# CIREC MONTHLY news

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

Edited by Andrew Sparshott CIREC Limited
Telephone: +441202 959770 Email: support@cirec.net Web: www.cirec.net

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

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## Key points from this issue:

**Central European petrochemical markets**

- The introduction of the fifth round of EU sanctions against Russia due to the war in Ukraine is already impacting the chemical industry in Central Europe
- Sanctions combined with transport issues is expected to affect trade patterns in the European rubber industry this year
- The foundation stone of MOL's new propylene plant has been laid at Tiszaújváros. The plant is being designed to produce 100,000 tpa of propylene
- Orlen Lietuva has stopped buying Russian oil and from now will process only raw materials from Saudi Aramco
- Transport of crude oil via the Adriatic Oil Pipeline for Serbia's oil company NIS could affect Petrohemija's feedstock sources after 15 May

**Russian chemical production**

- In the petrochemical sector propylene and benzene are excluded from the sanctions list, whilst butadiene, toluene, orthoxylene and paraxylene are included
- Russian ethylene production totalled 774,700 tons in the first two months in 2022 against 739,200 tons in the same period in 2021
- Russia produced 866,400 tons of methanol in the first two months in 2022 against 736,200 tons in the same period in 2021

**Russian chemical trade**

- Khimprom at Novocheboksarsk states that it has experienced around a 50% increase in demand for hydrogen peroxide since the end of February
- Nizhnekamskneftekhim's petrochemical complex has faced difficulties in product sales to Europe from the end of February
- Merchant sales of methanol on the Russian domestic market amounted to 280,900 tons in the first two months against 307,000 tons in the same period in 2021
- The Finnish railway operator VR Group will gradually completely curtail cargo traffic from the Russian Federation, but this process will take several months according to the company

**Project news**

- SIBUR has completed construction and installation work on the maleic anhydride plant at Tobolsk
- Sinopec suspended talks to invest up to $500 million in its jv project with SIBUR for the Amur Gas Chemical Complex which is in the construction phase
- Marubeni withdrew from the Volgograd methanol project in March where it was participating as a joint investor with the Russian group AEON Corporation

# CENTRAL and SOUTH EAST EUROPE

| Polish-Russian chemical products affected by EU sanctions 2021 trade numbers (€ million) | | |
|---|---|---|
| ***Product*** | ***Polish imports*** | ***Polish exports*** |
| Paraxylene | 30.4 | 0.0 |
| Styrene | 1.7 | 0.0 |
| Butanols | 3.5 | 0.0 |
| Phenol | 10.8 | 0.0 |
| Ethylene Oxide | 6.6 | 0.0 |
| Acetone | 1.9 | 0.0 |
| Esters of Acrylic Acid | 19.6 | 0.5 |
| Ethylene Alpha Olefin Copolymers | 25.0 | 0.0 |
| Propylene Copolymers | 0.1 | 4.5 |
| Polystyrene | 1.2 | 0.8 |
| ABS/SAN | 0.3 | 0.8 |
| PVC | 10.5 | 0.5 |
| Polyvinyl Acetate | 0.0 | 0.9 |
| Polycarbonate | 2.1 | 1.0 |
| Polyamide 6, 12, etc | 0.4 | 0.8 |
| Polyamide in primary forms | 0.0 | 2.4 |
| Phenolic Resins | 0.0 | 2.2 |
| Polyurethanes | 0.0 | 10.8 |
| Butadiene rubber | 25.8 | 0.0 |
| Butyl Rubber | 2.2 | 0.0 |
| Halogenated Butyl Rubber | 28.1 | 0.0 |

**EU sanctions on Russia and impact on Central European chemical markets**

The introduction of the fifth round of EU sanctions against Russia, due to the war in Ukraine, is already impacting the chemical industry in Central Europe and is expected to have significant repercussions on supply chains as the year progresses. Aside the logistical delays and hold-ups created from self-sanctioning, the first key EU sanction date was 16 April where transactions needed to be completed, followed by the second date of 10 July.

The list of chemical products affected by this first transaction completion date, included in Annex XXIV is not very long, and includes products such as pentaerythritol, ammonia, oxides, etc. According to EU sanctions no further business can be conducted for those products. Some of these products possess military applications and this is the reason for this ban to imposed so quickly.

| PKN Orlen Production (unit-kilo tons) | | |
|---|---|---|
| ***Product*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Ethylene | 77.5 | 68.6 |
| Propylene | 77.7 | 60.5 |
| Butadiene | 11.5 | 9.4 |
| Phenol | 9.0 | 8.0 |
| Ethylene | 77.5 | 68.6 |
| Polyethylene | 51.6 | 47.2 |
| PVC | 53.0 | 43.3 |
| Polypropylene | 56.6 | 51.7 |

For the second and main group of chemical products sanctioned under Annex XXIII no new business is to be allowed after 9 April. However, these products are considered to be of non-military use and therefore contracts are being given time (to 10 July) to be completed.

Products that have not been sanctioned face problems in delivery due to the EU sanctions on access to EU ports for Russian ships and vessels under Russian management. This also is coordinated with a ban on the entry into the EU of Russian and Belarusian road carriers.

Overall, the impact on supply chains from these sanctions' forces Polish and other Central European chemical producers to seek out new markets for sales and raw material purchases. Some chemicals are becoming difficult to obtain, and their prices are much higher than before Russia's invasion of Ukraine. The bottlenecks in the supply chains are already visible as buyers seek non-Russian sources where possible even if this means from Asia or the Americas.

| Polish Imports of Propylene (unit-kilo tons) | | |
|---|---|---|
| ***Country*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Lithuania | 0.000 | 4.602 |
| Germany | 7.784 | 15.832 |
| Russia | 9.908 | 4.853 |
| Ukraine | 14.107 | 11.286 |
| Others | 0.984 | 0.002 |
| Total | 32.782 | 36.576 |

The impact of the war on sales of chemical products to both Russia and Ukraine forces Polish chemical producers to try and develop other markets. In 2021 Polish chemical exports to Russia were valued at €1.8 billion and to Ukraine €1.6 billion. Imports of chemical products from Russia to Poland amounted to €1.6 billion last year and Ukraine €297 million.

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

PKN Orlen increased petrochemical production in the first two months at Plock, reducing the requirement for imports of propylene. Due to higher propylene production Poland reduced imports to 32,782 tons in the first two months in 2022 against 36,576 tons in the same period in 2021. Karpatneftekhim supplied 14,107 tons from Ukraine in January and February. Following the suspension of production at the Kalush plant on m25 February due to the war has meant that Polish consumers such as Grupa Azoty have been forced to seek alternative supplies.

| Czech Petrochemical Imports (unit-kilo tons) | | |
|---|---|---|
| ***Product*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Ethylene | 8.138 | 0.458 |
| Propylene | 4.028 | 8.645 |
| Butadiene | 12.315 | 15.601 |
| Benzene | 13.257 | 14.379 |
| Toluene | 1.249 | 1.211 |
| Styrene | 3.291 | 9.456 |

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

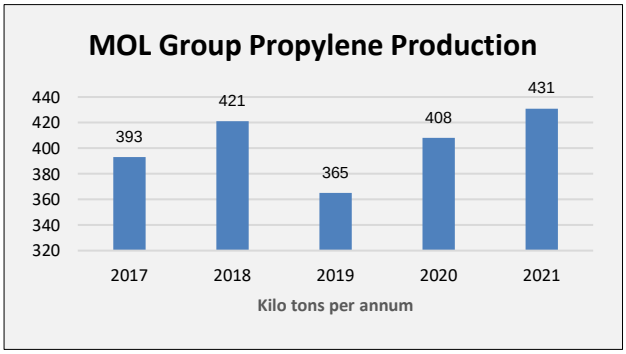
Czech exports of ethylbenzene declined in the first two months in 2022 to 19,879 tons from 21,844 tons in the same period in 2021. All the ethylbenzene was shipped from Kralupy to Oswiecim in Poland, all within the structures of the Synthos Group.

Ethylene exports from the Czech Republic amounted to 2,016 tons in the first two months against 2,465 tons in the same period 2021 whilst imports rose from 458 tons to 8,138 tons. Propylene imports dropped from 8,645 tons in 2020 to 4,028 tons. Czech imports of butadiene dropped from 15,601 tons in the first two months in 2021 to 12,315 tons in the same period in 2022.

| Czech Petrochemical Exports (unit-kilo tons) | | |
|---|---|---|
| ***Product*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Ethylene | 2.016 | 2.465 |
| Propylene | 0.006 | 0.006 |
| Butadiene | 0.079 | 0.033 |
| Benzene | 12.509 | 8.611 |
| Toluene | 2.133 | 2.218 |
| Ethylbenzene | 19.879 | 21.844 |

**Orlen Group-HVO**

Orlen Unipetrol is experimenting with hydrogenated vegetable oils (HVO) to partially replace crude oil in the production of petrochemicals, which will make it possible to achieve a reduction in greenhouse gases emitted during production processes. From 100 tons of input material, the tests obtained 95 tons of certified plastic. Currently, the plant can process about 5,000 tpa of HVO, but production capacity is expected to double. Technologies using hydrogenated vegetable oils will also be implemented at the Orlen plant at Płock where an industrial scale plant will be constructed by 2f024. The capacity of the HVO plant can be about 300,000 tpa of hydrogenated oil.




**MOL-olefin shutdown**

The MOL Group started a scheduled overhaul of its cracking unit at Tiszaújváros and intends to complete it at the end of May. The butadiene plant at this site is operating, but the output of this product has decreased due to repairs at the cracking plant. The company operates two ethylene plants with a capacity of 380,000 tpa and 300,000 tpa and can also produce 220,000 tpa of propylene and 135,000 tpa of butadiene at the Tiszaújváros site.

**MOL-new propylene project start**

The foundation stone of MOL's new propylene plant was laid at Tiszaújváros in March. The plant, which is being built with a Ft 65 billion (€174.7 billion) greenfield investment, will produce 100,000 tpa of propylene, thus significantly covering MOL's chemical raw material demands and increasing the company's self-sufficiency. This plant will also provide propylene for the polyol complex under construction.

The new plant will play an important role in providing MOL Petrochemicals with a stable supply of raw materials on its three product lines.

**Orlen Lietuva stops purchases of Russian crude**

Orlen Lietuva, which operates the refinery in Mazeikiai, has stopped buying Russian oil and from now will process only raw materials from Saudi Aramco. This also applies to the whole Orlen Group which is abandoning Russian oil, and this process could accelerate if crude is included in the EU's sixth round of sanctions. In March of this year, PKN Orlen ordered five additional tankers from Saudi Arabia. Oil products from Orlen Lietuva have traditionally been supplied to the Baltic States, as well as to Ukraine. Orlen Lietuva has been helped

by the purchase of a fuel transhipment terminal was purchased at Mockava on the Polish-Lithuanian border. This allows Orlen to bypass Belarus and to send a large volume of diesel and gasoline production from Maźeikiai to the Polish market.

**HIP Petrohemija-possible feedstock problems due to sanctions**

Transport of crude oil via the Adriatic Oil Pipeline for Serbia's oil company NIS, which supplies about 90% of the country's market, will be halted on 15 May due to the EU's sanctions against Russian companies. This would affect Petrohemija's feedstock sources and petrochemical production at Pancevo.

The Adria pipeline is managed by Croatia's oil transport company Jadranski Naftovod (JANAF). NIS is majority owned by Russian company Gazprom Neft which comes under sanctions. The EU's ban comes into force on May 15 for contracts concluded before 16 March 2022. Last year, NIS processed 3.9 million tons of oil, of which it imported 2.8 million tons. If the EU does not relax restrictions NIS may have to deliver crude to ports, and then by river, rail or road to Serbia.

| Rompetrol Rafinare Refinery Processing (unit-kilo tons) | | |
|---|---|---|
| ***Refinery*** | ***2021*** | ***2020*** |
| Petromidia | 4,586 | 4,864 |
| Vega | 321 | 364 |

| Rompetrol Rafinare Olefin Processing (unit-kilo tons) | | |
|---|---|---|
| ***Product*** | ***2021*** | ***2020*** |
| Processed propylene | 110 | 117 |
| Processed ethylene | 37 | 66 |
| Polymer total production | 106 | 143 |
| Total sales from own production | 111 | 160 |

**Petromidia refinery targets 2022**

Largest Romanian refinery Petromidia aims to process 5.6 million tons this year which is more than in 2021 and 2020. Most of the gasoline produced at the refinery will be exported and most of the diesel fuel is to be sold on the domestic market. Targets for the refinery this year could be affected by crude supply disruptions and costs related to the war in Ukraine.

In 2021 Petromidia processed 4.6 million tons of raw materials from which propylene production amounted to 110.000 tons. In 2021, the petrochemical segment managed to increase its gross turnover to $186 million compared to $149 million in 2020. Also, from a negative operational profit (EBITDA) of $26,3 million, the petrochemical division recorded a positive EBITDA of $1.26 million in 2021.

| Russian Butadiene Rubber Exports to EU ($ million) | | |
|---|---|---|
| ***Country*** | ***2021*** | ***2020*** |
| Austria | 2.0 | 1.0 |
| Belgium | 2.0 | 0.2 |
| Czech Republic | 11.3 | 10.4 |
| Finland | 1.5 | 0.8 |
| France | 5.6 | 3.1 |
| Germany | 12.7 | 9.4 |
| Hungary | 20.9 | 12.2 |
| Italy | 2.3 | 1.5 |
| Latvia | 1.0 | 0.3 |
| Lithuania | 0.8 | 0.2 |
| Netherlands | 0.6 | 1.2 |
| Poland | 35.0 | 19.7 |
| Portugal | 9.7 | 2.1 |
| Romania | 26.6 | 15.4 |
| Slovakia | 18.3 | 11.3 |
| Spain | 15.0 | 6.7 |
| Sweden | 0.1 | 0.1 |
| Total | 165.4 | 95.5 |
| % of total exports | 37.4 | 39.6 |

The total polymer production of the Petrochemical Division was 106,000 tons in 2021, down 26% compared to 2020. However, the company managed to process a total of 110 kt of propylene, a level similar to that of 2020. The LDPE plant operates with 100% imported ethylene, and the polypropylene plant operates with raw material produced and delivered internally by the Petromidia refinery. In 2021, the Petromidia Năvodari refinery processed approximately 4.6 million tons of raw materials, obtaining 1.13 million tons of gasoline and 2.5 million tons of diesel and special aviation fuel.

**Central European rubber markets and impacts from sanctions**

EU sanctions imposed on Russia on a wide range of synthetic rubber grades, combined with transport issues, is expected to affect trade patterns in the European rubber industry this year. The main categories of synthetic rubber sanctioned include butadiene rubber, butyl rubber and halogenated butyl rubber, although isoprene rubber is can still be legally traded. Butadiene rubber exports from Russia to the EU amounted to $165.4 million in 2021, with the largest receiving countries comprising Poland,

Hungary, Romania and Slovakia. Already consumers are negotiating with alternative suppliers.

| Nizhnekamskneftekhim HBR Exports to EU ($ million) | | |
|---|---|---|
| ***Country*** | ***2021*** | ***2020*** |
| Czech Republic | 18.7 | 14 |
| Hungary | 40.6 | 23.6 |
| Poland | 36.9 | 17.6 |
| Romania | 8.5 | 6.1 |
| Serbia | 5.7 | 4.2 |
| Slovakia | 21.2 | 15.5 |
| Spain | 9.3 | 5.4 |
| Other EU countries | 10.4 | 15.1 |
| Total exports to EU | 151.3 | 101.5 |
| % of total exports | 48.8% | 41.0% |

For halogenated butyl rubber the EU accounted for 48.8% of Russian exports last year, this product is produced in Russia only by Nizhnekamskneftekhim. Other producers such as ExxonMobil could take opportunity if there is sufficient capacity.

Synthos is placed to partly meet the extra demand from the displacement of Russian synthetic rubber, although does not produce all of the categories sanctioned. An offsetting factor against bans on Russian rubber is perceived Chinese over-capacity.

Central European tyre manufacturers depend to some extent on carbon black imports from Russia, Belarus and Ukraine which are currently not accessible due to extraneous factors. While Europe produces about a million tons per annum of carbon black, it still requires imports. Consumption is estimated at 1.6 million tpa and Russian and Ukrainian supplies account for about 38% of the market. Russian and Belarussian supplies are both affected by sanctions whilst plants in Ukraine are inactive due to the ongoing war.

In 2021 Russia exported a total of 762,000 tons of carbon black of which Poland was the largest destination taking 212,134 tons. Hungary took 90,211 tons, Germany 80,734 tons and the Czech Republic 40,257 tons. Although carbon black has not yet been sanctioned by the EU, other transport sanctions are expected to restrict carbon black shipments this year which is forcing consumers to seek other sources.

In view of possible shortages in carbon black Synthos expects a sharp rise in demand for powdered rubber from end-of-life tyres (ELTs), as supplied via its collaboration with Swiss company Tyre Recycling Solutions (TRS). Synthos obtained a minority stake in TRS following its acquisition of Trinseo's synthetic rubber business at the end of 2021.

Synthos and TRS have recorded an increase in interest in their TyreXol-branded recycled rubber, due largely to pressure on synthetic rubber and carbon black supplies since Russia's invasion of Ukraine. Another important factor includes the EU Green Deal, with upcoming regulatory changes likely to mandate the use of recycled content in tyre production. With the upcoming legislative changes in the EU regarding a potential minimum content of recycled material in tyres, rubber powder may offer a good alternative when available on a large scale.

| Polish PTA Exports (unit-kilo tons) | | |
|---|---|---|
| ***Country*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Belarus | 3.450 | 1.868 |
| Germany | 48.795 | 60.530 |
| Lithuania | 5.852 | 7.134 |
| Switzerland | 1.581 | 0.809 |
| Turkey | 0.000 | 0.000 |
| Others | 3.484 | 1.204 |
| Total | 63.161 | 71.544 |

**Polish PTA sales Jan-Feb 2022**

Exports of PTA from Poland amounted to 63,161 tons in the first two months against 71,544 tons in the same period in 2021. Prices averaged €781 per ton in January and February this year. PTA production by PKN Orlen dropped production volumes, dropping from 605,000 tons in 2020 at Wloclawek to 518,000 tons. PKN Orlen's PTA plant at Wloclawek is integrated with its paraxylene plant at Plock, although some paraxylene imports are required.

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

MDI imports into the Czech Republic totalled 5,146 tons in the first two months in 2022 against 7,143 tons in the same period in 2021. Total costs for MDI imports dropped from €14.207 million in January to February 2021 to €11.915 million in the same period in 2022, with average prices rising from €1.999 per ton to €2.315.

| Czech MDI Imports (unit-kilo tons) | | |
|---|---|---|
| *Country* | *Jan-Feb 22* | *Jan-Feb 21* |
| China | 0.335 | 0.532 |
| Belgium | 1.908 | 1.923 |
| Germany | 1.581 | 3.189 |
| Italy | 0.012 | 0.005 |
| Hungary | 0.628 | 0.964 |
| Netherlands | 0.539 | 0.370 |
| Others | 0.143 | 0.160 |
| Total | 5.146 | 7.143 |

MDI imports into Poland totalled 21,938 tons in the first two months in 2022 for a total value of €55.163 million. Average prices amounted to €2.503 per ton. TDI imports into Poland amounted to 11,835 tons in the first two months in 2022 at an average price of €2664 per ton.

Polyurethane foam manufacturers in Central Europe have been forced to pass on price rises to the market and do not expect lower raw material costs in the near term. Ciech subsidiary Ciech Pianki attempted to establish cooperation with alternative producers and suppliers of the necessary raw materials from Asian markets. However, opportunities to become independent of European producers proved to be severely limited due to high transport costs. Thus, at the end of 2021, Ciech Pianki continued to work with existing producers.

| Polish MDI Imports (unit-kilo tons) | | |
|---|---|---|
| *Country* | *Jan-Feb 22* | *Jan-Feb 21* |
| Germany | 7.922 | 8.396 |
| Netherlands | 2.710 | 1.651 |
| Hungary | 6.928 | 7.035 |
| Belgium | 2.965 | 4.414 |
| Others | 1.414 | 3.249 |
| Total | 21.938 | 24.745 |

Significant supply shortages were felt on the polyols and TDI market in 2021 and the situation for 2022 is also challenging due to the rising costs of raw materials based on the increase in oil and gas prices.

The situation in Russia and Ukraine could also influence supply chains for raw materials, whilst consumption of polyurethanes could come under pressure as inflation erodes purchasing power. In the case of the Ciech Group demand for polyurethanes were positive in the first quarter this year. Ciech is currently undertaking the process of research into using recycled raw materials for the production of polyurethane foams.

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

Czech imports of methanol amounted to 11,010 tons in the first two months in 2022 against 13,706 tons in the same period in 2021. Russia accounted for 4,682 tons in January-February 2022, followed by Poland with 4,567 tons. Prices per ton for methanol imports into the Czech Republic increased from €337 in the first two months in 2021 to €430 in 2022.

| Czech Methanol Imports (unit-kilo tons) | | |
|---|---|---|
| *Country* | *Jan-Feb 22* | *Jan-Feb 21* |
| Germany | 1.271 | 2.456 |
| Russia | 4.682 | 7.138 |
| Poland | 4.567 | 3.759 |
| Others | 0.343 | 0.352 |
| Total | 11.010 | 13.706 |

Imports of methanol into Poland totalled 133,557 tons in the first two months in 2022 against 116,004 tons in the same period in 2021. Russia increased exports to Poland from 58,736 tons to 101,073 tons whilst Finland increased shipments from 16,816 tons to 17,184 tons. Germany increased exports to Poland in the first two months in 2022 to 14,807 tons from 12,077 tons last year.

| Polish Methanol Imports (unit-kilo tons) | | |
|---|---|---|
| *Country* | *Jan-Feb 22* | *Jan-Feb 21* |
| Belarus | 0.000 | 1.295 |
| Finland | 17.184 | 16.816 |
| Lithuania | 0.489 | 0.954 |
| Germany | 14.807 | 12.077 |
| Netherlands | 0.000 | 25.571 |
| Russia | 101.073 | 58.736 |
| Others | 0.003 | 0.556 |
| Total | 133.557 | 116.004 |

In Serbia, MSK at Kikinda has faced gas supply problems from December onwards with problems faced by the domestic supplier Srbijagas. Any effort is aimed s to sell MSK will be restricted by gas supply issues. The main domestic gas supplier Srbijagas hopes to conclude a new contract with Gazprom by 15 May, comprising delivery of 3 billion bcm per annum at a price between $600-850 per thousand cubic metres.

Currently, Serbia receives 6 million cubic metres per day from Gazprom at $270 per thousand cubic metres. Serbia is exempt from Russian rouble requirements for gas payments. Since January 2021, Gazprom has been supplying gas to Serbia via the 402-kilometre Balkan Stream that acts as an extension of the Turk Stream.

# RUSSIA

| Russian Organic Chemical Trade Jan-Dec 2021 | | | |
|---|---|---|---|
| ***Product*** | ***Export*** | ***Import*** | ***EU Sanctioned 8 April 2022*** |
| | ***$ mil*** | ***$ mil*** | |
| Propylene | 125.4 | 0.5 | No |
| Benzene | 10.3 | 63.4 | No |
| Orthoxylene | 37.3 | 0.5 | Yes |
| Paraxylene | 50.4 | 9.6 | Yes |
| Styrene | 114.2 | 8.4 | Yes |
| Cumene | 22.5 | 6.1 | Yes |
| Methanol | 570.1 | 0.2 | No |
| Isopropyl Alcohol | 12.7 | 25.8 | No |
| N-Butanol | 25.7 | 1.5 | Yes |
| Isobutanol | 49.5 | 0.3 | Yes |
| Ethylene Glycol | 53.8 | 74.8 | No |
| Propylene Glycol | 3.0 | 60.8 | No |
| Phenol | 41.7 | 0.3 | Yes |
| Ethylene Oxide | 11.0 | 0.3 | Yes |
| Acetone | 44.0 | 0.6 | Yes |
| Adipic Acid | 0.1 | 12.4 | Yes |
| Maleic Anhydride | 2.0 | 10.1 | No |
| Phthalic Anhydride | 62.0 | 14.6 | No |
| PTA | 7.5 | 191.0 | No |
| TDI | 4.7 | 143.2 | No |
| Caprolactam | 302.3 | 1.5 | Yes |

| Russian Chemical Production (unit-kilo tons) | | |
|---|---|---|
| ***Product*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Caustic Soda | 215.0 | 211.4 |
| Soda Ash | 595.0 | 583.0 |
| Ethylene | 774.7 | 739.2 |
| Propylene | 518.4 | 522.5 |
| Benzene | 247.0 | 241.0 |
| Xylenes | 96.7 | 93.0 |
| Styrene | 127.9 | 134.7 |
| Phenol | 50.4 | 50.4 |
| Ammonia | 3,400.0 | 3,400.0 |
| Nitrogen Fertilisers | 2,009.0 | 1,943.0 |
| Phosphate Fertilisers | 681.0 | 708.0 |
| Potash Fertilisers | 1,722.0 | 1,765.0 |
| Plastics in Bulk | 1,858.0 | 1,770.0 |
| Polyethylene | 610.0 | 589.0 |
| Polystyrene | 97.0 | 95.7 |
| PVC | 181.0 | 181.3 |
| Polyamide | 32.7 | 33.0 |
| Synthetic Rubber | 290.0 | 296.0 |
| Synthetic Fibres | 32.1 | 32.1 |

**EU sanctions on Russian organic chemicals**

A fifth round of sanctions on Russia was applied by the EU on 8 April, in which an extensive number of chemical products were listed in Annex XXIII. In theory at least a full embargo on chemical trade would have sent a clearer message to Moscow.

From the trade data for 2021 shown opposite, the table signals which petrochemical and organic chemical products have been sanctioned and those hitherto excluded. Under the terms of the sanctions no new business with the EU area is permitted after 9 April and all current contracts need to be completed by 10 July. Another smaller group of products including pentaerythritol, boric acids, and lithium oxide were required to complete contracts by 16 April.

Not all of the chemical products listed are traded with EU, but the sanctions have been formulated to affect supply chains in some form or another. On top of the logistical problems already being experienced in some product areas, shipping chemical products into Europe and having them accepted may become the exception rather than the rule. These sanctions are expected to impact severely on the Russian chemical industry in the next few months.

**Product groups affected by sanctions**

In the petrochemical sector propylene and benzene are excluded from the sanctions list, whilst butadiene, toluene, orthoxylene and paraxylene are included. Benzene for example is not included in the Annex published by the EU, but main derivatives such as caprolactam, phenol and styrene are included. Caprolactam exports from Russia go mostly to China and Taiwan with only small volumes going to the EU, whilst most of the phenol and styrene exports are delivered to European countries.

It is mostly impractical to redirect phenol and styrene exports to other markets, at least in the short term, and so this may result in Russian producers reducing utilisation rates. Phenolic resins have been sanctioned affecting the wood industry in Russia, although formaldehyde and methanol are excluded and at least can continue trading with the EU if logistics allow. Isocyanates TDI and MDI are not sanctioned although polyurethane is listed reflecting how all supply chains are affected to some degree.

**Russian chemical production Jan-Feb 2022**

Production volumes in the mainstream Russian chemical industry were stable in the first two months in 2022, and it may also be the case that the March and April data does not change significantly. Ethylene production increased in the first two months from 739,200 tons to 774,700 tons whilst propylene declined from 522,500 tons to 518,400 tons.

The production of polymers increased in Russia to 1.858 million tons in the first two months in 2022 from 1.765 million tons in January to February 2021, including a rise in polyethylene production from 589,000 tons to 610,000 tons in the first two months in 2022. More than half of the olefin and polyolefin production in Russia is undertaken by plants belonging to the SIBUR and TAIF groups which have now merged.

Russian plants produced 290,000 tons of synthetic rubber in the first two months in 2022, versus 296,000 tons in 2021. In the base chemical sector Russian ammonia production stabilised at 3.4 million tons whilst caustic soda rose from 211,400 tons to 215,000 tons. Export data, if published, may start to give some indication of the problems that face Russian chemical producers. Methanol exports in March for example were down on pre-month targets with logistics affected by both self-sanctioning and destination routes blocked.

**Nizhnekamskneftekhim slower sales cause refinery shutdown**

Nizhnekamskneftekhim's petrochemical complex has faced difficulties in product sales to Europe from the end of February. As a result of problems with logistics the company has found itself building up sizeable inventories rather than reducing production volumes. In April the introduction of EU sanctions on Russian synthetic rubber has compounded the problems of sales. The slowdown meant that on 4 April Nizhnekamskneftekhim notified its holding company and main feedstock supplier TAIF-NK of the need to gradually cease reception of straight-run gasoline (naphtha) from the nearby oil refinery.

Due to the overall importance of Nizhnekamskneftekhim's feedstock purchases in the refinery's sales mix TAIF-NK was forced to stop production.

Although SIBUR took over Nizhnekamskneftekhim and Kazanorgsintez in 2021, the TAIF-NK refinery remained outside the deal. The refinery supplies Nizhnekamskneftekhim with about 1.3 million tpa of naphtha. Although the total refining capacity comprises 7.344 million tpa of oil, producing naphtha at the CDU VDU-7 unit is key to the operation. Thus, without demand from Nizhnekamskneftekhim means that the whole refinery has to stop.

**Alternative import sources & export markets**

Since the invasion many Western companies have announced their withdrawal from the Russian market and halted investments. The difficulties with the sale of Russian products abroad due to sanctions combined with problems of payment and logistics is forcing Russian chemical producers to seek out new markets.

Consumers may find it hard to procure certain speciality chemicals, such as engineering polymers. Some products may be easier to replace as some technical processes can be developed domestically using knowledge gained from foreign technology. However, for certain processes it is recognised that copying is impossible.

Some of the products that may be problematic to replace include esters of acrylic acid, methyl methacrylate, polyamide 66, polycarbonates, as well as methionine which is used to produce feed for birds and animals. Methionine imports are sourced mostly from Belgium. The textile industry, which imports special chemicals for production, is also expected to suffer.

**Logistics-VR Railways resumes Russian chemical shipments**

The Finnish railway operator VR Group is still operating in Russia through its subsidiary VR Transpoint but intends to gradually completely curtail cargo traffic over the next few months. Products such as methanol and paraxylene are still being delivered, although in less volume than before.

Present EU sanctions do not ban railway shipments between the EU and Russia. The volume of rail traffic VR Transpoint in 2021 amounted to about 37 million tons of which around a third is transported between Finland and Russia.

The termination of freight traffic contracts concluded between VR and its domestic customers must be carried out in the manner specified in the contracts and negotiated with the customers. VR's aim is to run down the freight traffic as quickly as possible, but it is expected that the process will take several months.

There was some confusion for a few days at the end of March which stopped deliveries for a few days. By the end of March around 2,000 rail cars with various cargoes were held up on the Russian-Finnish border at through the Buslovaksaya railway station, located in the region of activity of the Vyborg customs on the Russian side. The resumption allowed the backlog to be cleared, but it is not clear how long Russian exporters will be able to use this route.

## Russian petrochemical project update

**SIBUR-Neftekhim-ethylene oxide and glycol expansion**
Reconstruction of the ethylene oxide and glycol units at Dzerzhinsk were being carried out by U company Scientific Design prior to the Russian invasion, but it is not clear if this contract will finish in the face of economic sanctions. ThyssenKrupp Industrial Solutions, operating at Dzerzhinsk, had provided the project documentation, and this involvement should be ending according to technology sanctions. Currently, the design of the plant under modernisation has been completed, the installation of pumping, capacitive and heat exchange equipment is being carried out. The installation of reactor and compressor equipment was intended to be connected to the current scheme of the plant during the maintenance outage scheduled for 2022, but now may face delays.

**Amur Gas Chemical Complex faces challenges**
Sinopec suspended its participation in the construction of the Amur Gas Chemical Complex in March, which is involves plans to invest up to $500 million in the jv project with SIBUR. Sinopec, which holds a 49% stake in the jv, took the decision after at least one of SIBUR's shareholders fell under Western sanctions and fears that its involvement could jeopardize other investments.

As of the end of March, the overall level of readiness of the Amur Gas-Chemical Complex project was 37.8%, and for individual installations 43%. SIBUR claims that work continues whilst other reports that the 2.7 million tpa polyolefin project could now be frozen.

The concept of the Amur Gas Chemical Complex was derived from the Russian Chinese gas agreement from 2014 and subsequent construction of the 4,000 km Power of Siberia gas pipeline from East Siberia to Shanghai. As a result of the pipeline Gazprom decided to construct a gas processing plant near Svobodny in the Amur Oblast, close to the Chinese border. SIBUR was persuaded to build a gas-chemical complex next to the gas processing plant to provide a full chain of production and an outlet for the ethane.

SIBUR thus far states that it continues to cooperate with Sinopec. In March, China's foreign ministry summoned officials from three energy companies to review their business ties with Russian partners. The companies have set up task forces on Russia-related issues and are working on contingency plans in case of business disruptions and secondary sanctions.

**Irkutsk Polymer Plant-around 50% completed**
Irkutsk Oil Company's project Irkutsk Polymer Plant is around 50% completed and is amounts to the largest project in East Siberia. The objective of the plant is the monetization of significant volumes of associated petroleum and natural gas. The plant is under construction by Toyo Engineering, but it is not clear yet if sanctions will affect the project.

In the future, the company plans to find an economically viable solution for the use of methane such as a project for the production of blue ammonia. In addition, the company has worked out a unique technology for the extraction of lithium from brines. It is planned that in 2025 the work of the inorganic chemistry plant will be launched where the production of lithium carbonate with a purity of 99.5% will be launched.

**EU sanctions against Russian LNG**
In the fifth round of sanctions the EU banned the supply of equipment for the production of liquefied gas which may put an end to Russia's current plans to becoming one of the world's largest LNG producers. The implementation of the Arctic LNG-2 and Baltic LNG projects already under construction by Novatek and Gazprom is in question, since the ban also applies to concluded and paid contracts.

| EU Sanctions on LNG technology sales to Russia From 8 April 2022 |
|---|
| Vacuum gas oil hydrocracking units |
| Process units for gas cooling in the LNG-process |
| Process units for the separation in the LNG-process |
| Process units for the liquefaction of the natural gas |

Two LNG plants are currently under active construction in Russia: Gazprom's project at Ust-Luga for 13 million tpa and Novatek's Arctic LNG-2 for 20 million tpa. The Ust Luga project is only in the early stages and was dependent on the certification of Nord-Stream-2 which makes it likely to be frozen. Construction of the petrochemical complex at Ust Luga had only just started, and some foundations may continue to be laid but there limitations on how far the project can go without political changes. As regarding Novatek's Artic LNG-2, construction is at a more advanced stage and may achieve some partial completion. 2023 was set as the start-up date, but this is already subject to delay.

## Russian petrochemical markets

| Russian Ethylene Production (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Angarsk Polymer Plant | 39.3 | 39.3 |
| Kazanorgsintez | 112.4 | 94.6 |
| Stavrolen | 56.1 | 57.0 |
| Nizhnekamskneftekhim | 104.8 | 105.8 |
| Novokuibyshevsk Petrochemical | 8.4 | 9.3 |
| Gazprom n Salavat | 61.2 | 61.5 |
| SIBUR-Kstovo | 66.3 | 65.9 |
| SIBUR-Khimprom | 9.5 | 9.4 |
| Tomskneftekhim | 47.8 | 48.3 |
| Ufaorgsintez | 21.7 | 14.9 |
| ZapSibNeftekhim | 247.2 | 233.2 |
| Total | 774.7 | 739.2 |

**Russian ethylene production, Jan-Feb 22**

Russian ethylene production totalled 774,700 tons in the first two months in 2022 against 739,200 tons in the same period in 2021. ZapSibNeftekhim at Tobolsk produced 247,200 tons in January to February 2022 up from 233,200 tons in 2021. Nizhnekamskneftekhim produced 104,800 tons of ethylene against 105,800 tons in 2021 whilst Kazanorgsintez dropped from 112,400 tons to 94,600 tons.

Other important ethylene producers included SIBUR-Kstovo which produced 66,300 tons versus 65,900 tons. In Bashkortostan Gazprom neftekhim Salavat produced 61,200 tons against 376,400 tons, whilst Ufaorgsintez increased production from 14,900 tons to 96,100 tons. Stavrolen at Budyennovsk reduced ethylene production to 57,000 tons against 56,100 tons in the first two months in 2021.

| EU sanctions on Russian monomers (8 April 2022) | |
|---|---|
| Product | Yes or No |
| Ethylene | No |
| Propylene | No |
| Butadiene | Yes |
| Styrene | Yes |
| Ethylene Oxide | Yes |

**EU sanctions on Russian monomers**

The EU introduced sanctions on 8 April, as part of its fifth round against Russia for its invasion into Ukraine. The list included butadiene, styrene and ethylene oxide, but did not include ethylene and propylene.

| Russian Propylene Production (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Angarsk Polymer Plant | 22.3 | 21.5 |
| Kazanorgsintez | 9.4 | 7.8 |
| Lukoil-NNOS | 58.6 | 29.2 |
| Stavrolen | 22.0 | 22.7 |
| Nizhnekamskneftekhim | 54.5 | 53.2 |
| Novokuibyshevsk | 6.4 | 7.2 |
| Omsk Kaucuk | 10.0 | 2.1 |
| Polyom | 32.4 | 31.7 |
| Gazprom n Salavat | 28.0 | 27.2 |
| SIBUR Kstovo | 30.3 | 29.6 |
| SIBUR-Khimprom | 13.9 | 8.1 |
| Tomskneftekhim | 26.7 | 25.5 |
| Ufaorgsintez | 29.0 | 29.9 |
| ZapSibNeftekhim | 175.1 | 227.0 |
| Total | 518.4 | 522.5 |

**Russian propylene production, sales and exports, Jan-Feb 22**

Russian propylene production amounted to 518,400 tons in the first two months in 2022 against 522,500 tons in the same period in 2021. The combined ZapSibNeftekhim and SIBUR Tobolsk plants reduced production from 227,000 tons in the first two months in 2021 to 1.188 million tons in 2021.

In Tatarstan Nizhnekamskneftekhim produced 54,500 tons of propylene in the first two months in 2022 against 53,200 tons in 2021 whilst Kazanorgsintez increased production from 7,800 tons to 9,400 tons.

In Bashkortostan Gazprom neftekhim Salavat produced 28,000 tons versus 27,200 tons whilst Ufaorgsintez reduced production from 29,900 tons to 29,000 tons. In the Nizhny Novgorod region SIBUR-Kstovo increased production of propylene from 29,600 tons to 30,300 tons in 2021. Lukoil-NNOS at Kstovo increased production from 29,200 tons to 58,600 tons.

| Russian Propylene Exports (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | Jan-Feb 21 | Jan-Feb 20 |
| Lukoil-NNOS | 17.7 | 3.7 |
| SIBUR-Kstovo | 8.4 | 2.0 |
| Angarsk Polymer Plant | 0.0 | 6.6 |
| Total | 26.1 | 12.3 |

**ZapSibNeftekhim-PDH expansion**

ZapSibNeftekhim has started work on the modernisation and expansion of the propane dehydrogenation unit at Tobolsk aimed at increasing propylene capacity up to 561,000 tpa. Due to the expansion in polypropylene production at Tobolsk in recent years, the capacities of the PDH plant do not meet the full demand for raw materials.

As a result, ZapSibNeftekhim is required to purchase propylene on the merchant market. The aim is to lower the demand for merchant propylene from around 70-80,000 tpa to 40,000 tpa.

| Russian Propylene Domestic Sales (unit-kilo tons) | | |
|---|---|---|
| Company | *Jan-Feb 22* | *Jan-Feb 21* |
| Angarsk Polymer Plant | 2.3 | 7.4 |
| SIBUR-Kstovo | 27.4 | 24.5 |
| Lukoil-NNOS | 33.3 | 25.5 |
| Others | 11.9 | 0.6 |
| Total | 74.9 | 58.0 |

In 2021 ZapSibNeftekhim purchased 67,100 tons of propylene on the merchant market against 73,900 tons in 2020. The technology for the PDH expansion was signed for UOP C3 Oleflex and concluded prior to the Russian invasion. Problems could emerge from sanctions on the use of this technology and the status of the project.

**Russian propylene sales Jan-Feb 22**

Propylene exports from Russia amounted to 26,100 tons in the first two months in 2022 against 12,300 tons in the same period in 2021. Lukoil-NNOS increased export shipments from 3,700 tons to 17,700 tons whilst SIBUR-Kstovo shipped 8,400 tons against only 2,000 tons in January-February 2021. Revenues from propylene exports jumped from $20.1 million in 2020 to $96.3 million in 2021.

| Russian Propylene Domestic Purchases (unit-kilo tons) | | |
|---|---|---|
| ***Consumer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Saratovorgsintez | 30.6 | 27.5 |
| Volzhskiy Orgsintez | 1.9 | 2.0 |
| Akrilat | 0.0 | 4.0 |
| SIBUR-Khimprom | 5.3 | 7.8 |
| Omsk-Kaucuk | 3.6 | 0.5 |
| Tomskneftekhim | 0.5 | 0.3 |
| ZapSibNeftekhim | 27.3 | 12.9 |
| Ufaorgsintez | 2.1 | 1.8 |
| Khimprom Kemerovo | 1.2 | 0.7 |
| Plant of Synthetic Alcohol | 0.0 | 4.1 |
| Others | 13.4 | 7.6 |
| Total | 77.0 | 56.8 |

Russian sales of propylene on the domestic merchant market amounted to 74,900 tons in the first two months in 2022 against 58,000 tons in the same period in 2021. The largest propylene supplier to the domestic market was Lukoil-NNOS, shipping 33,300 tons against 25,500 tons in January to February 2021 followed by SIBUR-Kstovo which increased from 24,500 tons to 27,400 tons.

ZapSibNeftekhim increased merchant propylene purchases from 12,900 tons in January to February 2021 to 27,300 tons in the same period this year. Saratovorgsintez increased purchases of merchant propylene from 27,500 tons to 30,600 tons and SIBUR-Khimprom reduced purchases from 7,800 tons to 5,300 tons. SIBUR-Kstovo sells propylene on the domestic market and consumes propylene at Dzerzhinsk for acrylic acid and esters. In 2021 SIBUR-Neftekhim produced 26,700 tons of butyl acrylate and 10,400 tons of 2-ethylhexyl acrylate. Also, about 4,000 tons of acrylic acid of polymer grade were produced.

| Russian Styrene Production (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Nizhnekamskneftekhim | 52.8 | 53.1 |
| Angarsk Polymer Plant | 7.1 | 7.2 |
| SIBUR-Khimprom | 25.0 | 23.4 |
| Gazprom n Salavat | 35.3 | 34.7 |
| Plastik, Uzlovaya | 7.6 | 16.4 |
| Total | 127.9 | 134.7 |

| Russian Styrene Exports (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Angarsk Polymer Plant | 0.0 | 0.9 |
| Gazprom Salavat | 13.5 | 10.5 |
| SIBUR-Khimprom | 2.6 | 0.1 |
| Total | 16.1 | 11.6 |

**Russian styrene production, sales and exports, Jan-Feb 22**

Russian styrene production declined slightly from 134,700 tons in the first two months in 2021 to 127,900 tons in the same period this year. Nizhnekamskneftekhim reduced production from 53,100 tons to 52,800 tons where most of the styrene is used internally for polystyrene and synthetic rubber output. Gazprom neftekhim Salavat increased styrene production from 34,700 tons to 35,300 tons whilst SIBUR-Khimprom increased 23,400 tons to 25,000 tons.

Russian styrene exports amounted to 16,100 tons in the first two months in 2022 against 11,600 tons in the same period in 2021. Gazprom neftekhim Salavat increased exports from 10,500 tons to 13,500 tons whilst SIBUR-Khimprom increased export shipments from 100 tons to 21,600 tons.

| Russian Styrene Domestic Sales | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Angarsk Polymer Plant | 6.1 | 4.1 |
| Plastik | 0.4 | 0.2 |
| Gazprom n Salavat | 11.2 | 10.9 |
| SIBUR-Khimprom | 5.0 | 7.0 |
| Total | 22.8 | 22.2 |

Styrene 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. Gazprom neftekhim Salavat planned to ship styrene for export in April, but the product was not delivered in the first ten days in the month. This follows a reduction of shipments to Finland in March against February by 64% to 2,200 tons.

Domestic merchant sales of styrene rose from 22,200 tons in the first two months in 2021 to 22,800 tons in the same period in 2022. Angarsk Polymer Plant increased sales from 4,100 tons to 6,100 tons whilst Gazprom neftekhim Salavat increased sales from 10,900 tons to 11,200 tons. SIBUR-Khimprom reduced sales from 7,000 tons to 5,000 tons.

| EU sanctions on Russian polymers (8 April 2022) | |
|---|---|
| ***Product*** | ***Yes or No*** |
| HDPE | No |
| LDPE | No |
| LLDPE | No |
| Ethylene AO | Yes |
| Polypropylene (homo) | No |
| Polyisobutylene | Yes |
| Propylene Copolymers | Yes |
| Polystyrene | Yes |
| PVC | Yes |
| VCM-VAM copolymers | Yes |
| Polymethyl methacrylate | Yes |
| Acrylic polymers | Yes |
| Polyethers | Yes |
| Polycarbonates | Yes |
| Polyamide 6, 6-6, 6-9, 6-10 and 6-12 | Yes |

## Bulk Polymers

**Russian polymers under EU sanctions**

A wide range of polymers have been placed under EU sanctions, imposed on 8 April, although the main grades of polyethylene and polypropylene can still be traded in Europe. Even if sanctions have been avoided so far logistical challenges have already made sales of HDPE and LDPE to European customers more difficult.

Regarding some of the sanctioned import polymers, around half of volumes of ethylene-alpha-olefins and propylene copolymers are sourced from West Europe, and it may not be straightforward in replacing these volumes with supplies from other regions. Some Western producers have announced the termination of sales of polymers to Russia and Belarus, with the produced volumes redirected to West Europe. Producers are also reducing their purchases of Russian oil.

| Russian Polyolefin Exports to China (unit-kilo tons) | | |
|---|---|---|
| ***Product*** | ***2021*** | ***2020*** |
| HDPE | 438.4 | 434.1 |
| LDPE | 140.0 | 229.3 |
| Ethylene AO Copolymers | 84.8 | 0.0 |
| PP | 36.2 | 178.0 |
| Polyamide | 23.8 | 30.2 |

**Russian polymer trade to China**

In view of the barriers emerging to polymer trade with Europe, China was seen at the start of the war as a backup for Russian polyolefin producers. However, overall Chinese imports from Russia dropped by 8% in March and thus there is no indication at this stage that China will act as an alternative to Western markets. In particular the pandemic in China could be a limited factor on consumption this year, already affecting Shanghai and Russian polymer producers may not be able to exceed 2021 volumes

**ZapSibNeftekhim starts extended shutdown**

The economic effects of Russia's invasion have culminated in SIBUR taking the decision to undertake an extended shutdown at ZapSibNeftekhim's petrochemical complex at Tobolsk. The first stage of comprehensive preventive maintenance, which will last from April to June 2022. During this period, work will be carried out alternately at the production of pyrolysis, polyethylene, polypropylene, the plant of monomers and heat and steam generation. The remaining production will continue to operate in the current mode. Repair work will not affect the supply of ZapSibNeftekhim products to domestic processors, as stocks were created in advance to ensure supplies or accumulated due to the problems in selling Russian product. Scheduled repairs this year will not only increase the reliability and efficiency of technological equipment, as a result of which the burden on the environment will also decrease, but also switch to a four-year overhaul cycle for basic production from its two-year programme.

## Paraxylene-PTA-PET

| EU Sanctions on PX-PET Chain | |
|---|---|
| Product | Yes or No |
| Paraxylene | Yes |
| PTA | No |
| MEG | No |
| Acetic Acid | No |
| PET | No |

### EU Sanctions on Russian paraxylene

Paraxylene was included on the list of EU sanctions, published on 8 April, although other products in the PX-PET chain remain have not been included in the official embargo. For paraxylene It means by EU regulations 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. Russian paraxylene exports have already been affected by the self-sanctioning by the Finnish railways, blocking shipments to the Finnish ports on and off since the invasion of Ukraine. The intention of the Finnish railways is to phase out all business with Russia in the next few months.

| Russian Paraxylene Exports (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Gazprom Neft | 5.0 | 0.0 |
| Kirishinefteorgsintez | 4.4 | 11.5 |
| Ufaneftekhim | 0.0 | 1.0 |
| Total | 9.4 | 12.5 |

Export shipments of Russian paraxylene totalled 9,400 tons in the first two months in 2022 against 12,500 in the same period in 2021. Exports declined last year to the lowest level in the past decade, due partly to an increase in PTA production at Polief and partly due to aromatic complex outages. Paraxylene export prices rose last year rising in line with higher feedstock costs, averaging $670.9 per ton against $434.6 in 2020, but now have risen to over $1100 per ton. All of the paraxylene from Russia is exported to Finland and Belarus.

| Russian Paraxylene Production 2022 (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan*** | ***Feb*** |
| Gazprom Neft | 13.682 | 9.474 |
| Kirishinefteorgsintez | 5.418 | 5.174 |
| Ufaneftekhim | 4.160 | 14.986 |
| Total | 23.261 | 29.634 |

Russian paraxylene production amounted to 29,634 tons in February this year against 23,261 tons in January and 17,308 tons in December. Ufaneftekhim did not produce paraxylene in December but then produced 4,160 tons in January and 14,986 tons in February. Gazprom Neft and Kirishinefteorgsintez have produced more stable volumes of paraxylene over the three-month period. Sanctions may have some effect on production volumes of paraxylene but probably not affect the PTA chain significantly in the short term.

In view of the EU sanctions paraxylene shipments for contracts concluded before 9 April need to be completed by 10 July. Russian refineries that produce paraxylene have to find other markets or reduce utilisation rates. China is a huge importer of paraxylene, but logistics is an issue for Russian exporters.

### Ufaneftekhim-paraxylene expansion

Bashneft is working on the modernisation of the paraxylene unit at Ufa, increasing the quality of production by 0.3% to 99.95% whilst reducing production costs. Modernisation has been carried out by Russian contractors. This will allow an increase in capacity to 260,000 tpa from 165,000 tpa at present. As part of the reconstruction of the complex, the mineral adsorbent was replaced by a synthetic adsorbent of a new generation ADS-37 which raises purity from 99.65% to 99.95%. The Ufaneftekhim aromatics complex has been in operation since 1982, comprising the production of benzene, orthoxylene and paraxylene. Ultrapure paraxylene is already entering the commodity fleet for further shipment to consumers.

### Tatneft-paraxylene and other projects

Tatneft's construction of the aromatics complex at the Taneko refinery at Nizhnekamsk is well advanced but it is not clear if EU sanctions will affect equipment deliveries if needed to be purchased from Europe. Producing paraxylene for Tatneft would open the possibility of constructing a PTA plant which would supply the Ekopet PET plant at Kaliningrad.

However, this project is several years away. Even if the aromatics complex is completed Tatneft would not be able to export paraxylene to Europe under current sanctions. Other petrochemical facilities included in the Tatneft Group include Togliattikaucuk which produces synthetic rubber and was acquired from SIBUR in 2019. Ekopet has now been fully integrated into the Tatneft production and management system whereby the aim is to extract maximum effects through the synergy of our petrochemical and oil and gas processing clusters.

## Aromatics

| Russian Benzene Consumers (unit-kilo tons) | | |
|---|---|---|
| **Consumer** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Kuibyshevazot | 31.9 | 28.1 |
| Azot Kemerovo | 23.0 | 25.7 |
| Shchekinoazot | 10.0 | 13.2 |
| Kazanorgsintez | 10.6 | 14.2 |
| Omsk Kaucuk | 12.4 | 0.0 |
| Novokuibyshevsk PC | 5.5 | 10.8 |
| Zapsib | 5.9 | 7.7 |
| SIBUR-Khimprom | 15.7 | 16.5 |
| Uralorgsintez | 12.1 | 11.9 |
| Export | 14.7 | 10.1 |
| Total | 141.7 | 138.3 |

**Russian benzene market and production Jan-Feb 2022**
Russian benzene production amounted to 235,100 tons in the first two months in 2022 versus 231,600 tons in the same period in 2021. Nizhnekamskneftekhim reduced benzene production slightly from 50,000 tons to 49,500 tons, whilst Gazprom neftekhim Salavat increased production from 34,500 tons to 35,400 tons.

Benzene sales on the Russian domestic market to 141,700 tons in the first two months in 2022 against 138,300 tons in the same period in 2021. Angarsk Polymer Plant reduced sales from 9,400 tons to 9,000 tons whilst SIBUR-Kstovo increased sales from 11,500 tons to 12,500 tons. Uralorgsintez in the Perm region increased shipments from 13,900 tons to 14,300 tons.

Gazprom Neft at Omsk increased sales from 14,300 tons in the first two months last year to 16,600 tons whilst Gazprom neftekhim Salavat increased from 4,300 tons to 8,900 tons. Regarding importers, Karpatneftekhim from Ukraine increased shipments to the Russian market to 4,600 tons in the first two months before stopping production on 24 February whilst shipments from Belarus reduced from 5,200 tons to 4,000 tons.

| EU sanctions on Russian aromatics (8 April 2022) | |
|---|---|
| ***Product*** | ***Yes or No*** |
| Benzene | No |
| Orthoxylene | Yes |
| Toluene | Yes |
| Caprolactam | Yes |
| Phenol | Yes |

Russian benzene exports increased from 4,950 tons in the first two months in 2021 to 13,465 tons in 2021. This was due mainly to the reductions at Kirishinefteorgsintez and the Novolipetsk Metallurgical Combine.

Amongst the consumers Kuibyshevazot increased benzene purchases from 28,100 tons to 31,900 tons. Other caprolactam producers included Azot at Kemerovo which reduced purchases from 25,700 tons to 23,000 tons and Shchekinoazot which reduced shipments from 13,200 tons to 10,000 tons.

In the phenol sector Kazanorgsintez reduced purchases from 14,200 tons to 10,600 tons whilst Omsk Kaucuk increased purchases from zero in the first two months last year to 12,400 tons. For styrene production SIBUR-Khimprom reduced purchases from 16,500 tons to 15,700 tons.

| Russian Caprolactam Production (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Kuibyshevazot | 33.7 | 35.2 |
| Shchekinoazot | 10.0 | 9.9 |
| SDS Azot | 20.3 | 21.9 |
| Total | 64.1 | 67.0 |

The Russian domestic market for benzene has become complicated due to the artificial rouble rate. Sellers have been advised by the Federal Advisory Service (FAS) not to use European quotations and foreign exchange rates when setting selling prices. Regarding current supply, Uralorgsintez started a maintenance shutdown at the start of April which should last until the end of the month. Kirishinefteorgsintez is also reported to be down in April which should affect overall production volumes.

Lukoil continues to export benzene to foreign markets, in particular to European countries where benzene trade is not under sanctions. In the first ten days of April, Lukoil shipped about 1,200 tons of benzene from the Stavrolen plant which may amount to 3-5,000 tons for the whole month.

**Russian caprolactam production, Jan-Feb 2022**
Russian caprolactam production amounted to 371,900 tons in January to February 2022 against 367,000 tons in the same period in 2021. Kuibyshevazot reduced production from 35,200 tons to 33,700 tons whilst SDS Azot at Kemerovo reduced production slightly to 20,300 tons from 21,900 tons. Caprolactam was

placed under EU sanctions from the fifth round adopted on 8 April 2022. Exports are not likely to be affected significantly as most of the Russian caprolactam goes to Asia, particularly China and Taiwan.

| Russian Caprolactam Exports (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Dec 21*** | ***Jan-Dec 20*** |
| Kuibyshevazot | 19.3 | 53.4 |
| SDS Azot | 80.7 | 101.2 |
| Shchekinoazot | 59.4 | 45.4 |
| Total | 159.5 | 200.0 |

Russian caprolactam exports dropped from 200,000 tons in 2020 to 159,500 tons in 2021. Although Shchekinoazot increased exports from 45,400 tons to 59,400 tons, SDS Azot at Kemerovo reduced shipments from 101,200 tons to 80,700 tons and Kuibyshevazot reduced shipments from 53,400 tons to 19,300 tons. Overall caprolactam exports dropped from 237,300 tons in 2020 to 196,700 tons in 2021. Main export markets for Russian caprolactam remain China and Taiwan which took 87,600 tons and 58,800 tons in 2021 respectively. Revenues from caprolactam exports increased in 2021 to $327.7 million against $254.5 million in 2020.

| Russian Orthoxylene Domestic Sales (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Gazprom Neft | 8.9 | 8.0 |
| Ufaneftekhim | 4.5 | 0.6 |
| Kirishinefteorgsintez | 0.6 | 5.5 |
| Total | 14.0 | 14.1 |

**Russian orthoxylene market, Jan-Feb 2022**

Both orthoxylene and toluene have been listed under EU sanctions applied from 8 April 2022. Orthoxylene exports from Russia totalled 10,800 tons in the first two months in 2022 against 11,000 tons in the same period in 2021. Last year Kirishinefteorgsintez was the main exporter of orthoxylene, shipping 23,600 tons.

| Russian Toluene Production (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Kinef | 0. 0 | 5.3 |
| Gazprom N Salavat | 3.4 | 4.3 |
| Slavneft-Yaros | 6.4 | 7.2 |
| LUKoil-Perm | 6.5 | 7.8 |
| Gazprom Neft | 13.6 | 12.9 |
| RN Holding | 7.6 | 6.4 |
| Ufaneftekhim | 13.8 | 4.3 |
| Others | 2.3 | 4.8 |
| Total | 53.6 | 52.7 |

Orthoxylene domestic sales in Russia amounted to 14,000 tons in the first two months in 2022 against 14,100 tons in the same period in 2021. Gazprom Neft increased domestic shipments from 8,000 tons to 8,900 tons whilst Ufaneftekhim reduced shipments from 600 tons to 4,500 tons. Kirishinefteorgsintez reduced domestic shipments of orthoxylene from 5,500 tons to 600 tons.

| Russian Phenol Production (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Ufaorgsintez | 11.2 | 10.8 |
| Kazanorgsintez | 14.1 | 12.9 |
| Novokuibyshevsk Petrochemical | 11.0 | 12.9 |
| Omsk Kaucuk, Omsk | 14.2 | 6.9 |
| Total | 50.4 | 43.4 |

Russian toluene production totalled 53,600 tons in the first two months in 2022 against 52,700 tons in the same period in 2021. Gazprom Neft increased production from 12,900 tons to 13,600 tons whilst Ufaneftekhim increased from 4,300 tons to 13,800 tons.

**Russian phenol market, Jan-Feb 2022**

Phenol 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. Russian phenol export revenues increased from $24.6 million in 2020 to $49.0 million in 2021 with Poland serving as the largest destination taking 15,835 tons versus 8,692 tons in the previous year.

| Russian Phenol Exports by Supplier (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Omsk Kaucuk | 6.5 | 0.8 |
| Novokuibyshevsk Petrochemical | 2.5 | 2.2 |
| Ufaorgsintez | 1.2 | 1.0 |
| Total | 10.2 | 4.0 |

| Russian Domestic Market Phenol Sales by Supplier (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Omsk Kaucuk | 4.7 | 3.8 |
| Novokuibyshevsk Petrochemical | 8.6 | 9.6 |
| Ufaorgsintez | 7.5 | 10.4 |
| Total | 20.7 | 23.8 |

Sales on the domestic market are larger which means that producers are not over dependent on export activity. Sales of phenol on the domestic market totalled 20,700 tons in the first two months in 2022 against 23,800 tons in the same period this year with Ufaorgsintez reducing shipments from 10,400 tons to 7,500 tons.

## Synthetic rubber

### Russian rubber sanctions

The EU announced an import ban on rubber products and tyres on 8 April, within its fifth package of restrictive measures against Russia. An annex in the EU document further includes a wide range of synthetic rubbers and compound ingredients among materials to be prohibited from "sale, supply, transfer or export" to Russia. Isoprene rubber has been excluded from sanctions to date.

| Russian Synthetic Rubber EU sanctioned from 8 April | |
|---|---|
| ***HS Code*** | ***Product*** |
| 4002 11 | Styrene-butadiene rubber |
| 4002 20 | Butadiene rubber |
| 4002 31 | Butyl rubber |
| 4002 39 | Halogenated butyl rubber |
| 4002 51 | Nitrile butadiene rubber |

Europe accounts for an important part of Russian synthetic rubber exports, whilst also providing some key components for the tyre industry which forced some Russian tyre manufacturers to suspend production in the early days of the war. In 2021 Russian synthetic rubber exports to the EU amounted to $588 million, accounting for 30.1% of total shipments. Imports into Russia amounted to $167 million in 2021, accounting for around 73% of total inward shipments.

Due to its dependence on export activity Russia's synthetic rubber division could be one of the most affected areas in the chemical and polymer industry from international sanctions. Prior to the EU's fifth round of sanctions on synthetic rubber problems around logistics coupled with self-sanctioning by foreign consumers had started to impact on the Russian market.

| Nizhnekamskneftekhim's Rubber Sales to Europe 2021 | | |
|---|---|---|
| ***Country*** | ***Kilo tons*** | ***Value ($ mil)*** |
| Austria | 0.1 | 0.3 |
| Belgium | 1.0 | 1.7 |
| Czech Republic | 18.3 | 33.5 |
| Finland | 1.5 | 2.5 |
| France | 3.3 | 5.9 |
| Germany | 18.1 | 29.9 |
| Hungary | 42.9 | 82.5 |
| Italy | 2.8 | 4.4 |
| Latvia | 2.1 | 3.9 |
| Lithuania | 2.1 | 3.7 |
| Netherlands | 0.3 | 0.6 |
| Poland | 74.3 | 125.8 |
| Portugal | 7.1 | 11.2 |
| Romania | 21.3 | 36.0 |
| Slovakia | 24.8 | 44.2 |
| Spain | 12.9 | 23.6 |
| Turkey | 55.4 | 95.2 |
| United Kingdom | 1.1 | 1.9 |
| Rest of the world | 313.5 | 552.5 |
| Total | 602.9 | 1059.1 |

Russian rubber producers have faced logistical problems in delivering products to Europe since the outbreak of the war. Now with the new sanctions may be enough to reduce utilisation rates and to even consider unit shutdowns.

The EU sanctions also ban tyre exports to and imports from Russia. Companies such as Nokian have stated that it will affect the sales of tyres both in Russia and in the EU, specifically in Central Europe. Foreign tyre manufacturers in Russia see extremely limited possibilities for continued operations. In 2021 Russian exports of tyres were valued at $1.35 billion and imports at $2.12 billion, and thus much larger in value than synthetic rubber trade.

### Nizhnekamskneftekhim rubber exports

Prior to the fifth round of EU sanctions on 8 April Nizhnekamskneftekhim had encountered significant difficulties in the transportation of synthetic rubber to European customers, but now faces the reality of trying to find alternative markets. Isoprene rubber is so far excluded from EU sanctions, but most products produced by Nizhnekamskneftekhim are included. Last year halogenated butyl rubber exports to the EU countries accounted for 48.8% of the company's total foreign shipments. Overall Nizhnekamskneftekhim's revenue from the sale of synthetic rubbers for 2021 increased to $1.059 billion against $745.6 million for 2020 and by volume from 548,200 tons to 614,200 tons. Exports of halogenated butyl rubber increased from 124,700 tons to 137,300 tons with revenues rising from $169.9 million to $216.7 million. Revenues from isoprene rubber and polybutadiene exports rose from $236.4 million to $336.2 million and from $165.9 million to $284.5 million respectively.

## Methanol

| Russian Methanol Production (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Shchekinoazot | 256.6 | 162.7 |
| Gazprom Methanol | 155.2 | 166.0 |
| Metafrax Chemicals | 212.0 | 204.1 |
| Akron | 17.9 | 16.7 |
| Azot Novomoskovsk | 38.1 | 49.3 |
| Angarsk Petrochemical | 5.4 | 8.1 |
| Azot Nevinnomyssk | 24.0 | 23.3 |
| Tomet | 139.1 | 80.8 |
| Ammoni | 18.1 | 25.2 |
| Totals | 866.4 | 736.2 |

**Russian methanol production Jan-Feb 2022**

Russia produced 866,400 tons of methanol in the first two months in 2022 against 736,200 tons in the same period in 2021. Metafrax Chemicals at Gubakha produced 212,000 tons against 204,100 tons in January-February 2021, whilst Gazprom Methanol at Tomsk reduced production from 166,000 tons to 155,200 tons.

Tomet produced 139,100 tons of methanol in the first two months in 2022 against 80,800 tons in the same period in 2021.

Shchekinoazot produced 256,600 tons in the first two months in 2022 against 162,700 tons in January to February 2021, the increase due to the addition of new capacity. Also, in the Tula Oblast Azot at Novomoskovsk reduced production from 49.300 tons to 38,100 tons. Ammoni in Tatarstan reduced methanol production from 25,200 tons in the first two months in 2022 to 18,100 tons in the same period last year.

| Russian Methanol Sales (unit-kilo tons) | | |
|---|---|---|
| ***Period*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Exports | 412.1 | 325.5 |
| Domestic Sales | 280.9 | 307.0 |
| Total | 703.0 | 632.5 |

| Russian Methanol & Resin EU sanctions (8 April) | |
|---|---|
| ***Product*** | ***Yes or No*** |
| Methanol | No |
| Formaldehyde | No |
| Paraformaldehyde | Yes |
| Phenolic resins | Yes |
| Melamine resins | Yes |

**Russian methanol not included in EU sanctions**

Russian methanol avoided inclusion on the long list of chemicals sanctioned under the EU's fifth round adopted on 8 April, although it could be included in future rounds. Since the Russian invasion on 24 February methanol exports to Europe have been restricted by a range of logistical problems, including the blocked rail routes for regular Russian markets such as Romania and Slovakia. Shipments through Finland continue to be transported through the Russian border but lower volumes than expected are being shipped out from Kotka.

Although the Finnish rail group VR wants to terminate all business with Russia in the next few months, Russian producers continue to the use this route. Tomet stated in mid-April that it continues to ship methanol through the Oktyabrskaya railway in north west Russia to Finland. In March the VR Group had informed that Tomet was one of half a dozen companies where there would no further trade, but this ruling may have been too hard legally to implement with such short notice.

| Russian Methanol Export Destinations (unit-kilo tons) | | |
|---|---|---|
| ***Country*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Belarus | 41.7 | 22.2 |
| Finland | 139.0 | 150.1 |
| Germany | 0.4 | 0.8 |
| Kazakhstan | 7.1 | 3.8 |
| Latvia | 2.6 | 4.1 |
| Lithuania | 19.0 | 17.5 |
| Netherlands | 42.4 | 4.6 |
| Poland | 68.6 | 52.4 |
| Romania | 26.5 | 8.4 |
| Slovakia | 49.0 | 24.5 |
| Turkey | 0.0 | 3.6 |
| UK | 8.4 | 0.0 |
| Ukraine | 11.9 | 9.6 |
| Others | 0.5 | 0.0 |
| Total | 417.1 | 301.6 |

Export deliveries of methanol in the first three weeks in April from Russia amounted to 137,573 tons, which was down on numbers hoped for by producers. In March exports achieved around 69% of planned shipment targets and the lower volumes were largely offset by increased domestic merchant sales.

**Russian methanol exports, Jan-Feb 2022**

Russian producer exports of methanol rose in the first two months from last year 325,500 tons to 412,100 tons this year. Tomet exported 59,800 tons of methanol in the first two months up from 24,900 tons in the same period in 2021.

| Russian Methanol Exports by Producer (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Azot Nevinnomyssk | 0.0 | 2.3 |
| Azot Novomoskovsk | 8.0 | 16.7 |
| Akron | 1.6 | 1.1 |
| Metafrax Chemicals | 83.8 | 84.0 |
| Gazprom Methanol | 70.0 | 79.5 |
| Tomet | 59.8 | 24.9 |
| Shchekinoazot | 188.9 | 117.0 |
| Total | 412.1 | 325.5 |

Metafrax Chemicals reduced exports from 84,000 tons in January and February 2021 to 83,800 tons this year whilst Gazprom Methanol reduced exports from 79,500 tons to 70,000 tons. The largest Russian exporter in the first two months was Shchekinoazot shipping 188,900 tons versus 117,000 tons in January to February 2021.

Finland accounted for 139,000 tons of Russian methanol exports in the first two months against 150,100 tons in the same period in 2021.

Poland increased deliveries from Russia from 52,400 tons to 68,600 tons whilst exports to the Netherlands rose from 4,600 tons to 42,400 tons. The rise in exports to the Netherlands was due to higher production and transhipment in 2022 from Tomet at Togliatti.

| Russian Methanol Domestic Sales (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Azot Nevinnomyssk | 5.3 | 4.3 |
| Azot Novomoskovsk | 23.5 | 32.0 |
| Metafrax Chemicals | 58.7 | 73.5 |
| Gazprom Methanol | 68.0 | 84.4 |
| Tomet | 74.0 | 61.7 |
| Shchekinoazot | 41.9 | 33.3 |
| Ammoni (Mendeleevsk) | 9.6 | 17.9 |
| Total | 280.9 | 307.0 |

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

Merchant sales of methanol on the Russian domestic market amounted to 280,900 tons in the first two months against 307,000 tons in the same period in 2021. Tomet increased sales from 61,700 tons to 74,000 tons whilst Gazprom Methanol reduced sales from 84,400 tons to 68,000 tons.

Metafrax Chemicals reduced shipments to the domestic market from 73,500 tons in January to February 2021 to 58,700 tons in the same period this year.

In April the domestic market continued to provide opportunities for producers but on a more reduced basis than in March. Both synthetic rubber and phenol-formaldehyde resins, which are major consuming applications of methanol in Russia, have been placed under EU sanctions from its fifth round. Nizhnekamskneftekhim is Russia's largest domestic merchant consumer, already facing pressure on production levels due to the difficulties in selling products to Europe.

| Akron Production & Consumption (unit-kilo tons) | | |
|---|---|---|
| ***Product*** | ***Jan-Dec 21*** | ***Jan-Dec 20*** |
| Methanol | 105 | 98 |
| *Incl. in-house consumption* | 91 | 78 |
| Formalin | 169 | 151 |
| Incl. in-house consumption | 150 | 131 |
| Urea-formaldehyde resins | 199 | 171 |
| Incl. in-house consumption | 4 | 2 |

Some methanol producers such as Akron at Novgorod are better placed to continue producing at full rates where internal processing accounts for a large part of the usage. From total methanol production of 105,000 tons by Akron last year 91,000 tons was consumed in the production of formalin. Formalin is not listed on EU sanctions, whilst the finished products urea-formaldehyde resins from Akron are shipped largely to Belarus.

Regarding domestic consumers Nizhnekamskneftekhim recorded a slight fall in purchases from 60,900 tons in the first two months to 59,700 tons whilst Gazprom increased purchases from 33,300 tons to 49,300 tons. Nearly all of the methanol purchases made by Gazprom come from its subsidiary Gazprom Methanol. Togliattikaucuk reduced methanol purchases from 25,400 tons in January to February 2021 to 12,100 tons, the drop being mainly due to lower MTBE production.

Gazprom Dobycha Noyabrsk provides methanol to the company's remote facilities in Yakutia and Kamchatka. Methanol is used to dry the gas during its commodity preparation at the Chayanda field. Methanol in the amount of 350 tons will be delivered to the Kamchatka fields in May via the Sea of Okhotsk. The transportation route starts from the site of the Tomsk plant of Gazprom Methanol using tank containers. Methanol to the Chayanda field is undertaken either by road using the Vilyuy winter route whilst in the warm season river transportation is used for delivery to Chayanda. The navigation season lasts from 10 May to

10 October during which two-thirds of annual methanol supplies of around 10,000 tons will be supplied to the site.

In the area of urea-formaldehyde resins Kronospan bought 16,700 tons of methanol against 21,900 tons in January to February 2021 and Metadynea reduced purchases from 21,300 tons to 18,300 tons. Uralkhimplast at Nizhniy Tagil decreased methanol purchases for resin production from 4,400 tons to 4,100 tons.

Uralkhimplast in 2021 increased its net profit by 29.3%, to 471.1 million roubles, after the company's revenue increased 1.5 times, to 7.23 billion roubles. The production of synthetic resins and plastics in 2021 increased by 14.7% to 82.360 tons, phenol-formaldehyde resins by 11.9% to 67,430 tons, and formalin by 28.6% to 58,420 tons. The net profit of Uralkhimplast in the first quarter of 2022 amounted to 79.4 million roubles, which is 25.5% lower than the same period last year. The fall in net profit occurred at the same time as revenues rose by 40% to 1.9 billion roubles.

**Shchekinoazot-DME plant**
DME Aerosol has completed the construction of the dimethyl ether plant at Shchekinoazot. The 20,000 tpa project was implemented by Thyssen Krupp Uhde Engineering Services GmbH (Germany). DME Aerosol LLC is a joint venture of the Shchekinoazot and the German concern PCC SE. Production will reduce the demand for imports which increased to 8,716 tons in 2021. Exporting product was one of the original projects aims, but this is now complicated due to western sanctions.

**Russian Methanol Purchases by Consumer (unit-kilo tons)**

| *Consumer* | *Jan-Feb 22* | *Jan-Feb 21* |
|---|---|---|
| Nizhnekamskneftekhim | 59.7 | 60.9 |
| Togliattikaucuk | 12.1 | 25.4 |
| Uralorgsintez | 4.1 | 12.1 |
| SIBUR-Khimprom | 0.6 | 2.4 |
| SIBUR Tobolsk | 7.2 | 5.4 |
| Omsk Kaucuk | 16.9 | 16.0 |
| Novokuibyshevsk NPZ | 4.7 | 4.8 |
| Uralkhimplast | 4.1 | 4.4 |
| Slavneft-Yanos | 2.5 | 1.6 |
| Metadynea | 15.3 | 18.3 |
| Kronospan | 16.7 | 21.9 |
| Gazprom | 49.3 | 33.3 |
| Khimsintez | 7.4 | 1.4 |
| Volzhsky Orgsintez | 6.7 | 1.5 |
| Togliattiazot | 21.5 | 11.2 |
| Others | 51.9 | 89.7 |
| Total | 280.9 | 310.1 |

**Shchekinoazot-methanol processing and cluster**
Shchekinoazot is the most export-oriented of the methanol producers. The company faces short term challenges in maintaining full production even if it possesses medium and long-term plans to focus more on internal methanol processing. Part of these plans include local companies using methanol for resin production.

The first stage of the resin development strategy involves the construction of a second unit of concentrated low-methane formalin (KMMF-110) with a capacity of 110,000 tpa and the production of urea and melamine-formaldehyde resins (KFMS-220) with a capacity of 220,000 tpa. Chinese company Wuxi Huali Petroleum and Chemical Engineering was chosen as the licensor (of the KMMF-110 unit and Bakelite for the licensor of the KMFS-220 unit. Both of these units are intended for completion by the end of 2024 but even then, will only consume around 150,000 tpa of methanol.

**Evrokhim-Kingisepp methanol project**
Russian company Springald Group is reported to have started engineering preparation of Evrokhim's methanol project for the Kingisepp district in the Leningrad region. The plot of more than 60 hectares will be handed over to Evrokhim in the summer of 2022. The chances of the plant materialisng on schedule by 2025 seem small as the project depends on acquiring Western technology.

In 2021 Evrokhim outlined plans for investment into the construction of a methanol plant and terminal in the Kingisepp region of Leningrad. This involved the construction of a methanol pipeline and a port terminal for shipment of products. The terminal is one of the main keys to the project. Alternative solutions for methanol would include being shipped by rail to other Baltic ports such as Sillamae in Estonia. Evrokhim is proceeding as far as it can with the project for now.

**Marubeni exits Volgograd methanol project**
Construction work on the Volgograd methanol project officially started in April despite the current uncertainty over deliveries technology and equipment, particularly from Haldor Topsoe. In March Marubeni withdrew from the Volgograd methanol project where it was participating as a joint investor with the Russian group

AEON Corporation. The methanol plant is under construction on the site of the former Khimprom company which closed in 2014.

The project cost for 1.0 million tpa of methanol was estimated at $800 million and AEON reached agreement with Japanese companies Marubeni Corporation and Mitsubishi as technology partners. US and European companies were afraid to work with Russia based on those sanctions imposed on Russia after it occupied Crimea. At the end of March, the Japanese companies decided to withdraw from the project which now means that the Russian company is seeking another investor, possibly China. The most likely outcome is that the project construction will go as far as possible without foreign partners with hope of change in the overall political environment.

## Organic chemicals

**EU sanctions on Russian organic chemicals**

Oxo alcohols were placed under EU sanctions from 8 April. Although direct trade for butanols and 2-EH is limited with Europe, the sanctions imposed by the EU could affect other derivatives. For the most part oxo alcohols are consumed domestically either through internal processing or merchant market sales and so judged in isolation the sanctions do not create problems.

| EU sanctions on Russian organic chemicals (8 April 2022) | |
|---|---|
| ***Product*** | ***Yes or No*** |
| Normal butanol | Yes |
| Isobutanol | Yes |
| 2-EH | Yes |
| Isopropanol | No |
| Acetone | Yes |
| Acetic Acid | No |
| DINP/DOP | Yes |
| Phthalic Anhydride | No |
| Maleic Anhydride | No |
| Methionine | Yes |

However, due to the side effects of sanctions and logistical route difficulties the downstream market for oxo alcohols is feeling some impact, particularly in the paint industry where missing raw materials have started to emerge.

Whilst butanols are produced domestically Russia needs to import other raw materials for paints and varnishes for the car sector. Even foreign coatings manufacturers working inside Russia such as BASF at Pavlovski Posad (near Moscow) produces products mainly from imported raw materials from Germany, which will not be possible after 10 July. Another coatings company Helios Rus at Odintsovo also faces problems from sanctions on imported raw materials.

Around 50% of water-dispersion coatings for the Russian market are sourced from Germany, Poland, Finland and Korea. Aliphatic polyurethane paints are not produced in Russia at all and are essential for cars. Some Russian manufacturers have accelerated work to expand the range of paints and varnishes, but this is not a quick issue. The problem is also that it will not be possible to accumulate large stocks of paints and varnishes before the introduction of restrictions in July. Suppliers have reserves for two three months and are actively negotiating with manufacturers from other countries. China is the primary alternative for sourcing, but it is not clear about availability and delivery times.

| Russian N-Butanol Production (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Angarsk Petrochemical company | 6.3 | 6.0 |
| Azot Nevinnomyssk | 2.9 | 3.3 |
| Gazprom neftekhim Salavat | 11.7 | 12.4 |
| SIBUR-Khimprom, Perm | 4.2 | 4.8 |
| Total | 25.1 | 26.5 |
| | | |
| **Russian Isobutanol Production (unit-kilo tons)** | | |
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Angarsk Petrochemical Company | 4.8 | 2.7 |
| Gazprom neftekhim Salavat | 5.8 | 5.7 |
| SIBUR-Khimprom, Perm | 8.8 | 4.4 |
| Total | 19.3 | 12.8 |

**Russian butanol production Jan-Feb 2022**

Russian normal butanol production fell from 26,500 tons in the first two months in 2021 to 25,100 tons in the same period in 2022. Gazprom neftekhim Salavat was the largest Russian producer, reducing production from 12,400 tons to 11,700 tons in January to February 2021. Isobutanol production in Russia increased from 12,800 tons in the first two months last year to 19,300 tons in 2022 during. SIBUR-Khimprom increased production in the first two months from 4,400 tons in 2021 to 8,800 tons.

However, SIBUR-Khimprom encountered some production difficulties in March which has affected availability of oxo alcohols for merchant sales. There is little availability from other producers at Salavat, Angarsk and Azot at Nevinnomyssk which uses butanols further processing into solvents. In addition, the enterprise was still idle at the beginning of April: scheduled repairs were carried out.

Russian producers intended to ship 1,500 tons of normal butanol to the domestic market in April, and 2,400 tons to foreign markets. Sales destinations include China and Turkey which should not face complications from sanctions. In March, Russian companies supplied 4,992 thousand tons of n-butanol to the country's domestic market, which was 6% less than in February whilst at the same time, the export of the product increased by 10% to 1,456 tons. Isobutanol sales on the domestic merchant market are minimal, amounting to 221 tons in March compared to exports of 5,190 tons. The main exporter of isobutanol was SIBUR-Khimprom.

| Russian Acetone Production (unit-kilo tons) | | |
|---|---|---|
| ***Producer*** | ***Jan-Feb 22*** | ***Jan-Feb 21*** |
| Ufaorgsintez | 7.3 | 7.9 |
| Kazanorgsintez | 9.0 | 8.8 |
| Novokuibyshevsk Petrochemical | 6.8 | 7.9 |
| Omsk Kaucuk | 8.3 | 2.9 |
| Total | 31.5 | 27.6 |

**Russian acetone market Jan-Feb 2022**

Russian acetone production amounted to 31,500 tons in the first two months in 2022 against 27,600 tons in the same period in 2021. Omsk Kaucuk produced 8,300 tons of acetone against 2,9800 tons whilst Kazanorgsintez increased production from 8,800 tons to 9,000 tons.

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.

Acetone exports from Russia totalled 65,300 tons in 2021 against 47,700 tons in 2020. Revenues from Russian acetone exports rose from $22.5 million in 2020 to $45.2 million in 2021 after prices rose in accordance with higher feedstock costs. The largest market for Russian acetone exports was the Netherlands taking 29,500 tons against 13,800 tons in 2020. Belarus imported 10,900 tons of acetone from Russia in 2021 versus 9,700 tons in 2020.

**SIBUR completes construction of maleic anhydride plant**

ZapSibNeftekhim has completed construction and installation work on the maleic anhydride plant at Tobolsk. The capacity of the plant has been designed to produce 45,000 tpa based on Conser technology from Italy. Start-up is scheduled for the second quarter in 2022. Most of the production is intended for export activity. The question that may be difficult to answer is how easy it will be to sell maleic anhydride to other countries.

**Russian polyurethane sector falls partly under EU sanctions**

The Russian polyurethane sector is encountering difficulties with raw material supplies from sanctions and logistical issues. TDI and MDI were excluded from the EU sanctions introduced against Russia on 8 April, but holdups in the logistical process has slowed down delivery times. One of the major polyurethane producers the Dow Izolan plant at Vladimir is believed to still be operating despite reports that it had been closed. However, the plant is reported to be encountering problems with deliveries of raw materials. Further investment though seems unlikely as Dow Chemical which holds a 49% stake in the jv is minimising its involvement in the Russian market.

| EU sanctions on Russian PU chain (8 April 2022) | |
|---|---|
| ***Product*** | ***Yes or No*** |
| Propylene Oxide | Yes |
| Polyols | Yes |
| MDI | Yes |
| TDI | No |
| Polyurethane | Yes |

Due to increasing Russian isolation Tatarstan has renewed its proposed suggestions for constructing isocyanate facilities, but probably unrealistic taking all factors into account. However, it is valid to state that the shortage of propylene oxide along with the lack of production capacity of isocyanates (MDI and TDI) places restrictions on the growth of the Russian industry of polyurethane foams and related industries.

## Impact of isolation on Russian chemical markets

| Russian LABS Imports (unit-kilo tons) | | |
|---|---|---|
| ***Country*** | ***Jan-Dec 21*** | ***Jan-Dec 20*** |
| France | 2.2 | 2.0 |
| China | 11.0 | 15.8 |
| Egypt | 0.1 | 1.0 |
| Germany | 8.1 | 6.7 |
| Czech Republic | 2.9 | 3.4 |
| India | 2.6 | 1.5 |
| Italy | 3.5 | 2.8 |
| Norway | 1.9 | 0.8 |
| Poland | 1.4 | 1.7 |
| South Korea | 2.3 | 2.2 |
| Sweden | 1.8 | 1.7 |
| Others | 3.9 | 5.4 |
| Total | 41.7 | 45.0 |
| **Russian LABS Imports ($ mil)** | | |
| ***Country*** | ***Jan-Dec 21*** | ***Jan-Dec 20*** |
| France | 3.5 | 2.8 |
| China | 15.6 | 15.6 |
| Czech Republic | 2.9 | 2.7 |
| Egypt | 0.1 | 1.3 |
| Germany | 15.8 | 12.0 |
| India | 4.2 | 2.2 |
| Italy | 7.7 | 5.9 |
| Norway | 4.3 | 1.4 |
| Poland | 2.1 | 1.9 |
| South Korea | 3.5 | 2.6 |
| Sweden | 7.4 | 7.5 |
| Others | 12.5 | 11.6 |
| Total | 79.7 | 67.7 |

**Detergent and household chemical raw material challenges**

The production of liquid detergents depends to a large extent on imported raw materials, some of which were placed under EU sanctions on 8 April. Even before sanctions were introduced deliveries of raw materials were being affected by transport problems. For domestic producers such as Nefis Cosmetics in Kazan the dependency on imported raw materials could restrict production volumes and thus the company is looking towards domestic alternatives.

Nizhnekamskneftekhim is already considering an increase in the production of alpha-olefins which would help Nefis Cosmetics in the production of liquid detergents. An expansion would be dependent though on Linde technology which is not available under the new sanctions' regime. Current alpha olefins production at Nizhnekamsk does not meet the specification standard for detergent manufacture. Moreover, for alpha olefins production Nizhnekamskneftekhim may not have enough ethylene whilst the technology belongs to Linde which is restricted by sanctions and suspended all new business in Russia.

Russia does not produce higher fatty alcohols and needs to import in addition to amines. It is not clear if amines and fatty alcohols come under EU sanctions but alkylbenzenes are listed. There is domestic production of linear alkylbenzene (LAB/LABS) at Kirishi even if volumes are insufficient to meet domestic demand. Taneko could potentially produce LAB/ABSK after its aromatics complex is completed at Nizhnekamsk, but questions remain over technology.

Nefis Cosmetics, with its AOS and Sorti brands, traditionally competes with Procter & Gamble, which produces Fairy. As a result, the Kazan company ranks second in the Russian market in relation to dishwashing detergents, producing 110,400 tons in 2020.

| Russian Sodium Chlorate Imports (unit-kilo tons) | | |
|---|---|---|
| ***Country*** | ***Jan-Dec 20*** | ***Jan-Dec 21*** |
| Finland | 27.4 | 27.3 |
| Uzbekistan | 9.2 | 9.0 |
| Sweden | 0.8 | 0.5 |
| Others | 0.0 | 0.0 |
| Total | 37.3 | 36.8 |
| | | |
| **Russian Sodium Chlorate Imports ($ mil)** | | |
| ***Country*** | ***Jan-Dec 20*** | ***Jan-Dec 21*** |
| Finland | 18.2 | 16.3 |
| Uzbekistan | 2.6 | 3.5 |
| Sweden | 0.5 | 0.3 |
| Others | 0.0 | 0.0 |
| Total | 21.3 | 20.2 |

**Production of reagents for cellulose bleaching**

After the initial blocking of sales from Finnish company Kemira, since sanctioned by the EU, Russia has been forced to consider the production of its own chemical reagents for the paper industry. Since Kemira has stopped selling reagents the price of office paper for a wide range of purposes has risen several times creating problems for schools, businesses, etc. Some suggestions are being considered in particular from Arkhangelsk, where pulp and paper production has existed for a long time. However, paper for the consumer industry is not produced with focus on containerboard, hardwood and soft cellulose.

Most pulp and paper enterprises in Russia, as well as in West Europe and the US, use the generally accepted technology for bleaching cellulose using chlorine dioxide according to the Matheson system using liquefied sulphur dioxide anhydride. Instead of

sulphur dioxide, hydrochloric acid has been proposed. The first technical tests were carried out at the plant itself and may work but turning it into something that could be used widespread may be difficult.

| Russian Hydrogen Peroxide Imports (unit-kilo tons) | | |
|---|---|---|
| ***Country*** | ***Jan-Dec 21*** | ***Jan-Dec 20*** |
| Belgium | 3.5 | 5.5 |
| Finland | 74.1 | 68.8 |
| Netherlands | 0.8 | 2.0 |
| Sweden | 5.9 | 4.0 |
| Others | 1.6 | 1.8 |
| Total | 85.9 | 82.2 |
| | | |
| **Russian Hydrogen Peroxide Imports ($ mill)** | | |
| ***Country*** | ***Jan-Dec 21*** | ***Jan-Dec 20*** |
| Belgium | 2.8 | 3.2 |
| Finland | 33.9 | 29.4 |
| Netherlands | 0.5 | 1.0 |
| Sweden | 2.8 | 1.9 |
| Others | 5.7 | 6.6 |
| Total | 45.7 | 42.0 |

**Khimprom Novocheboksarsk could increase prod#uction of hydrogen peroxide**

Some Russian chemical producers are benefiting from the withdrawal of European chemical companies. Khimprom at Novocheboksarsk states that it has experienced around a 50% increase in demand for hydrogen peroxide since the end of February.

Hydrogen peroxide was included in the fifth round of EU sanctions adopted on 8 April, and thus Khimprom will continue to benefit the embargo. For the purchase of the main raw materials, Khimprom was forced to reorient itself from Europe to China. Another side effect of Russia's isolation for Khimprom has been an increase in the demand for chlorine and the production at Novocheboksarsk has been increased by two-fold since the start of the war. Other products where demand has been increasing include chloromethanes and sodium percarbonate. There is also good demand for organosilicon, flotation reagents, and additives to mineral oils.

At the same time as demand for its own products has been rising, Khimprom is facing difficulties in receiving supplies of imported raw materials. Many commercial chains within the country are disintegrating, foreign ties are broken, as a result of which there is a shortage and rise in price of raw materials, spare parts and equipment.

Logistical problems affect both import and export shipments. Some products which Khimprom exports such as calcium hypochlorite can easily be reoriented to the Russian market, but for other products such as acetonanile and diphenyl guanidine it is not straightforward in finding domestic consumers or other export markets. The company is thus being forced to find new niches within the country and alternative ways of supplying foreign raw materials and switching to other modes of transport.

Khimprom belongs to the Orgsintez group which is building a new plant at Novocheboksarsk for the production of anthraquinone hydrogen peroxide, with a capacity of 50,000 tpa. Work on the project is estimated at 68% of the construction schedule with the aim of launching the new plant at the end of 2023. Currently, Khimprom produces hydrogen peroxide using isopropyl technology.

## Ukraine

**Ukrainian chemical sector Q1 2022**

Whilst Ukraine not a significant producer of organic chemicals and polymers, it does possess a number of companies operating in other sectors of the chemical industry including pharmaceuticals where there is a high degree of specialisation. Sales of chemical products fell on average by 30% in January-March 2022, compared to the same period in 2021. In January and February, exports of chemical products amounted to almost $600 million, but slumped to $160 million in March, following Russia's invasion on 24 February.

| Ukrainian-Russian Chemical & Polymer Trade ($ mil) | | |
|---|---|---|
| ***Category*** | ***2021*** | ***2020*** |
| Chemicals exports from Ukraine | 839 | 743 |
| Chemicals imports into Ukraine | 932 | 700 |
| Plastics exports from Ukraine | 178 | 154 |
| Plastics imports into Ukraine | 451 | 296 |
| Rubber exports from Ukraine | 26.9 | 20.1 |
| Rubber imports into Ukraine | 152 | 102 |

In terms of chemical and polymer trade with Russia business has been in decline since around 2013. Whilst most values were higher than in 2021 than in 2020 physical volumes continued to fall. If after the war Ukraine survives as a country previous business links may be hard to revive. Even those chemical facilities located away from active hostilities have had to suspend production due to disruptions in supply chains, lack of funds to buy raw

materials and a reduced workforce as workers have moved to safer regions and abroad. The industry is also coping with global factors such as rising prices for hydrocarbons. The vast majority of manufacturers of chemical products are not functioning. Production lines are frozen, and products have been sold or exported to safe regions. The main task of the national chemical industry is to survive under such critical conditions.

**Ukrainian polyurethane raw material problems**

Some Ukrainian manufacturers of polyurethane products are still trying to operate despite the war but are almost inevitably experiencing a shortage of raw materials. Western Ukrainian manufacturers of flexible products made of polyurethane (for example, such as furniture foam rubber) lack raw materials from European plants that refuse to supply them and extend contracts. Foam Group Holdings at its plant in Kvasilov, near Rivne, has stopped production because the plant ran out of raw materials. Ukrainian manufacturers have offered to arrange freight forwarders with a Ukrainian distributor in Europe and the US, but this was not accepted.

Polyols and TDI have been supplied in parts to Ukraine, but manufacturers are running on a day-to-day basis. In an effort to alleviate the situation for refiners, the Ukrainian government has included polyols in a list of strategic raw materials that can be bought for the country's limited reserves of dollars and euros.

## Central Asia

**SOCAR Methanol 2022**

Azerbaijan is looking to take advantage of Russia's logistical challenges in exporting methanol by meeting some of the demand. Some European consumers have already been in contact. SOCAR Methanol produced 96,000 tons of methanol in January-February 2022. At the start of March, the company's warehouse held 31,000 tons of methanol. From its production in 2021 SOCAR Methanol exported 74,460 tons of methanol worth $23.827 million.

**Kazakh polypropylene plant completion**

KazMunayGaz has completed the main construction at the gas chemical complex of Kazakhstan Petrochemical Industries (KPI) in the Atyrau region. After commissioning, the 500,000 tpa plant will produce more than 65 different grades of polypropylene. The raw material propane is delivered from the Tengiz field to the site of the complex by rail in tank cars. Tengizchevroil will supply 550,000 tpa by rail. At the plant, the raw materials will be processed at the propane dehydration unit to obtain propylene, and then at the polymerisation unit will receive granular polypropylene.

**LAB/LABS project Uzbekistan**

For the GTL plant at Shurtan Uzbekneftegaz has signed a preliminary deal with Honeywell UOP on a project to produce linear alkylbenzenes. Under the memorandum of understanding (MoU), the plant will produce up 100,000 tpa of linear alkylbenzenes (LABs) using a by-product of kerosene production. Uzbekistan launched its first gas-to-liquids (GTL) plant in a $3.6 billion project to extract value from domestically produced natural gas.

**Uzbekistan-reagent investments**

Uzbekneftegaz plans to organise the production of new types of products such as diethyl enamine and methylethyleneamine together with the Russian company Sintez OKA. Chemical reagents developed by the company Sintez OKA are already used in oil and gas production departments and processing enterprises of Uzbekneftegaz. An agreement was reached to accelerate the work on technical testing of products developed by Sintez OKA for the project of gas purification from mercaptan compounds at the Mubarek Gas Processing Plant.

**Shurtan Gas Chemical Complex production 2021**

Shurtan Gas Chemical Complex processed 4.174 billion cubic metres of natural gas in 2021 and 135,200 tons of polyethylene. The plant generated exports of $5.599 million in 2021, up 19.6% on pre year forecasts.

**Uzbek domestic polyolefin sales increase**

Two polyolefin plants belonging to Uzbekneftegaz, the Ustyurt Gas Chemical Complex and the Shurtan Gas Chemical Complex, jointly supplied 23% more polyethylene and polypropylene to the domestic market in the first two months this year. Due to increased domestic demand the export of polyethylene produced by the Shurtan Gas Chemical Complex has been stopped in addition to polypropylene produced by Uz-Kor Gas Chemical. Uz-Kor Gas Chemical was put into operation in 2016. It has a production capacity for the production of ethylene of 400,000 tpa, 387,000 tpa of HDPE, 83,000 tpa of propylene and polypropylene tpa. The capacity of the Shurtan Gas Chemical Complex is 125,000 tpa of polyethylene.

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