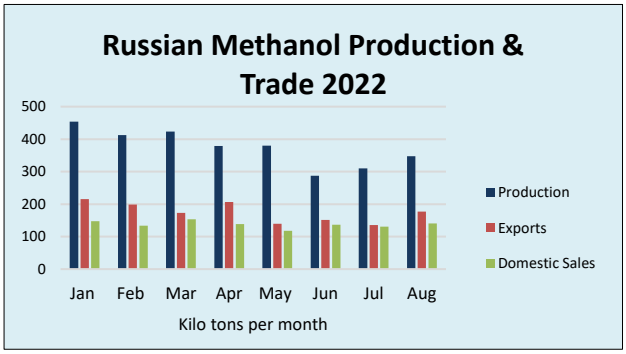
Metafrax Chemicals increased exports from 256,300 tons in January to August 2021 to 287,400 tons this year whilst Gazprom Methanol reduced exports from 349,300 tons to 179,900 tons. The largest Russian exporter in the first eight months was Shchekinoazot shipping 746,000 tons versus 454,900 tons in January to August 2021.

Destination figures for methanol exports comprised 1.413 million tons for the first eight months versus 1.345 million tons last year. Finland accounted for 487,000 tons of Russian methanol exports in the first eight months against 631,500 tons in the same period in 2021. Poland increased deliveries from Russia from 208,200 tons to 291,100 tons whilst exports to the Netherlands rose from 81,200 tons to 137,100 tons. The rise in exports to the Netherlands was due to higher production and transhipment in 2022 from Tomet at Togliatti. That business has now stopped as have direct exports to Romania, Slovakia and Ukraine. All of the methanol purchases made by those three countries this year appear to start in Poland, but the largest Ukrainian purchaser Ukrgasvydobuvannya (which uses methanol in the extraction and transportation of gas) has stressed that the product has to be of non-Russian origin.



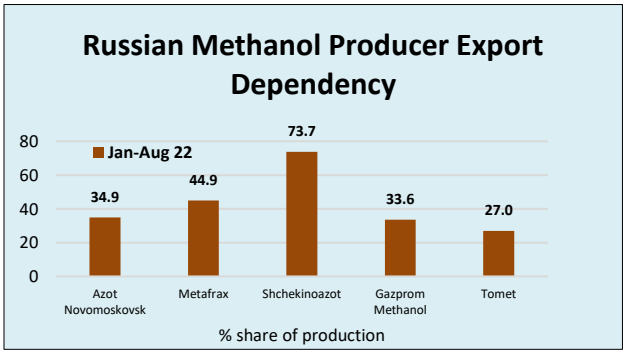

**Market overview & sanctions**

The introduction of sanctions by the EU against Russian methanol exports to the region states that all transactions for contracts concluded prior and to 7 October 2022 need to be completed by 8 January 2023. This would clearly be a major setback for Russian producers, and the overall Russian market which is heavily dependent on exports to the European countries. On average around 70% of exports are directed monthly to the EU. It is not feasible to be able to replace this trade, at least in the short term and probably even the medium term considering the geographical locations of the plants. New destinations for Russian exports this year have included China and Turkey, but volumes to both countries are limited by logistical hurdles. Most plants in Russia are located in the western half of the country that make selling to China or the Far East difficult logistically and economically.




The share of the country's methanol exports to the EU has remained very significant this year measured against total exports, despite the situation in Ukraine. Although dropping to 58.9% of total exports in July, shipments to the EU rebounded in August following a resumption of deliveries to Finland. European markets provide the best profitability for Russian producers, the shortest lead-times, etc, but self-sanctioning has turned away some consumers particularly where alternative sources are available. Polish traders have been very active this year in sourcing Russian methanol for redistribution in Central and South East Europe.

For the first eight months the Russian methanol market performed relatively under the conditions of war, sanctions and difficulties in doing business generally. Domestic demand has held up on the surface, but consumption is showing signs of slowing and together with internal processing cannot provide a substitute for export activity. Production at Russian methanol plants weakened over the summer due to shutdowns, notably Metafrax. Although August saw higher volumes the industry is now faced with challenges in the face of EU sanctions.




Shchekinoazot is the methanol producer most vulnerable to restrictions on exports to the EU. Overall, the company exported 73.7% of its production in the first eight months in 2022, with Poland receiving the largest amount of its exports by rail. Shchekinoazot does use methanol for formaldehyde and resin derivative production, but this accounts for only a small percentage of its market sales. New units for formaldehyde derivatives are planned to start construction shortly, but If exports fall as expected the company will most probably have to shut at least one of its three plants.

Metafrax Chemicals exported 44.9% of its production in the first eight months in 2022. Although still important the company also processes large volumes internally in addition to selling on the domestic merchant market. In the event of reduced exports or restrictions to exports Metafrax will most probably adjust its utilisation rate downwards. To what degree would depend on how the domestic market performs.

| Russian Methanol Supply/Demand Balance (unit-kilo tons) | | |
|---|---|---|
| | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Production | 2993.2 | 2886.2 |
| Exports | 1396.5 | 1196.3 |
| Domestic | 1097.9 | 1076.8 |
| Market Balance | 498.8 | 613.1 |

Regarding other producers, Tomet has already closed one of its two lines having stopped export activity in May-June this year. As a company with no downstream production, domestic merchant sales represent the only focus at present. Azot at Novomoskovsk and Gazprom Methanol are the two other plants where there is no internal processing and thus are totally dependent on merchant sales whether it be domestic or export. Gazprom Methanol has started shipping methanol to China in recent months but not in volumes that would compensate entirely for its loss in European markets.

Despite global growth potential numerous Russian new methanol projects in Russia are likely to be cancelled or delayed. Even priory to sanctions, Russian sea shipments have been limited by transhipment capacities. The European problem for Russian producers has increased interest in selling to China, but at present this option appears loss-making in terms of higher logistical costs and lower sales prices. Weak demand for methanol in China against the background of COVID linked lockdowns combined with limitations on how much can be shipped means that there is no straightforward alternative to the European market.

| Russian Methanol Domestic Sales (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Azot Nevinnomyssk | 15.5 | 15.5 |
| Azot Novomoskovsk | 98.2 | 106.9 |
| Metafrax Chemicals | 261.0 | 281.4 |
| Gazprom Methanol | 247.9 | 277.1 |
| Tomet | 239.5 | 224.9 |
| Shchekinoazot | 199.0 | 126.7 |
| Ammoni (Mendeleevsk) | 35.3 | 44.2 |
| Total | 1096.5 | 1076.7 |

Recognising the difficulties in constructing new methanol terminals, studies are underway concerning containerization as a short-term measure that would allow the transportation of tanks. The question is whether or not this would be too expensive. It is clear though producers will need to coordinate some degree of logistical planning in order to avoid significant falls in production levels.

| Russian Methanol Purchases by Consumer (unit-kilo tons) | | |
|---|---|---|
| ***Consumer*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Nizhnekamskneftekhim | 195.3 | 204.5 |
| Togliattikaucuk | 39.7 | 82.9 |
| Uralorgsintez | 34.2 | 39.0 |
| SIBUR-Khimprom | 1.1 | 18.8 |
| SIBUR Tobolsk | 29.7 | 26.2 |
| Omsk Kaucuk | 76.0 | 60.1 |
| Novokuibyshevsk NPZ | 21.3 | 21.2 |
| Uralkhimplast | 12.1 | 16.4 |
| Slavneft-Yanos | 8.3 | 9.8 |
| Metadynea | 47.7 | 62.9 |
| Kronospan | 63.6 | 82.6 |
| Gazprom | 165.4 | 133.9 |
| Khimsintez | 30.1 | 20.3 |
| Volzhsky Orgsintez | 38.3 | 5.1 |
| Togliattiazot | 89.8 | 49.9 |
| Others | 243.8 | 242.9 |
| Total | 1096.5 | 1076.7 |

**Russian methanol domestic sales, Jan-Aug 2022**

Merchant sales of methanol on the Russian domestic market amounted to 1.097 million tons in the first eight months in 2022 against 1.077 million tons in the same period in 2021. Tomet increased sales from 224,900 tons to 239,500 tons whilst Gazprom Methanol reduced sales from 277,100 tons to 247,900 tons. Metafrax Chemicals reduced shipments to the domestic market from 281,400 tons in January to August 2021 to 261,000 tons in the same period this year.

Nizhnekamskneftekhim recorded a slight fall in methanol purchases in the first eight months from 204,500 tons to 195,300 tons whilst Gazprom increased purchases from 133,900 tons to 165,400 tons. Nearly all of the methanol purchases made by Gazprom come from its subsidiary Gazprom Methanol. Togliattikaucuk reduced methanol purchases from 82,900 tons in January to August 2021 to 39,700 tons, the drop being mainly due to lower MTBE production.

In the sector for urea-formaldehyde resins Kronospan bought 63,600 tons of methanol against 82,600 tons in January to August 2021 and Metadynea reduced purchases from 62,900 tons to 47,700 tons. Uralkhimplast at Nizhniy Tagil reduced methanol purchases for resin production from 16,400 tons to 12,100 tons. Khimsintez increased purchases of methanol from 20,300 tons in the first eight months last year to 30,100 tons in January to August 2022. Khimsintez is focused on the production of chemical products for technical purposes including formalin and synthetic resins.

## Russian organic chemicals

| Russian N-Butanol Production (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Angarsk Petrochemical company | 20.3 | 17.4 |
| Azot Nevinnomyssk | 11.1 | 10.0 |
| Gazprom neftekhim Salavat | 44.4 | 37.4 |
| SIBUR-Khimprom, Perm | 20.6 | 17.2 |
| Total | 96.4 | 82.0 |
| | | |
| **Russian Isobutanol Production (unit-kilo tons)** | | |
| ***Producer*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Angarsk Petrochemical Company | 14.2 | 11.9 |
| Gazprom neftekhim Salavat | 22.9 | 23.6 |
| SIBUR-Khimprom, Perm | 37.9 | 24.1 |
| Total | 75.0 | 59.7 |

**Russian butanol production Jan-Aug 2022**

Russian normal butanol production rose from 82,000 tons in the first eight months in 2021 to 96,400 tons in the same period in 2022. Gazprom neftekhim Salavat was the largest Russian producer, increasing production from 37,400 tons to 44,400 tons in January to August 2022.

Isobutanol production in Russia increased from 59,700 tons in the first eight months last year to 75,000 tons in 2022. SIBUR-Khimprom increased production in the first eight months from 24,100 tons in 2021 to 37,900 tons.

Demand for butanols in Russia is low and prices are under downward pressure. Consumption of paints in Russia remains weak following the exodus of foreign producers. Norwegian paint manufacturer Jotun announced the sale of business to the Russian Atomstroykompleks in July and subsequent withdrawal from the Russian market.

| Russian Plasticizer Trade 2022 (unit-kilo tons) | | | | |
|---|---|---|---|---|
| **Exports** | | | | |
| ***Product*** | ***Q1 22*** | ***Q2 22*** | ***July*** | ***Aug*** |
| **DOTP** | 3.925 | 1.623 | 1.037 | 1.174 |
| | | | | |
| **Imports** | | | | |
| ***Product*** | ***Q1 22*** | ***Q2 22*** | ***July*** | ***Aug*** |
| DOP | 0 | 0.958 | 0.382 | 0.257 |
| DOTP | 1.975 | 2.408 | 0.161 | 0.168 |
| DINP | 5.365 | 6.856 | 1.496 | 1.165 |

**Russian plasticizer market Jan-Aug 2022**

SIBUR exported 1,174 tons of DOTP in August against 1,037 tons in July. Export shipments amounted to 655 tons in August to Uzbekistan in addition to 425 tons to the Netherlands and 93 tons to Italy. Export activity had been in decline from SIBUR until this summer but has started to rose in order to compensate for lower domestic sales.

Regarding Russian imports, DOTP and DOP shipments continue to fall and only DINP remains above a thousand tons per annum. Imports of DINP amounted to 1,165 tons in August against 1,496 tons in July. Over half of the of the imports are being sourced from South Korea where previously they were supplied mostly from European companies. The main feature of the market in the second quarter was the change in supply sources from Central and West European sellers to sources from Turkey, South Korea and China.

**Russian phthalic anhydride Jan-Aug 2022**

The Russian phthalic anhydride market is faced with the problem of rising feedstock costs and weak demand. In the first eight months Russian production of phthalic anhydride dropped to 46,000 tons from 73,200 tons in the same period in 2021. Kamteks-Khimprom at Perm reduced production from 64,300 tons in January to August 2021 to 31,100 tons in the same period in 2022.

| Russian Phthalic Anhydride Production (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Gazprom neftekhim Salavat | 8.5 | 8.8 |
| Kamteks | 31.1 | 64.3 |
| Roshalsky Plasticizer Plant | 6.8 | 4.4 |
| Total | 46.4 | 73.2 |

Kamteks-Khimprom suspended work at its phthalic anhydride plant in June and has been idle since. The suspension was largely caused by logistics which itself have been due to sanctions. Previously existing export chains have become too difficult to service, although Kamteks-Khimprom was hoping to restart partially in late October.

**Russian ethylene oxide plants**

Nizhnekamskneftekhim launched the production of ethylene oxide in August after an extended stoppage for an overhaul. Work on the replacement and inspection of column, pumping, equipment,

as well as heat exchangers and pipelines was carried out in July. The production of ethylene oxide at Nizhnekamskneftekhim was launched firstly in 1980.

| Russian Ethylene Oxide Exports (unit-kilo tons) | | |
|---|---|---|
| ***Country*** | ***2021*** | ***2020*** |
| Poland | 6.3 | 6.2 |
| Romania | 6.5 | 6.1 |
| Slovakia | 0.2 | 1.8 |
| Others | 1.7 | 4.4 |
| Total | 14.6 | 18.5 |

Ethylene oxide came under sanctions from the EU's fifth package from 8 April and thus some export volumes are affected to Poland, Romania and Slovakia. Overall ethylene oxide exports account for a small amount of SIBUR-Neftekhim's merchant sales of ethylene oxide which are concentrated on the domestic market. SIBUR-Neftekhim currently has agreements to supply ethylene oxide to neighbouring plants in the Dzerzhinsk area including 150,000 tpa to the Sintanol Plant over a period of five years and for Tosol-Sintez 165,000 tons. Over a ten-year period around 600,000 tons will be supplied to the Sintez-Oka plant at Dzerzhinsk.

SIBUR-Neftekhim currently possesses plans for increasing the capacity of the ethylene oxide plant by 18.6% to 355,670 tpa, and for commercial ethylene oxide by 29% to 168,000 tpa. Currently the production capacity of SIBUR-Neftekhim is 130,000 tpa of ethylene oxide, 320,500 tpa of glycols, and 35,500 tpa of acrylic acid.

**Russian acetone market Jan-Aug 2022**

Russian acetone production amounted to 100,900 tons in the first eight months in 2022 against 100,900 tons in the same period in 2021. Omsk Kaucuk produced 16,000 tons of acetone against 21,200 tons whilst Kazanorgsintez increased production from 33,400 tons to 36,300 tons. Acetone was not produced at the Novokuibyshevsk Petrochemical Combine in July due to scheduled repairs, starting on 15 July and lasting to 1 August.

| Russian Acetone Production (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Ufaorgsintez | 24.0 | 32.0 |
| Kazanorgsintez | 36.3 | 33.4 |
| Novokuibyshevsk Petrochemical | 19.5 | 26.4 |
| Omsk Kaucuk | 21.2 | 16.0 |
| Total | 100.9 | 107.9 |

Acetone was included on the list of EU sanctions, published on 8 April, which means that Russian producers must conclude all export business to Europe prior to 10 July this year and that no contracts could be signed after 9 April. The Netherlands is the largest destination for Russian acetone exports, with Latvia and Lithuania also important.

**Russian ethyl acetate imports, Jan-Aug 2022**

Ethyl acetate imports into Russia dropped by 75.5% in the first eight months in 2022, dropping from 5,290 tons in January to August 2021 to 1,296 tons. From January to August 2022, Ineos supplied 334 tons against 925 tons in the same period last year. The major distributor in the domestic market Ruskhimset did not purchase from Ineos so far this year. Imports increased in the second quarter from Turkey and Uzbekistan in order to compensate for the loss of Western suppliers.

| Russian Ethyl Acetate Imports (unit-kilo tons) | | |
|---|---|---|
| ***Company*** | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Laxmi Organics Industries | 248.2 | 2697.8 |
| Ineos | 334.2 | 956.7 |
| Others | 714.02 | 1636.1 |
| Total | 1,296.2 | 5290.7 |

The domestic market for paints and varnishes is witnessing a fall in demand, and at the same time producers are affected by the lack of individual raw materials for the production of coatings. The exit of some European companies from the Russian market also had an impact on the decline in sales figures.

| Products included in 8th list of EU sanctions | |
|---|---|
| Barium Chloride | 2,3-dimethyl-2,3-butanediol |
| Butyl Lithium | Methyldiethanolamine hydrochloride |
| Diethanolamine | Diethylamine hydrochloride |
| Formaldehyde | Diisopropylamine hydrochloride |
| Sulphuric Acid | 3-Quinuclidinone hydrochloride |

**Sanctions imposed by EU on chemicals in eight package**

A new group of products were added to EU sanctions on 5 October, which mean that all purchase, sale and other activity is to be banned from 8 January 2023 for all contracts concluded by 7 October 2022.

The volumes and values of the speciality products imported into Russia are not particularly large, but they are hard to replace from other sources and could affect certain companies, certain industries, etc.

Some products such as butyl lithium had become harder to buy even before the latest sanctions. The EU, within the framework of the eighth package of sanctions has banned trade with Russia for initial polymers and products that are made of them (plastics): plates, sheets, films, tapes, pipes, hoses, etc.

## Central Asia & Azerbaijan

**KPI signs first contracts for polypropylene sales**

KPI signed the first contracts for the supply of Kazakh polypropylene. About ten new contracts were signed for a total volume of 8,000 tons, which KPI intends to deliver from mid-October until the end of this year. The company aims to sign further contracts in November and December. The new polypropylene plant opened at Atyrau will eventually produce in total more than Turkmenistan, Azerbaijan and Uzbekistan produce in total. KPI aims to offer a more attractive price from those other sources.

Plastics processor WestEcoPlast LLP at Aktau was one of the first new clients for KPI. The company buys 500-600 tpa of polypropylene which until now has been sourced from Russia, Uzbekistan, Turkmenistan. WestEcoPlast LLP now intends to purchase polypropylene from KPI.

**Uzbek polyethylene domestic sales Jan-Aug 2022**

A total of 111,500 tons of polyethylene was sold on the domestic market in Uzbekistan in the first eight months in 2022 which is 18% more than in the corresponding period of 2021. In the breakdown of different types of polyethylene film accounted for 38% of consumption, followed by injection moulding with 23%. Other applications include pipe polyethylene with a specific gravity of 17%, the blown polyethylene group is 16%, and injection polyethylene 3%.

**Turkmenistan polyolefin production Jan-Jul 2022**

For seven months of 2022, the Kiyanly polymer plant in Turkmenistan produced 56,985 tons of polyethylene and 12,250 tons of polypropylene. The capacities of the plant, which was opened in 2018, include 386,000 tpa of HDPE and 81,000 tpa of polypropylene. Although the plant has yet to come close to full capacity the availability of polyolefins has helped boost plastics conversion and finished products are being made for export to markets in China and Turkey.

The price trend for all brands of polyethylene for eight months showed a stable trend. In January, prices amounted to 17.7 million soums per ton, in February 18.1 million soums. In May, the price per ton of polyethylene amounted to 17.9 million soums, in June it increased to 18.3 million soums. By the end of August, it had dropped to 16.6 million. soums.

Regionally the Tashkent area accounts for 56% of Uzbek polyethylene consumption this year followed by Samarkand with 13% and Fergana 8%. Other regions include the Namangan region with a share of 5%, Andijan and Jizzakh regions with a share of 4% each.

Until the recent launch of the Kazakh polypropylene plant near Atyrau Uzbekistan was the largest producer of polymers in Central Asia. It accounts for more than half of the total output in the region. At the same time, in the next decade, he wants to increase the production of polymers by more than 50%.

HDPE production in Uzbekistan is carried out by the companies Uz-Kor Gas Chemical and the Shurtan Gas Chemical Complex. Uz-Kor Gas Chemical was put into operation in 2016 and has production capacities for the production of ethylene 400,000 tpa, HDPE 387,000 tpa, propylene and polypropylene 83,000 tpa. The Shurtan gas chemical complex, commissioned in 2011, has a production capacity of 125,000 tpa. Both polyethylene plants belong to Uzbekneftegaz with a production capacity of 600,000 tpa including the Shurtan and Ustyurt gas chemical plants.

**Uzbek Polyethylene Exports (unit-kilo tons)**

| *Country* | *Q1 22* | *Q2 22* | *Jul-Aug 22* |
|---|---|---|---|
| Turkey | 23.5 | 28.5 | 9.0 |
| Russia | 5.4 | 7.1 | 10.5 |
| China | 12.5 | 8.5 | 14.0 |
| Latvia | 12.4 | 15.6 | 4.0 |
| Kazakhstan | 2.2 | 5.8 | 7.0 |
| Ukraine | 1.9 | 0.0 | 0.0 |
| Others | 3.1 | 4.6 | 1.5 |
| Total | 61 | 70.1 | 45.9 |

In the first eight months in 2022, Uzbekistan exported 177,000 tons of polyethylene for $187 million. Exports were lower by 36,200 tons than in the same period of

2021. Domestic demand has been increasing in Uzbekistan, rising by around 19% in the first eight months in 2022. Regarding export destinations Turkey accounted for 61,000 tons in the first eight months for Uzbek polyethylene, followed by Latvia (32,000 tons), China (35,000 tons), Russia (23,000 tons), and Kazakhstan (15,000 tons). Smaller volumes were sent to the UK (3,800 tons) and Georgia (2,500 tons).

| Azerbaijan Methanol Market (unit-kilo tons) | | |
|---|---|---|
| | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Production | 357.500 | 197.2 |
| Exports | 319.883 | 176.4 |

| Azerbaijan Polyolefin Revenues ($ million) | | |
|---|---|---|
| | ***Jan-Aug 22*** | ***Jan-Aug 21*** |
| Polyethylene | 61.5 | 65.7 |
| Polypropylene | 64.3 | 74.1 |

**SOCAR Methanol Jan-Aug 2022**

SOCAR Methanol produced 357,500 tons of methanol in the first eight months in 2022, which is 81.3% times higher than in the same period last year. Methanol exports from Azerbaijan totalled 319,883 tons in the first eight months for a total value of $92.504 million. The share of methanol in the total volume of exports from Azerbaijan amounted to 4.91% of non-oil product exports. Inventory at the start of September totalled 38,600 tons. From January 2021 to April 2021, SOCAR Methanol LLC did not carry out either the production or export of methanol due to a stop for major repairs. The plant resumed operations in May 2021.

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