CIREC monthly NEWS

Chemical industry reporting for Central and South East Europe
Supplemented by developments in Russia & neighbouring states

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

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Key points from this issue:

Central European feedstock and petrochemical production

- Saudi Arabia supplied 7.952 million tons to Poland in the first eight months in 2023, just under 50% of total supply, at an average price of €555.5 per ton
- PKN Orlen reduced ethylene production in the first eight months in 2023 to 246,800 tons from 317,700 tons in the same period in 2022
- Caprolactam production in Poland dropped from 107,000 tons in the first eight months of 2022 to 58,900 tons this year
- The Olefiny III complex investment currently is at the halfway. Most of the large dimensions have already been installed and from 2024 the installation will start for pipelines, automation, etc
- Synthos reduced the production of synthetic rubber in Poland from 186,400 tons in the first eight months to 126,800 tons in the same period in 2023, the drop attributed to lower demand
- PKN Orlen and Basell Orlen Polyolefins (BOP) produced a combined total of 201,300 tons of polyethylene at Plock in the first eight months in 2023 against 215,300 tons in 2022

Central European polymer and organic chemical markets-weak economies affect demand

- Hungarian propylene exports amounted to 51,430 tons in the first seven months this year, most of which went to Slovakia at a price of €1348.5 per ton
- Import costs for organic chemicals into Poland dropped from €3.519 billion in the first eight months in 2022 to €2.331 billion in the same period in 2022
- Imports of propylene into Poland dropped in the first eight months in 2023 to 84,856 tons against 91,902 tons in the same period in 2022
- MDI imports into the Czech Republic totalled 24,633 tons in the first eight months in 2023 against 23,672 tons in the same period in 2022. Hungary provided the largest share of imports at 7,124 tons followed by Belgium with 6,190 tons
- Methanol imports into Poland dropped from 629,681 tons in the first eight months in 2022 to 401,321 tons in the same period in 2023

Russian chemical production & trade

- Russian ethylene production increased in the first eight months this year to 2.995 million tons against 2.928 million tons in January to August 2022
- Russian propylene production amounted to 1.879 million tons in January to August 2023 against 1.880 million tons in the same period last year
- The deficit of propylene oxide in the Russian market in 2022 was estimated at 100,000 tpa. The main area of application of propylene oxide in Russia is in the production of polyesters, which is undertaken at Nizhnekamskneftekhim
- In the first eight months this year polyol imports into Russia from China amounted to 79,700 tons against 33,000 tons in the same period in 2022 and 32,700 tons in 2021
- Imports of MDI into Russia from China rose from 43,500 tons in January to August 2022 to 89,000 tons in the same period in 2023
- The sharp devaluation of the rouble since June has led to a rise in price of isoprene rubbers and isoprene copolymers, amounting to 10.3% over the third quarter

Central Asian petrochemical projects

- Sinopec has finally reached agreement in the project for the construction of the 1.25 million tpa polyethylene plant complex in Kazakhstan with a share of 30%. The share breakdown in comprises 40% for Kazakh investors, and 30% for SIBUR (having previously been agreed for 40%)
- MTO project in Uzbekistan receives first reactor which will be used for glycols production

CENTRAL and SOUTH EAST EUROPE

Central European feedstocks

Czech Crude purchases (€ per ton) Jan-Aug 2023		
Country	***Vol (kilo tons)***	***€ per ton***
Azerbaijan	1247.7	604.1
Kazakhstan	346.0	594.1
Russia	3135.8	407.6
US	181.5	596.1
Total	4911.4	550.5

Latest crude supply news Central Europe

Czech imports of Russian crude amounted to 4.911 million tons in the first eight months in 2023 of which Russia supplied 3.136 million tons and Azerbaijan 1.248 million tons. Average prices amounted to €550.5 per ton, with prices from Russia dominating at €407.6 per ton.

Hungarian crude purchases Jan-Jul 2023		
Country	***Vol (ktons)***	***€ per ton***
Azerbaijan	90.323	527.447
Croatia	266.660	568.909
Iraq	225.427	439.009
Kazakhstan	533.500	566.747
Russia	2476.959	352.521
Others	0.720	503.979
Total	3593.590	408.4

The Czech Republic increased oil imports via the Druzhba pipeline to 65% of total purchases in the first eight months this year, up from 56% in 2022. Partly this is attributed to the price cap that makes Russian crude cheaper than other sources. However, it could be due to stockpiling crude in anticipation of possible disruptions to transit through Ukraine and also the difficulties in completely replacing Russian crude.

The Czech Republic has two primary sources of oil: the Druzhba pipeline from Russia and the IKL pipeline, which is connected to the TAL pipeline from Italy and carries oil through Germany. Neighbouring Slovakia is as much as 70% dependent on Russian oil, while countries such as Poland and Germany have limited their Russian imports. The Czech Republic is also taking steps to reduce its dependence, with a project to increase the capacity of the TAL pipeline from Italy expected to be completed in 2025.

The Adria is seen the key alternative to the Druzhba for Hungary and Slovakia. MOL is taking actions to manage the risk of possible crude oil supply disruption, including consideration of using alternative supply routes of sufficient capacity. The MOL Group moreover has access to state reserves which enables it to supply its markets in case of interruptions of the Druzhba pipeline.

Hungary's average price for crude imports this year has amounted to €408.374 per ton, mainly helped by the price cap on Russian crude. Purchases of crude from Russia in January to July amounted to 2.476 million tons from the total of 3.594 million tons, thus accounting for 69% of supply. The Russian average price of €352.531 per ton compared against the next lowest price of €439.009 per ton from Iraq, although volumes from Iraq were small. Volumes from Kazakhstan, delivered by the Druzhba, amounted to 533,500 tons in the first seven months at an average price of €566.747 per ton.

Polish Imports of Crude Oil Jan-Aug 2023		
Country	***Vol (million tons)***	***€ per ton***
Saudi Arabia	7.952	555.5
Lithuania	0.019	563.1
Russia	1.150	316.4
Nigeria	1.118	606.2
Norway	5.351	542.3
US	0.825	522.8
UK	0.706	599.5
Others	0.132	0.5
Total	17.253	534.7

Polish imports of crude oil Jan-Aug 2023

Poland imported 17.253 million tons in the first eight months in 2023 at an average price of €534.7 per ton. Saudi Arabia supplied 7.952 million tons at an average price of €555.5 per ton followed by Norway which supplied 5.351 million tons at an average price of €542.3 per ton. As part of its diversification strategy, the Orlen Group is building its import portfolio based on oil supplies from the North Sea, West Africa, the Mediterranean, as well as the Persian and Mexican Gulfs. By the end of 2023, Naftoport's crude oil transhipment through Gdansk are expected to exceed 36 million tons. Not only does this provide oil for Polish refineries but also the Schwedt refinery in east Germany where utilisation is now close to 80%.

Central European petrochemical production and trade

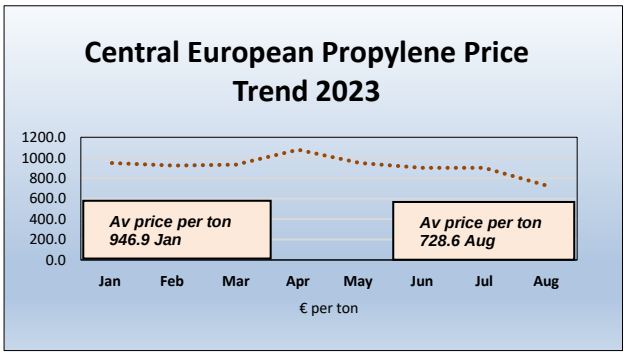
PKN Orlen Production (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
Ethylene	246.8	317.7
Propylene	214.6	294.8
Butadiene	39.9	42.8
Toluene	0.5	5.2
Phenol	28.2	29.7
Polyethylene	205.4	215.1
PVC	140.3	203.0
Polypropylene	183.4	233.9

Poland-petrochemical production Jan-Aug 2023

PKN Orlen reduced ethylene production in the first eight months in 2023 to 246,800 tons from 317,700 tons in the same period in 2022. Propylene production at Plock dropped from 294,800 tons to 214,600 tons. Production of propylene is expected to increase in Poland this year, particularly in the fourth quarter, if the new Polimery Police plant starts without difficulties. Butadiene production at Plock dropped from 42,800 tons versus 39,900 tons in January to August 2023.

Olefiny 111-Plock

The construction cycle at Orlen's Olefiny III complex is currently around halfway, representing an important shift for the group away from traditional fuels and energy. Most of the large dimensions have already been installed and from 2024 the installation will start for pipelines, automation and electrical equipment. At its peak, around 13,000 personnel will be working on the construction of the Olefiny III complex. The project being managed overall by a consortium of Hyundai Engineering Co. and Técnicas Reunidas, with many sub-contractors particularly in Poland. The heart of the complex includes a new steam cracker which will comprise capacities of 740,00 tpa of ethylene and 340,000 tpa of propylene. The completion of the construction of Olefiny III is planned for the first quarter of 2027.



Central European propylene prices

Propylene spot prices in Central Europe remain under pressure from weak demand measured against supply availability. Price trends in the third quarter have stabilised to an extent, after the significant declines in the first half of 2023 where contract prices fell by 25%. Apart from an anomalous price spike in April the trends have been gradually downwards from €946.9 per ton in January to €728.6 in August.

Despite production constraints by some producers, the availability of propylene in Europe has been sufficient and overall appears to exceed demand. Limited storage capacities at producers resulted in propylene being sold on the spot market at the end of the second quarter with discounts reaching up to 50% of the contract price. Demand for propylene for derivatives remains low with limited signs of a market upturn in the next two quarters.

Polish Propylene Imports (unit-kilo tons)		
Country	***Jan-Aug 23***	***Jan-Aug 22***
Bulgaria	12.104	3.983
Czech Rep	10.996	2.851
Germany	38.065	42.506
Russia	0.000	21.625
Ukraine	0.000	17.018
Serbia	4.828	0.000
Netherlands	15.876	0.000
Others	2.586	3.918
Total	84.456	91.902
Av price € per ton	916.8	1336.3

Polish propylene imports Jan-Aug 2023

Imports of propylene into Poland dropped in the first eight months in 2023 to 84,856 tons against 91,902 tons in the same period in 2022.

Average prices dropped from €1336.3 per ton in January to August 2022 to €916.8 per tons in the first eight months in 2023. Import volumes of propylene monomer are not expected to be affected significantly by the start of the 437,000 tpa plant by Grupa Azoty Polyolefins where most of the propylene from the PDH plant is intended to be used in the production of PP. Any surplus is expected to be transferred to Azoty's subsidiary ZAK at Kedzierzyn-Kozle for the production of oxo alcohols. To compensate for the drop in imports from Russia and Ukraine (where propylene production was suspended at Karpatneftekhim following the Russian invasion), Poland started to receive deliveries from other regional countries in East Europe. Germany supplied 38,065

tons in the first eight months followed by the Netherlands with 15,876 tons and Bulgaria with 12,104 tons. Propylene from Bulgaria came from the Bourgas refinery.

Polish Butadiene Imports (unit-kilo tons)		
Country	***Jan-Aug 23***	***Jan-Aug 22***
Austria	18.788	23.146
Germany	11.178	16.491
Hungary	15.961	24.146
Others	2.804	2.896
Total	48.731	66.679
Av price € per ton	908.6	1202.6

Polish butadiene imports Jan-Aug 2023

Poland imported 48,731 tons of butadiene monomer in the first eight months in 2023, versus 66,679 tons in the same period in 2022. Imports from Hungary fell from 24,146 tons last year to 15,961 tons in January to August 2023, whilst shipments from Austria fell from 23,146 tons to 18,363 tons. Average butadiene prices dropped from €1202.6 per ton in January to August last year to €908.6 per ton.

Hungarian Propylene Exports (unit-kilo tons)		
Country	***Jan-Jul 23***	***Jan-Jul 22***
Germany	0.000	6.369
Poland	1.019	3.936
Slovakia	50.411	52.337
Total	51.430	62.842
Av price € per ton	900.5	1348.5

Hungarian propylene & butadiene imports Jan-Jul 2023

Hungarian propylene exports amounted to 51,430 tons in the first seven months this year, most of which went to Slovakia at a price of €900.450 per ton. Propylene production by Slovnaft is not sufficient to maintain high utilisation rates for polypropylene and additional supplies need to be purchased. Slovnaft in Slovakia is currently upgrading its steam cracker unit which should increase the capacity for propylene production.

Hungarian Butadiene Exports (unit-kilo tons)		
Country	***Jan-Jul 23***	***Jan-Jul 22***
Czech Republic	11.900	4.088
Germany	1.995	5.035
Poland	14.913	15.099
Total	28.808	24.222
Av price € per ton	876.0	1307.1

Hungarian butadiene exports rose in the first seven months to 28,808 tons versus 24,222 tons in the same period in 2022. Export prices dropped from €1307.1 per ton in the first seven months last year to €876.0 per ton.

Czech Petrochemical Imports (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
Ethylene	25.918	16.011
Propylene	31.434	26.531
Butadiene	49.073	48.328

Czech monomer trade, Jan-Aug 2023

Propylene imports into the Czech Republic increased from 26,531 tons in January to August 2022 to 31,434 tons in the same period in 2023. Germany supplied 25,696 tons in the first eight months, up from 14,089 tons. Other suppliers included Bulgaria from which the Czech Republic purchased 3,742 tons and Romania where volumes amounted to 1,048 tons.

Czech Petrochemical Exports (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
Ethylene	7.920	9.515
Propylene	14.971	0.027
Butadiene	0.403	1.100

Average prices for Czech propylene imports dropped from €1415.0 per ton in the first eight months in 2022 to €872.3 per ton in 2023. Ethylene exports from the Czech Republic amounted to 7,920 tons in the first eight months in 2023 against 9,515 tons in the same period last year, whilst ethylene imports rose from 16,011 tons to 25,918 tons.

Polish Average Chemical Prices (€ per ton)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
Propylene	916.8	1336.3
Butadiene	908.6	1202.6
Toluene	977.6	1049.6
Styrene	1251.2	1593.9
Ethylbenzene	1048.3	1309.5
Ethylene Glycol	624.9	893.4
Phenol	1324.7	1608.8

Germany supplied 25,694 tons of ethylene to Czech Republic in the first eight months in 2023 at a cost of €23.789 million. This compares against 15,897 tons in the same period in 2022.

Czech imports of butadiene in the first eight months this year increased from 48,328 tons to 49,073 tons, supplementing butadiene production at Kralupy. Germany supplied 36,979 tons for €32.431 million, followed by Hungary which supplied 11,857 tons for €10.372 million.

Polish Styrene Imports (unit-kilo tons)		
Country	***Jan-Aug 23***	***Jan-Aug 22***
Belgium	4.193	9.436
Czech Republic	5.327	4.040
Finland	0.513	0.763
Netherlands	24.225	42.993
Germany	9.335	13.759
Others	3.468	1.653
Total	47.060	72.643
Av price € per ton	1251.2	1593.9

Czech Styrene Imports (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
Belgium	0.771	1.475
Germany	8.932	0.004
Netherlands	12.706	7.542
Poland	0.000	1.188
Others	3.220	0.173
Total	25.628	10.381
Av price per ton	1056.3	1677.7

Hungarian styrene imports (unit-kilo tons)		
Country	***Jan-Jul 23***	***Jan-Jul 22***
Germany	0.627	2.082
Italy	39.741	49.878
Netherlands	2.790	2.017
Others	0.472	0.063
Total	43.630	53.713
Av price € per ton	1418.9	1652.7

Central European styrene trade Jan-Aug 2023

Poland imported 47,060 tons of styrene in the first eight months in 2023 versus 72,643 tons in the same period in 2022. Prices for styrene monomer and ethylbenzene both tended to drop in 2023 in line with lower energy and feedstock costs.

The Netherlands reduced styrene shipments to Poland from 42,993 tons to 24,255 tons whilst imports from Germany dropped from 13,759 tons to 9,335 tons. Cost prices averaged €1251.2 per ton in January to August 2023 against €1593.9 per ton in the same period in 2022. The decline in styrene prices reflects the same trend in import prices for the mainstream chemical raw materials into Poland over the course of 2023.

Styrene imports into the Czech Republic amounted to 25,628 tons in the first eight months in 2023, rising from 10,381 tons in January to August 2022. Costs averaged €1056.3 per ton in January to August 2023 against €1677.7 per ton in the same period in 2022.

Hungarian styrene imports amounted to 43,630 tons in the first seven months in 2023 against 53,713 tons in the same period in 2022, with average prices dropping from €1652.7 per ton to €1418.9 per ton in January to August 2023.

Italy supplied 41,361 tons in January to July 2022 which fell to 29,986 tons in the same period this year. Styrene in Hungary is used for the production of polystyrene by Versalis at the Szazhalombatta plant.

HIP-Petrohemija maintenance shutdown

HIP-Petrohemija started planned maintenance on 15 September which will is intended to be completed at the end of October. The most important activities during the overhaul have been concentrated on the second phase of reinstrumentation at the Ethylene plant. HIP-Petrohemija exported 58,087 tons of polyethylene in the first seven months in 2023 against 75,463 tons in the same period in 2022.

From 9 June NIS increased its stake in Petrohemija to 90%, while the state of Serbia retains a stake of 10%. NIS is planning the construction of a polypropylene production plant at Petrohemija with a capacity of at least 140,000 tpa, to be constructed within a period of six years.

Central European polyolefins

Polish PE Supply/Demand Balance (unit-kilo tons)		
	Jan-Aug 23	***Jan-Aug 22***
Production	205.4	215.1
Exports	199.3	234.4
Imports	802.2	892.5
Market Balance	808.3	873.1

Poland-polyethylene market Jan-Aug 2023

Polyolefin trade into and out of Poland experienced declines in the first eight months in 2023, with nearly all grades of polyethylene and polypropylene affected.

Based on production and trade, polyethylene consumption amounted to 808,300 tons in the first eight months in 2023 against 873,100 tons in January to August 2022. Production, exports and imports have all been lower this year. Poland's consumption of polyethylene amounted to 1.291 million tons in 2022 versus 1.350 million tons in 2021.

Polish PE imports (unit-kilo tons)		
Type	***Jan-Aug 23***	***Jan-Aug 22***
LDPE	217.441	237.402
LLDPE	134.189	169.198
HDPE	277.503	303.690
EVA	9.647	11.910
EAO	130.043	129.750
Other	33.394	40.508
Total	802.217	892.4
Av price € per ton	1599.7	1849.4

Polish PE Exports (unit-kilo tons)		
Type	***Jan-Aug 23***	***Jan-Aug 22***
LDPE	33.728	41.117
LLDPE	11.743	14.065
HDPE	138.917	160.016
EVA	2.936	1.877
EAO	8.219	14.202
Other	3.765	3.138
Total	199.309	234.414
Av price € per ton	1356.0	1695.1

Polish polyethylene production & trade Jan-Aug 2023

PKN Orlen and Basell Orlen Polyolefins (BOP) produced a combined total of 201,300 tons of polyethylene at Plock in the first eight months in 2023 against 215,300 tons in the same period last year.

Polyethylene imports into Poland totalled 802,217 tons in January to August 2023 versus 892,458 tons in the same period in 2022, with average prices dropping from €1849.4 per ton to €1599.7 per ton this year.

HDPE imports into Poland dropped from 303,690 tons to 277,503 tons in January to August 2023 whilst LDPE imports dropped from 237,402 tons to 217,441 tons. LLDPE imports declined from 169,198 tons to 134,292 tons. Most of the LLDPE imports were sourced mostly from West Europe, including France, the Netherlands and Germany.

Polyethylene exports from Poland have also dropped this year. Exports decreased from 234,414 tons in the first eight months in 2022 to 199,309 tons in the same period in 2022, with average prices dropping from €1695.1 to €1356.0. HDPE was Poland's largest export grade amounting to 138,917 tons in the first eight months against 160,016 tons in January to August 2022.

Serbian Chemical Exports (unit-kilo tons)		
Product	***Jan-Jul 23***	***Jan-Jul 22***
Polyethylene	58.087	75.463
Polypropylene	8.891	9.869
SBR	9.788	11.488

HIP-Petrohemija polymer exports Jan-Jul 2023

In the first seven months this year export revenues from polyethylene for Petrohemija dropped to $72.6 million against $132.4 million in the same period in 2022. This was due to the combination of lower polyethylene prices this year and also lower export activity, with shipments dropping from 75,463 tons in January to July 2022 to 58,087 tons.

Polish PP Imports (unit-kilo tons)		
Type	***Jan-Aug 23***	***Jan-Aug 22***
PP homo	360.883	415.339
Polyisobutylene	1.726	2.789
Propylene copolymers	190.168	202.028
Other	13.964	13.701
Total	566.741	633.857
Av price € per ton	1500.5	1864.0

Polish PP Exports (unit-kilo tons)		
Type	***Jan-Aug 23***	***Jan-Aug 22***
PP homo	94.848	137.577
Polyisobutylene	0.462	0.154
Propylene copolymers	48.461	58.455
Other	3.813	2.053
Total	147.585	198.238
Av price € per ton	1454.7	1794.4

Polish polypropylene production & trade Jan-Aug 2023

Polypropylene production at Plock dropped from 233,900 tons in January to August 2022 to 183,400 tons in the first eight months this year. Overall consumption of polypropylene in Poland amounted to 443,700 tons in the first eight months against 556,500 tons in the same period in 2022.

Imports of polypropylene into Poland dropped from 633,857 tons in the first eight months in 2022 versus 566,741 tons in the same period in 2023, with average prices dropping from €1864.0 to €1500.5 per ton. Homo grade imports dropped from 415,319 tons in the first eight months last year to 360,883 tons.

Copolymer imports into Poland fell from 202,028 tons in the first eight months in 2022 to 190,168 tons in the same period this year, with costs dropping to €301.195 million against €403.599 million in the same period in 2022. Germany was the largest supplier of propylene copolymers to the Polish market in 2022 transporting 82,907 tons for €156.748 million. In the first eight months in 2023 Germany supplied 56,216 tons of copolymers to the Polish market for €90.791 million. Imports are expected to fall as the new Polimery Police plant starts to take effect in the domestic market.

Czech Polyethylene Exports (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
LDPE	16.921	21.717
LLDPE	2.280	2.386
HDPE	245.707	236.756
EVA	2.202	2.175
Other	16.952	8.156
Total	284.062	271.191
Av price € per ton	1293.3	1715.0

Polish exports of polypropylene dropped from 198,238 tons in the first eight months in 2022 to 147,585 tons in the same period in 2023. Average prices for exports amounted to €1454.7 per ton in the first eight months which was down from €1794.4 per ton last year.

The largest destination for Polish homo grade polypropylene in the first eight months in 2023 was Germany which took 24,172 tons for €32.417 million followed by the Czech Republic with 20,457 tons for €24.533 million. Other important markets in Europe included Italy, taking 8,864 tons in the first eight months in 2023 for €12.685 million followed by Slovakia with 9,180 tons for €13.060 million.

Czech PP Exports (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
PP	144.441	162.372
Propylene Copolymers	31.526	33.627
Other	3.973	2.212
Total	179.940	198.212
Av price € per ton	1530.7	1781.6

Polish polypropylene trade is expected to undergo some major changes in the next few months when the new Polimery Police plant starts to operate on a commercial basis. The plant is currently going through its start-up procedure.

Czech polyethylene trade Jan-Aug 2023

Czech exports of polyethylene amounted to 284,062 tons in the first eight months in 2023 from 271,191 tons in the corresponding period in 2022, with average prices falling from €1715.0 per ton to €1293.3. HDPE represents the largest category of Czech polyethylene rising from 236,707 tons in January to August 2022 to 245,756 tons.

Czech Polyethylene Imports (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
LDPE	70.131	83.490
LLDPE	16.358	14.739
HDPE	78.808	82.216
EVA	7.237	6.941
Other	29.178	29.157
Total	201.713	216.542
Av price € per ton	1608.1	1979.2

Imports of polyethylene into the Czech Republic dropped from 216,542 tons in the first eight months in 2022 to 201,713 tons in 2023. Average prices dropped from €1979.2 per ton to €1608.1 per ton. HDPE imports dropped from 82,216 tons to 78,078 tons, whilst LDPE imports decreased from 83,490 tons to 70,131 tons.

Czech PP Imports (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
PP	198.635	201.758
Propylene Copolymers	143.443	129.254
Other	9.679	11.964
Total	351.757	342.976
Av price € per ton	1616.0	1945.7

Polypropylene exports from Orlen Unipetrol dropped in the first eight months from 198,212 tons in 2022 to 179,940 tons in 2023. Prices dropped on average from €1781.6 per ton to €1530.7. The largest market for Czech polypropylene exports in the first eight months in 2023 was Poland followed by Germany.

Polypropylene imports into the Czech Republic amounted to 351,757 tons in the first eight months this year against 342,976 tons in the same period in 2023, with average prices falling from €1945.7 per ton to €1616.0 per ton.

Hungarian polyethylene Imports (unit-kilo tons)		
Product	***Jan-Jul 23***	***Jan-Jul 22***
LLDPE	14.090	13.588
LDPE	26.765	34.262
HDPE	51.477	61.180
EAO	5.560	7.042
EVA	2.307	3.722
Other	27.090	13.641
Total	127.290	133.435
Av price € per ton	1551.8	1912.1

Copolymer imports increased from 129,254 tons to 143,443 tons whilst homo polymer imports dropped from 201,758 tons to 198,635 tons. Total costs for polypropylene imports totalled €285.491 in January to August 2023 against €338.539 million in the same period in 2022.

Copolymer imports were sourced mostly from Europe, with Germany supplying 30,233 tons in the first eight months for €57.723 million. The largest

non-European supplier was South Korea from where the Czech Republic imported 16,748 tons in January to August this year for €24.680 million.

Hungarian polyethylene exports (unit-kilo tons)		
Product	***Jan-Jul 23***	***Jan-Jul 22***
LLDPE	3.752	3.191
LDPE	54.184	49.394
HDPE	134.720	131.465
EAO	0.000	0.278
EVA	0.000	0.078
Other	7.404	14.926
Total	200.060	199.330
Av price € per ton	1330.7	1631.6

Hungarian polyethylene trade Jan to Jul 2023

Hungarian imports of polyethylene dropped from 133,435 tons in January to July 2022 to 127,290 tons in the same period this year. LDPE imports dropped from 34,262 tons to 26,785 tons whilst HDPE dropped from 61,180 tons to 51,477 tons in January to July this year.

Import costs dropped from €255.137 million for polyethylene in January to July 2022 to €197.529 million in the first seven months this year, with average prices dropping from €1912.1 per ton to €1551.8 per ton. Hungarian export prices dropped from €1631.6 per ton in January to July 2022 to €1330.7 per ton in 2023. Exports revenues dropped from €327.705 million to €255.670 million.

Export volumes of polyethylene from Hungary amounted to 200,060 tons in the first seven months this year versus 199,330 tons in January to July 2022. HDPE exports increased from 131,465 tons to 134,720 tons and LDPE increased from 49,394 tons to 54,184 tons. The rise in polyethylene exports this year has taken place despite the slight decline in production by MOL at Tiszaujvaros.

Hungarian PP Imports (unit-kilo tons)		
Product	***Jan-Jul 23***	***Jan-Jul 22***
PP homo	67.621	73.914
Propylene copolymers	30.221	38.090
Others	14.319	18.615
Total	112.161	130.619
Av price € per ton	1619.9	2141.4

Hungarian polypropylene trade Jan-Jul 2023

Propylene copolymer imports into Hungary amounted to 30,221 tons in January to July this year versus 38,090 tons in the same period in 2022, whilst polypropylene homo grade inward shipments decreased from 73,914 tons to 67,621 tons.

Hungarian PP exports (unit-kilo tons)		
Product	***Jan-Jul 23***	***Jan-Jul 22***
PP homo	74.891	69.432
Propylene copolymers	53.374	57.382
Others	9.561	12.641
Total	137.826	139.454
Av price € per ton	1381.5	1576.5

Overall imports of polypropylene dropped from 130,619 tons in the first seven months last year to 112,161 tons.

Due to softening prices, import costs dropped from €279.705 million to €181.685 million in January to July 2022. Hungarian polypropylene exports in the first seven months amounted to 102,745 tons against 105,792 tons in the same period in 2022. Export revenues amounted to €144.670 million against €186.774 million last year.

By volume Hungarian homo grade polypropylene exports rose to 41,560 tons from 69,432 tons. Copolymer exports dropped from 57,382 tons to 53,374 tons. Overall average prices dropped from €1576.5 per ton to €1381.5.

Hungarian synthetic rubber imports (unit-kilo tons)		
Product	***Jan-Jul 23***	***Jan-Jul 22***
Butadiene Rubber	30.108	26.576
HBR	4.580	10.446
SBR	29.659	16.213
Other	16.113	28.045
Total	80.459	81.280
Hungarian synthetic rubber imports (€ million)		
Product	***Jan-Jul 23***	***Jan-Jul 22***
Butadiene Rubber	55.337	53.690
HBR	11.064	28.869
SBR	70.381	34.506
Other	45.618	69.931
Total	182.400	186.997
Av price € per ton	2267.0	2300.7

Central European Rubber Markets

Hungarian synthetic rubber trade Jan to May 2023

Hungarian imports of synthetic rubber amounted to 80,459 tons in the first seven months this year for total costs of €182.400 million, against 81,280 tons in January to July 2022 for total costs of €126.707 million. Average costs per ton

rose over the seven-month period to €2267.0 against €2300.7 per ton last year.

Exports of HBR largely balance out imports, reflecting the lack of consumption in Hungary. Import sources of HBRs were dominated by Russia which supplied 2,822 tons in the first seven months. However, shipments were not made in July when Poland was the only supplier.

Although the sanctions on Russian HBRs to the EU were imposed in July last year the rules were amended in February 2023 when earlier sanctions on synthetic rubber were extended to June 2024. Nizhnekamskneftekhim is the sole Russian producer of HBR and appears to have shifted its sales strategy away from Europe, knowing that there is a key deadline coming up in less than 12 months.

Hungarian butadiene rubber Imports (unit-kilo tons)		
Country	***Jan-Jul 23***	***Jan-Jul 22***
Indonesia	12.441	0.098
Russia	2.318	10.901
Total	30.108	26.595
Av price € per ton	1837.9	2019.4

Hungarian butadiene rubber imports Jan-Jul 2023

Hungary imported 30,108 tons of butadiene rubber in January to July this year against 26,595 tons in January to July 2022. The main change to market sources in recent months has come from Indonesia from where Hungary imported 12,441 tons in the first seven months.

Imports of butadiene rubber from Russia amounted to 2,318 tons in January to July this year versus 10,901 tons in the same period in 2022. EU sanctions on butadiene rubber trade with Russia, introduced in July last year, have since been loosened under the pressure of European tyre manufacturers but this has not led to much of a revival of purchases from Russia. No shipments were made in July.

Synthos production at Oswiecim Jan-Aug 2023

Synthos reduced the production of synthetic rubber in Poland from 186,400 tons in the first eight months to 126,800 tons in the same period in 2023, the drop attributed to lower demand.

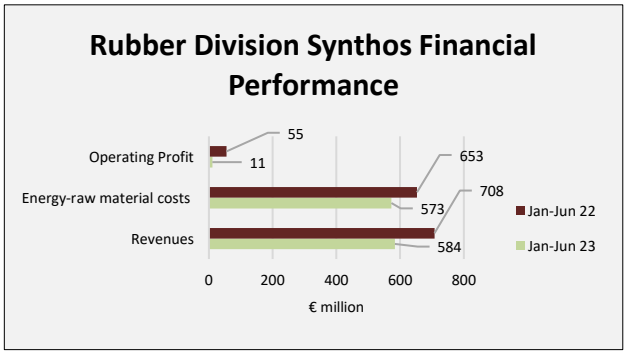
Synthos Production in Poland (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
Polystyrene	48.1	46.5
EPS	62.8	67.6
Synthetic Rubber	126.8	186.4

In the styrene division Synthos increased general purpose polystyrene production from 46,500 tons to 48,100 tons and reduced EPS from 67,600 tons to 62,800 tons.

Polish Tyre Production (unit-kilo tons)		
Category	***Jan-Aug 23***	***Jan-Aug 22***
Car Tyres	183.0	198.9
Bus & truck Tyres	110.0	146.7
Tractor	5.3	8.4
Agricultural tyres	10.5	15.2
Total	308.8	369.2

Polish rubber consumption Jan-Aug 2023

Domestic market sales of rubber in Poland dropped in the first eight months in 2023, mainly from lower consumption in the tyre sector. Total consumption of synthetic and natural rubber used in the tyre industry dropped from 369,200 tons in the first eight months in 2022 to 308,800 tons in the same period this year.



Synthos Jan-Jun 2023

In the first half of the 2023 year the Synthos Group decided to close one of the production lines at Kralupy dedicated to ESBR butadiene–styrene rubber production, for which significant impairment was booked in 2022. The decision is a direct result of overcapacity in ESBR commodity rubber product and high production costs in Europe due to unpredictable costs of utilities. In addition, the Group has not fully used its ESBR production capacity, reducing its production by approximately 30%, which corresponds to approximately 100,000 tpa.

The liquidation process at Kralupy is scheduled to be completed by the end of March 2025 and was down to the fact that Synthos was no longer able to compete on non-European markets. More than half of the production was sold in the US and Asia where competitive prices made it very difficult to sell at profitable levels.

Synthos rubber division

The rubber and tyre materials segment is one of the core business segments for Synthos. Approximately 80% of the volume of products sold by this segment is attributable to large tyre industry participants, including Michelin, Continental, Bridgestone, Goodyear and Pirelli. The remaining 20% consists of the production of technical rubber goods, soles for footwear, flexible cables and transmission belts. For the half year in 2023, the rubber and tyre division generated revenues from sales of zl 2.638 million against zl 3.454 million in the first half in 2022.

Polish Synthetic Rubber Imports (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
ESBR	15.127	9.211
Block SBR	24.186	27.063
S-SBR	14.745	9.031
Butadiene Rubber	37.579	39.018
Butyl Rubber	3.287	2.475
HBR	6.787	10.917
NBR	4.416	10.325
Isoprene Rubber	9.189	23.586
EPDM	25.278	31.575
Others	37.031	30.958
Total	177.626	194.159
Av price € per ton	2206.2	2608.9

Polish synthetic rubber trade, Jan-Aug 2023

Average prices for synthetic rubber imports into Poland dropped in the first eight months to €2206.2 per ton against €2608.9 per ton. Imports of synthetic rubber into Poland by volume amounted to 177,626 tons in January to August 2023 against 194,159 tons in the same period in 2022.

Butadiene rubber imports dropped from 39,018 tons to 37,579 tons and EPDM imports dropped from 31,575 tons to 25,278 tons. Synthetic rubber exports from Poland totalled 175,753 tons in the period January to August 2023 versus 206,117 tons in the same period last year. SBR formed the largest share of exports.

Czech synthetic rubber market Jan-Aug 2023

Prices for synthetic rubber exports and imports of both synthetic and natural rubber have stabilised since the start of 2023. Prices for Czech exports of synthetic rubber dropped from €2059.4 per ton to €1886.6 per ton over the period January to August 2023, whilst import prices dropped from €2254.4 per ton to €2212.3 per ton. Natural rubber prices dropped from €1971.1 per ton in January to August 2022 to €1704.7 this year.

Czech Rubber Trade Prices (€ per ton)		
	Jan-Aug 23	***Jan-Aug 22***
Export	1886.6	2059.4
Import	2212.3	2254.4
Natural	1704.7	1971.1

Exports of synthetic rubber into Czech Republic amounted to 102,264 tons in the period January to August 2023 against 133,418 tons in the same period last year. Imports of synthetic rubber amounted to 84,006 tons in the first eight months in 2023 against 109,405 tons in January to August 2022, with natural rubber imports declining from 55,114 tons to 54,035 tons.

Imports of synthetic rubber from Russia into the Czech Republic dropped from 20,012 tons in the first eight months in 2022 (for €40.125 million) to 4,394 tons (for €7.547 million). The largest category of imports from Russia this year was for SBR grades where volumes amounted to 2,057 tons. Butadiene rubber imports from Russia amounted to 1,474 tons against 8,908 tons in the same period in 2022, whilst imports of halogenated butyl rubber fell to 184 tons from 3,571 tons in January to August 2022.

Czech Exports of EBSR		
	Jan-Aug 23	***Jan-Aug 22***
Kilo tons	37.517	74.424
€ million	56.407	157.154
Average price	1702.6	2112.5

Czech exports of ESBR dropped in the first eight months this year to 37,517 tons against 74,424 tons in the same period in 2022. The plant was closed in April and will not produce in future. Prices per ton for ESBR dropped from €2112.5 to €1702.6 but according to Synthos production costs have risen to levels where the Kralupy plant is not able to be profitable.

Czech butadiene rubber trade Jan-Aug 2023

Czech exports of butadiene rubber comprised 71,362 tons in the first eight months in 2023 against 74,424 tons in the same period in 2022. Revenues from butadiene exports dropped from €157.154 million to €126.074 million. Imports of butadiene rubber amounted to 16,418 tons in the first eight months which was down from 21,038 tons in the same period in 2022.

Czech Trade in Butadiene Rubber (unit-kilo tons)		
	Jan-Aug 23	***Jan-Aug 22***
Exports	71.362	74.424
Imports	16.418	21.038
Czech Trade in Butadiene Rubber (€ million)		
	Jan-Aug 23	***Jan-Aug 22***
Exports	126.074	157.154
Imports	38.842	48.947

The largest customer for Czech butadiene rubber this year has been Poland, taking 9,549 tons against 9,001 tons in January to August last year followed by South Korea which increased from 3,687 tons to 9,024 tons. Exports to India fell from 15,380 tons to 8,222 tons.

Central European aromatics

Polish aromatics trade Jan-Aug 2023

Polish Imports of Aromatics (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
Bisphenol A	12.488	10.315
Ethylbenzene	75.889	74.323
Paraxylene	0.000	34.150
Phenol	51.810	75.784
Phthalic Anhydride	20.705	22.688
PTA	4.089	1.298
Styrene	43.084	69.364
TDI	37.825	50.251
Toluene	15.745	16.119

Phenol imports into Poland amounted to 51,810 tons in the first eight months in 2023 against 75,784 tons in the same period last year. Supplies from Russia, which had previously been a major supplier to the Polish market, stopped in August last year following sanctions imposed by the EU. Germany was the largest supplier of phenol to Poland in the first eight months, shipping 37,194 tons for €47.103 million. Other suppliers included Finland which delivered 9,329 tons in January to August this year for €11.863 million and Spain which supplied 2,880 tons for €3.462 million.

In other aromatic product areas, styrene imports into Poland amounted to 43,084 tons in the period January to August 2023 versus 69,364 tons in the same period in 2022 whilst ethylbenzene imports rose from 74,323 tons to 75,889 tons. Nearly all of the ethylbenzene imports come from the Synthos plant at Kralupy Czech Republic, which are delivered to the Oswiecim plant. In other aromatic product areas paraxylene imports into Poland were not required by Poland in the first eight months against imports of 34,150 tons in the same period in 2022.

Polish Exports of Benzene (unit-kilo tons)		
Country	***Jan-Aug 23***	***Jan-Aug 22***
Czech Republic	12.006	35.697
Germany	73.252	71.526
Others	17.231	9.844
Total	102.490	117.067
Av €/ton	847.3	1164.9

Poland exported 102,490 tons of benzene in the first eight months which was down from 117,067 tons last year. Average prices dropped from €1164.9 per ton to €847.3. Germany was the largest destination for Polish benzene exports, taking 73,252 tons against 71,526 tons in the same period in 2022. Exports of benzene from Poland to the Czech Republic dropped from 35,697 tons in January to August last year to 12,006 tons.

Polish Exports of PTA (unit-kilo tons)		
Country	***Jan-Aug 23***	***Jan-Aug 22***
Belarus	1.275	4.409
Belgium	0.615	0.000
Germany	122.941	233.875
Lithuania	1.618	28.658
Switzerland	6.626	5.106
Turkey	6.660	5.060
Others	13.833	2.804
Total	153.567	279.913
Av Price € per ton	852.0	991.6

Polish PTA sales and production Jan-Aug 2023

In the first eight months in 2023, European contract prices of PTA fell by 17% against the same period in 2022. The average contract price went down 8% in the second quarter against the first quarter. The decline was driven mainly by lower prices of paraxylene (down by almost 11%) and by the demand and supply situation.

Demand for PTA derivatives, such as polyester fibres, as well as demand from plasticizer producers, remained exceedingly low in both quarters. Towards the end of the second quarter of 2023, the demand for PET bottles increased as temperatures in Europe rose. Nonetheless, the first half of the

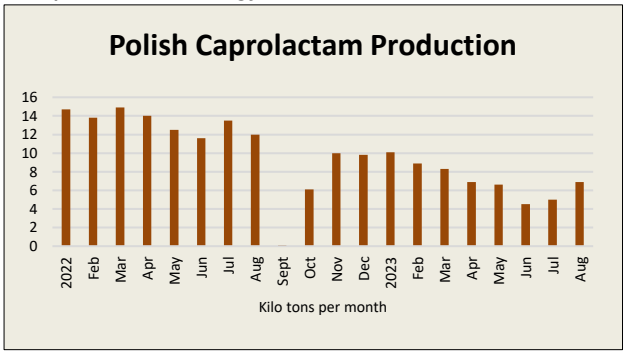
year saw Europe experiencing low PTA production, aligned with market demand.

European producers additionally had to contend with imports from Asia. At the close of the second quarter, the price difference between products of European and Asian origin narrowed, improving both sentiment and the prospects of successfully placing the product on the European market.

Lower PTA production at Wloclawek this year impacted on exports shipments from Poland, falling from 279,913 tons in the first eight months in 2022 to 153,567 tons. Germany reduced inward shipments of PTA from Wloclawek from 233,875 tons to 122,941 tons, whilst shipments to Lithuania fell from 28,658 tons to 1,618 tons. PTA prices dropped this year to €852.0 per ton in the first eight months against €991.6 per ton last year.

Central European caprolactam production and trade

The European market has exhibited weak demand for both caprolactam and PA6 this year, and despite lower energy costs it has been difficult for Azoty to produce at full capacity. The average European contract price of liquid caprolactam fell by 20% in the first quarter and 3% in the second quarter. Imports of cheaper PA6 chain products, especially from Asia, further eroded demand for PA6 and caprolactam.



The European PA6 application sectors have been affected by a weak economic environment, as well as shifts in consumer behaviour and purchasing strategies. Imports of finished products from other regions have also increased. A key factor influencing the European PA6 market was the aggressive pricing strategy adopted by Asian producers, who were seeking avenues to offload their products amidst sluggish domestic demand. Prices of polymers imported from China during the first half of 2023 were frequently below the production costs incurred by European producers. Costs of benzene and phenol, natural gas, energy and CO2 emissions played a pivotal role in determining variable production costs.

Spolana Caprolactam Exports (unit-kilo tons)		
Country	***Jan-Aug 23***	***Jan-Aug 22***
Belgium	1.065	4.735
Germany	0.309	5.631
Italy	8.380	9.961
Slovenia	3.019	3.043
Switzerland	1.423	1.841
Others	0.370	0.262
Total	14.566	25.276
Av Price € per ton	1709.3	2623.6

Average contract prices of polyamide 6 went down 22% in the first half in 2023, including a 12% fall in the second quarter.

Caprolactam production in Poland dropped from 107,000 tons in the first eight months of 2022 to 58,900 tons this year. Production has been in decline since the middle of 2022, with frequent stoppages undertaken.

Caprolactam exports from the Czech Republic fell in the first eight months to 14,566 tons against 25,276 tons in the same period in 2022. Average prices dropped from €2623.6 per ton to €1709.3 per ton.

Polyamide imports into the Czech Republic fell from 61,189 tons in the first eight months in 2022, for €255.297 million, to 59,487 tons for €258.332 million in 2023. Despite weaker consumption in Europe polyamide prices have been higher this year than in 2022 due to supply/demand factors.

Czech Styrene Trade (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
Exports	7.938	2.640
Imports	24.673	12.286

Czech aromatic trade Jan-Aug 2023

Czech exports of ethylbenzene amounted to 85,798 tons in the first eight months versus 68,536 tons in the same period in 2022, whilst styrene exports rose from 2,640 tons to 7,938 tons. Styrene imports are still required in the Czech Republic, rising from 12,286 tons to 24,673 tons.

Czech Benzene Trade (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
Exports	15.197	29.186
Imports	19.366	52.999

Benzene exports from the Czech Republic in the first eight months in 2023 amounted to 15,197 tons against 29,186 tons in January to August 2022, whilst imports of benzene dropped to 19,336 tons from 52,999 tons.

Unipetrol operates a benzene plant at Litvinov with a capacity of 250,000 tpa, whilst benzene is also produced in the Czech Republic by Deza at Valasske Mezirici. Deza also owns Petrochemia at Blachownia at Kedzierzyn Kozle and possesses a combined capacity of 160,000 tpa for benzene and 25,000 tpa for toluene. Exports of toluene from the Czech Republic amounted to 7,360 tons in the first eight months this year.

Czech Bisphenol A Imports		
	Jan-Aug 23	***Jan-Aug 22***
Kilo tons	18.535	22.157
Av € per ton	1446.4	2304.7

Czech imports of Bisphenol A amounted to 18,535 tons in the first eight months in 2023 against 22,157 tons in the same period in 2022, with average prices dropping from €2304.7 per ton to €1446.4. The leading supplier was South Korea which shipped 7,958 tons in the first eight months this year.

Central European Organic Chemicals

Polish Organic Chemical Trade		
Exports	***Jan-Aug 23***	***Jan-Aug 22***
Value (€ million)	985.3	1,596.6
Vol (kilo tons)	800.0	1,158.5
Imports	***Jan-Aug 23***	***Jan-Aug 22***
Value (€ million)	2,330.7	3,518.6
Vol (kilo tons)	1,698.3	2,081.6

Polish organic chemical trade Jan-Aug 2023

Values and volumes for Polish trade in organic chemicals fell for both exports and imports in the first eight months, as recessionary trends took effect.

Import costs for organic chemicals into Poland dropped from €3.519 billion in the first eight months in 2022 to €2.331 billion in the same period in 2022, whilst export revenues dropped from €1.597 billion to €985.3 million. Volumes for exports dropped from 1.159 million tons to 985,300 tons whilst imports fell from 2.082 million tons to 1.698 million tons.

Polish solvent exports, Jan-Aug 2023

Acetone exports in the first eight months this year amounted to 9,251 tons against 11,819 tons in January to August 2022. N-butyl acetate exports fell from 9,646 tons in January to August 2022 to 5,798 tons in the same period in 2023. Germany was the largest destination for Polish butyl acetate exports last year, amounting to 8,999 tons followed by Italy with 3,763 tons.

Monochloroacetic acid exports from Poland have been resumed this year after investment and totalled 24,188 tons in the first eight months this year. The plant is part of the PCC Group, located at Brzeg Dolny with a capacity of 42,000 tpa.

Poland still needs to import ethylene oxide to support ethoxylate production at Brzeg Dolny but has changed its main supplier from Russia to Germany in the past eighteen months.

Ethylene glycol was one of the few products showing an increase in imports, rising in the first eight months from 35,293 tons in the first eight months last year to 69,743 tons in the same period in 2023.

Belgium was the main supplier, providing 58,292 tons of ethylene glycol for €34.992 million. Poland exported 14,686 tons of ethylene glycol in the first eight months this year. Diethylene glycol imports amounted to 17,479 tons in the first eight months versus 18,133 tons.

Methanol imports into Poland dropped from 629,681 tons in the first eight months in 2022 to 401,321 tons in the same period in 2023, with volumes from Russia constrained by sanctions. No further methanol imports from Russia are now legally possible into Poland, with the full sanctions taking effect from 18 June. The impact is probably one of higher costs on consumers, but markets are being subject to related economic factors from the war in Ukraine.

Average prices of all oxo alcohols on the European market fell 23% in the first eight months. The year-on-year decline was driven by lower prices of propylene and natural gas. The market situation was another factor with a bearing on the prices of oxo alcohols. The decline in demand across

virtually all sectors of the European industry has persisted throughout the year, with no clear signs of improvement.

Polish Organic Chemical Imports (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
Acetic Acid	23.064	30.224
Adipic Acid	7.372	7.927
Butadiene	48.730	67.041
DEG	17.479	18.133
DINP/DOP	14.403	15.473
Ethyl Acetate	12.015	10.455
Ethylene Glycol	69.743	35.293
Ethylene Oxide	10.922	9.650
Isopropanol	6.900	6.972
Maleic Anhydride	7.908	9.244
Methanol	401.321	629.681
Propylene	80.141	100.787
Propylene Glycol	11.989	14.081
VAM	11.437	12.169

In the first eight months average prices of plasticizers on the European market fell 22%, with most of the decline recorded in the first half of 2023. The year on-year decline was driven by lower prices of the key feedstocks (2-EH, PTA) and natural gas. Another significant contributor to the decline in plasticizer prices was imports of much cheaper products from Korea and Turkey into Europe, facilitated by lower logistics costs.

Polish acetic acid imports, Jan-Aug 2023

Acetic acid imports into Poland dropped from 33,070 tons in the first eight months in 2022 to 23,036 tons in January to August 2023. The main suppliers to the Polish market this year include the US which increased shipments from 7,584 tons to 10,886 tons. Average prices for acetic acid dropped from €1181 per ton to €864.0 per ton this year.

Hungarian acrylonitrile imports (unit-kilo tons)		
Country	***Jan-Jul 23***	***Jan-Jul 22***
Germany	2.418	1.667
France	0.891	3.869
Netherlands	6.914	15.817
Russia	0.000	1.488
Others	3.374	0.726
Total	13.596	23.567
Av € per ton	2166.7	2427.642

Hungarian organic chemical trade Jan-Jul 2023

Acrylonitrile imports into Hungary amounted to 13,596 tons in January to July this year versus 23,567 tons in the same period in 2022. Average prices dropped from €2427.6 per ton against €2166.7 per ton in the first seven months in 2023.

Aniline imports into Hungary amounted to 72,516 tons in January to July this year against 61,160 tons in the same period in 2022.

Hungarian aniline imports (unit-kilo tons)		
Country	***Jan-Jul 23***	***Jan-Jul 22***
Belgium	18.650	0.988
China	11.067	0.019
Czech Republic	42.799	58.885
Others	0.000	1.267
Total	72.516	61.160
Av price € per ton	1467.6	1946.9

Imports of aniline from China amounted to 11,067 tons whilst imports from the BorsodChem Ostrava plant in the Czech Republic totalled 42,799 tons against 58,885 tons in the same seven months in 2023. Imports from Belgium rose from only 988 tons in January to July 2022 to 18,650 tons this year.

The largest supplier of acrylonitrile to Hungary in 2022 was the Netherlands, accounting for 22,953 tons for €55.452 million. The Netherlands reduced shipments in the first seven months to 4,916 tons from 9,697 tons.

Hungarian Maleic Anhydride Exports (unit-kilo tons)		
Country	***Jan-Jul 23***	***Jan-Jul 22***
Austria	1.821	1.818
Germany	0.838	0.846
Italy	1.783	1.666
Poland	1.654	3.722
Slovenia	1.192	1.359
Others	3.906	5.746
Total	11.195	15.158
Av price	1249.7	2281.3

Maleic anhydride exports from Hungary amounted to 11,195 tons in the first seven months in 2023 against 15,158 tons in the same period in 2022.

Most of the exports were delivered in liquid form to customers up to 500 km from the Szazhalombatta plant which is located at the Danube refinery. Austria accounted for 1,821 tons in January to July 2023 against 1,818 tons in the same period last year, whilst shipments to Poland fell from 3,722 tons to 1,654 tons. Average prices for fell from €2281.3 per ton to €1249.7.

Central European Isocyanates & polyols

Central European MDI trade Jan-Aug 2023

MDI imports into the Czech Republic totalled 24,633 tons in the first eight months in 2023 against 23,672 tons in the same period in 2022. Hungary provided the largest share of imports at 7,124 tons followed by Belgium with 6,190 tons. Average MDI prices declined from €2693.6 per ton to €2318.2 per ton.

MDI imports into Poland dropped from 98,806 tons in the first eight months in 2022 to 96,287 tons in the same period this year. Hungary and Germany remain the two largest import sources, with overall average prices comprising €2624.8 per ton in January to August 2023 against €2534.6 per ton last year. Overall costs for MDI imports dropped from €259.346 million in the first eight months last year against €206.286 in the same period in 2022.

Polish MDI Imports (€ million)		
Country	***Jan-Aug 23***	***Jan-Aug 22***
Germany	25.259	28.033
Netherlands	15.815	13.628
Hungary	23.871	25.956
Belgium	16.635	22.719
South Korea	5.448	1.397
Others	9.259	7.073
Total	96.287	98.806
Av price € per ton	2142.4	2624.8

Hungarian MDI exports dropped in January to July 2023 to 100,777 tons versus 127,052 tons in the same period in 2022. Poland represented the largest destination with deliveries amounting to 20,627 tons, down from 23,035 tons, followed by Germany which reduced purchases from 15,222 tons to 12,389 tons. MDI export prices dropped from €2603.1 per ton in the first seven months in 2022 to €2153.5 this year.

Czech MDI Imports		
	Jan-Aug 23	***Jan-Aug 22***
Kilo tons	24.633	23.672
Av price € per ton	2318.2	2693.6

Central European TDI trade Jan-Aug 2023

TDI exports from Hungary amounted to 134,055 tons in the first seven months in 2023 versus 163,317 tons in the first seven months last year, with average prices rising this year to €2750.9 per ton from €2728.6 per ton in January to July 2022.

Hungarian MDI Exports		
	Jan-Jul 23	***Jan-Jul 22***
Kilo tons	100.777	127.052
Av price € per ton	2153.5	2603.1

TDI exports to Turkey amounted to 19,267 tons in the first seven months in 2023 against 23,018 tons last year whilst Italy reduced imports from Hungary from 22,741 tons to 8,217 tons. Polish imports dropped from 9,869 tons to 12,642 tons. Belgium took 14,166 tons in January to July this year down from 18,061 tons, whilst Romania reduced purchases slightly from 6,198 tons 5,486 tons. Hungary remains the largest supplier of TDI to the Polish market, although volumes fell in value from €39.326 million in the first seven months in 2022 to €35.542 million in the same period this year.

Hungarian TDI Exports		
	Jan-Jul 23	***Jan-Jul 22***
Kilo tons	134.055	163.317
Av price € per ton	2750.9	2728.6

Hungarian Polyol Imports (unit-kilo tons)		
Country	***Jan-Jul 23***	***Jan-Jul 22***
Austria	0.369	0.200
Belgium	12.318	1.192
China	5.535	5.733
Germany	1.793	2.307
Italy	0.265	0.223
Netherlands	2.417	4.354
Poland	0.980	2.039
Romania	0.882	1.577
Others	0.929	0.857
Total	25.487	18.482

Despite the fall in volumes from 51,235 tons to 43,854 tons, average prices for TDI increased from €2693.2 per ton to €2794.8 per ton this year. European demand for TDI is faced by recessionary trends and slowly declining feedstock costs. In effect only global capacity constraints can help to sustain prices.

Hungarian polyol imports Jan-Jul 2023

Hungarian polyol imports amounted to 25,487 tons in the first seven months this year against 18,482 tons in the same period in 2022. Belgium was the largest supplier this year, shipping 12,318 tons. Major suppliers of polyols to Hungary in 2022 included China with 11,091 tons and the Netherlands with 10,746 tons.

MOL is currently constructing its new plant at Tiszaujvaros which should have probably been on stream now. In June MOL fed propylene oxide into the pilot polyol plant and large-scale test

production at the base is expected to start in the second half of 2023. MOL is waiting for European markets to revive before starting production.

Czech Polyol Imports		
	Jan-Aug 23	***Jan-Aug 22***
Volume ktons	25.075	21.679
Value € million	66.300	60.501
Av price € per ton	2590.1	2841.3

Czech polyol imports Jan-Aug 2023

Czech polyol imports amounted to 30,075 tons in the first eight months in 2023 against 27,679 tons in the same period in 2022. The major sources of imports came from Belgium, France and Germany. Polyol import costs increased in the first eight months to €80.489 million from €78.273 million in January to August 2022 with average prices dropping from €2412.8 per ton to €2085.1 per ton.

Polish Polyol Imports (unit-kilo tons)		
Country	***Jan-Aug 23***	***Jan-Aug 22***
Belgium	11.904	17.818
China	4.825	1.574
France	3.465	0.000
Germany	21.907	17.723
Netherlands	20.935	8.908
Romania	9.986	23.024
Saudi Arabia	2.199	15.594
South Korea	10.876	0.000
Others	10.607	13.727
Total	96.704	98.369
Av price € per ton	2109.3	2646.2

Polish polyol imports Jan-Aug 2023

Polish polyol imports amounted to 96,704 tons in the first eight months in 2023 against 98,369 tons in the same period in 2022. The major sources of imports came from Belgium, Germany and the Netherlands.

Polyol import costs dropped in the first eight months to €203.079 million from €260.305 million in January to August 2022 with average prices dropping from €2646.2 per ton to €2109.3 per ton.

The largest source of imports came from Germany in the first eight months, amounting to 21,907 tons against 17,723 in the same period in 2022.

Polish Methanol Exports (unit-kilo tons)		
Country	***Jan-Aug 23***	***Jan-Aug 22***
Austria	30.100	52.398
Czech	38.866	51.861
Germany	55.949	80.209
Romania	18.927	26.177
Slovakia	29.152	33.263
Ukraine	15.366	9.902
Hungary	12.284	32.214
Others	0.218	4.118
Total	200.863	290.142
Av price € per ton	368.7	434.5

Polish exports of polyols amounted to 36,501 tons in the first eight months this year against 56,937 tons in the same period in 2022, but prices dropped from €2694.9 per ton to €2314.7 per ton. Revenues from polyol exports dropped from €153.440 million in January to August 2022 to €84.487 million. The largest destinations for Polish polyol export include Hungary, Italy and Denmark.

Polish Methanol Imports (unit-kilo tons)		
Country	***Jan-Aug 23***	***Jan-Aug 22***
Azerbaijan	4.981	1.138
Belgium	41.745	0.044
Finland	0.000	42.007
Germany	40.825	76.140
Norway	70.666	16.787
Russia	187.561	469.489
US	20.999	0.000
Venezuela	20.765	0.000
Others	1.374	2.857
Total	400.711	609.968
€ price per ton	291.6	381.3

Central European Methanol

Central European methanol trade Jan-Aug 2023

Exports of methanol from Poland totalled 200,863 tons in the first eight months in 2023 against 290,142 tons in January to August 2022. Exports to Germany fell from 80,209 tons to 55,949 tons. Ukraine imported 15,366 tons of methanol from Poland in the first eight months in 2023 versus 9,902 tons last year.

Other destinations include the Czech Republic where Polish exports dropped from 51,861 tons to 38,866 tons whilst deliveries to Austria dropped from 52,398 tons to 30,100 tons. Exports amounted to 16,182 tons in August against 41,204 tons in August last year, reflecting the lower methanol trade volumes in Poland since the end of Russian methanol imports in June this year.

Imports of methanol into Poland dropped from 609,968 tons in the first eight months in 2022 to 400,711 tons in the same period in 2022 with average prices dropping from €381.3

per ton to €291.6 in 2023. Russia reduced exports to Poland in January to August 2023 to 187,561 tons from 469,489 tons.

Czech methanol Imports (unit-kilo tons)		
Country	***Jan-Aug 23***	***Jan-Aug 21***
Germany	4.289	3.868
Russia	6.237	21.299
Poland	34.716	22.692
Others	4.544	0.989
Total	49.786	49.445
Av price € per ton	389.656	485.988

Norway shipped 70,666 tons in the first eight months to Poland, against 16,787 tons last year, whilst Germany reduced exports to 40,825 tons from 76,140 tons.

Czech imports of methanol amounted to 49,786 tons in the first eight months in 2023 against 49,445 tons in the same period in 2022. Russia accounted for 6,237 tons in January-August 2023 against 21,299 tons in 2022.

Hungarian methanol imports (unit-kilo tons)		
Country	***Jan-Jul 23***	***Jan-Jul 22***
Austria	0.917	2.239
Germany	16.166	11.681
Netherlands	17.264	11.423
Poland	10.234	13.308
Russia	0.000	21.526
Slovenia	1.862	1.182
Slovakia	4.591	17.575
Others	3.440	4.556
Total	54.474	83.491
€ per ton	440.562	489.759

Imports of methanol into the Czech Republic were dominated by Poland which increased shipments from 22,692 tons in January to August 2022 to 34,716 tons. Average prices for methanol imports dropped from €485.9 per ton last year to €389.656 per ton.

Hungarian imports of methanol totalled 54,474 tons in January to July this year versus 83,491 tons in January to July last year. Prices averaged €440.562 per ton in the first seven months against €489.759 per ton in the same period in 2022.

Central European chemical production

Grupa Azoty's External Sales (€ million)	
Period: Jan-Jun 2023	**Total**
Total sales revenue	251.759
Operating profit/loss	-56.725
EBITDA	41.740
Period: Jan-Jun 2022	**Total**
Total sales revenue	446.550
Operating profit/loss	+60.257
EBITDA	76.935

Grupa Azoty financial performance 2023

Grupa Azoty posted a consolidated net loss of zl 543 million (€117.1 million) in the second quarter against zl 800 million profit (€172.5 million) in the first half of 2022. The EBITDA margin amounted to 17.4% for the second quarter, and minus 13.7% for the first six months in 2023. The operating loss amounted to zl 807 million (€172.5 million) compared to zl 1,059 million profit (€228.3 million) in April to June 2022.

Inter-group sales for Grupa Azoty slightly exceed external sales. Those sales to customers outside Grupa Azoty dropped from €446.6 million in the first half of 2022 to €251.8 million in the same period in 2023.

Grupa Azoty Production (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
Nitrogen Fertilisers	1143.26	1776
Compound Fertilisers	264	429
Potassium Fertilisers	40	80
Pigments	9	15
Urea	350	775
Oxo alcohols	53	108
Polyamide	48	80
Ammonia	33	23
Caprolactam	45.6	81.5
Speciality Fertilisers	132	166

Grupa Azoty recorded limited demand this year for its products combined with strong downward pressure on prices. The decrease in sales volumes, combined with the low level of demand, forced the group to close or reduce production where necessary.

Anwil completing construction of the nitrogen fertiliser plant

Anwil from the Orlen Group is finalising the construction of a third line for the production of nitrogen fertilisers, which will limit the import of fertilising products and strengthen the food security of Poland. This will be possible as a result of increasing the fertiliser production capacity by 50%. The installation at Wloclawek is also in line with the Orlen Group's strategic objectives in the area of carbon neutrality.

Grupa Azoty recycling & green energy

Grupa Azoty Compounding, a member of the Grupa Azoty Group, has completed the construction of a new production and warehouse hall and the assembly of recycling unit equipment at Tarnow. The new investment allows for the shredding of by-products (PU) from the production lines of from the Grupa Azoty companies from the natural polyamide production unit at Tarnow and Guben. It would also and from the polypropylene production unit at Police and products obtained from external customers.

Shredded by-products are to be used as raw material for the production of PIR (Post Industrial Recycled) plastics. Thus, Grupa Azoty Compounding will increase the volume of products containing recycled and enable the development of cooperation with customers in the field of PU collection.

Polish Chemical Production (unit-kilo tons)

Product	*Jan-Aug 23*	*Jan-Aug 22*
Caustic Soda Liquid	221.3	283.5
Caustic Soda Solid	43.1	44.6
Caprolactam	58.9	107.0
Ammonia (Gaseous)	1070.0	1583.0
Pesticides	31.1	47.0
Nitric Acid	1165.5	1494.0
Nitrogen Fertilisers	932.1	1284.0
Phosphate Fertilisers	111.1	228.6
Potassium Fertilisers	116.2	214.9

The third fertiliser production line includes a nitric acid and neutralisation plant, a granulation plant and auxiliary infrastructure. The new plant is designed to increase the existing production capacity of Anwil by 50%, to 1.461 million tpa. The modern technology used is a guarantee not only of increased efficiency, but also of safety of production continuity. The third fertiliser production line uses the leading global EnviNOx technology. It will make it possible to reduce greenhouse gas emissions in production by about 99%, i.e., by about 4,200 tpa of nitrogen oxides.

Ciech Jan-Jun 2023

Ciech revenues rose 18% in the first half of 2023 but at the same time the EBITDA fell by 15% to zl 365 million. Moreover, the company's net loss amounted to zl 17 million versus a profit of zl 147 million achieved in January to June 2022. Whilst the lower EBITDA is due to tighter margins, the net loss occurred due to one-off non-cash events resulting from, exchange rate differences or provisions.

Ciech has been affected by slowdowns in the soda ash market exacerbated by weak demand in the glass sector. Moreover, global soda production capacity and an increase in supply led to increased competition and as a result of these factors, the volume of sales of soda ash fell by 19% in the second quarter down to 321,000 tons. First quarter sales amounted to 326,000 tons. Stable revenues were accompanied by an increase in costs caused by the persistently high prices of Polish coal, which reduced the margin.

Higher revenues of the salt business resulted from increased production capacity at Stassfurt (full production capacity is to be achieved in 2024) and the result of sales activities. The salt business is one of the six key areas of activity of Ciech, the largest producer of evaporated salt in Poland.

Ciech Revenues Jan-Jun 2023 (€ million)

	Soda	Foams	Total
Total sales revenues	496.055	31.501	631.437
Cost of sales	-436.358	-26.280	-535.078
Gross profit /(loss) on sales	59.697	5.221	96.359
Selling costs	-19.135	-1.533	-31.205

The group produces salt at its plant in Janikowo near Inowrocław (Kujawy) and in the new Ciech salt works in Stassfurt, Germany, launched in 2021. The factory in Stassfurt will ultimately produce about 450,000 tpa. Ciech soda ash capacity in Poland stands at 1.450 million tpa, with another 610,000 tpa at Ciech's plant in Germany and 540,000 tpa at Ciech Soda Romania. Currently, Ciech's plant in Germany at Stassfurt is capable of producing up to 50,000 tpa of high-grade sodium bicarbonate, with an overall capacity of 110,000 tpa.

Ciech's foam division

Ciech's foam business observed a significant downturn in the first half of 2023 mainly from a decline in demand from furniture manufacturers. In the first half of 2023, the foams segment achieved an EBITDA result of zl 16 million, generating revenues of zl 146 million (compared to zl 180 million in 2022).

Ciech silicate division

The new zl 80 million investments in an energy-saving silicate production furnace improved the group's production capacity in this business by 30% and strengthened Ciech's position as the largest supplier of silicates in Europe.

Duslo not expected to beat 2022 profits

Slovak chemical producer Duslo Sala is unlikely to repeat last year's record sales due to the costs of energy as well as the influx of cheap fertilisers from abroad. Abnormal amounts of fertiliser are flowing into Europe, mainly from Russia and the US, and from countries such as Turkmenistan and Azerbaijan. Duslo's sales exceeded one billion euros last year, resulting in a profit of €123.6 million.

RUSSIA

Russian base chemical production Jan-Aug 2023

Russian ammonia production fell from 11.4 million tons in January to August 2022 to 11.2 million tons in the first eight months. Russia's largest exporter Togliattiazot which has been unable to export through Odesa has concluded several agreements on the creation of railway links. Construction has started for a terminal for transhipment of fertilisers through the port Taman and rail deliveries.

Russian Base Chemical Production (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
Caustic Soda	806.0	856.0
Soda Ash	2,294.0	2,318.0
Ammonia	11,200.0	11,400.0
Nitrogen Fertilisers	8,236.0	7,831.0
Phosphate Fertilisers	2,932.0	2,838.0
Potash Fertilisers	5,795.0	5,203.0

Production of phosphate fertilisers in Russia amounted to 2.932 million tons in the first eight months against 2.838 million tons in the same period in 2022, whilst the production of nitrogen fertilisers increased from 7.831 million tons to 8.236 million tons. The production of potash fertilisers increased by 7.0% in the first eight months in 2023.

Russian petrochemical production Jan-Aug 2023

Russian ethylene production increased in the first eight months this year to 2.995 million tons against 2.928 million tons in January to August 2022. Propylene production declined slightly from 1.881 million tons to 1.879 million tons.

Russian Petrochemical Production (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
Ethylene	2,994.8	2,928.2
Propylene	1879.0	1880.7
Butadiene	348.4	414.1
Benzene	869.0	795.0
Butanols	180.7	161.8
Methanol	2536.4	2,993.2
Acetone	107.8	100.9

Russian butadiene production amounted to 348,400 tons in the first eight months in 2023 against 414,100 tons in the same period in 2022. Methanol production dropped sharply from 2.993 million tons in the first eight months last year to 2.536 million tons, whilst butanol production rose from 161,800 tons to 180,700 tons.

Russian polymer production Jan-Aug 2023

The production of bulk plastics in Russia in the first eight months this year amounted to 7.176 million tons versus 6.948 million tons in the same period in 2022. Polyethylene production increased from 2.302 million tons to 2.411 million tons whilst PVC fell from 687,000 tons to 636,800 tons. Due to sanctions polymer manufacturers have found opportunities to restructure their production and sales processes including through the reorientation of exports, increased domestic demand, growth of import substitution of brands and components, etc.

Russian Polymer Production (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
Plastics in Bulk	7,176.0	6,948.0
Polyethylene	2,411.0	2,302.0
Polystyrene	387.8	383.2
PVC	636.8	687.0
Polyamide	90.0	115.8
Synthetic Rubber	934.7	1,023.0
Synthetic Fibres	118.0	126.9

Whilst demand for polyethylene and polypropylene has been growing polyamide production has been affected by lower exports and lower construction in the domestic market. Polyamide production in Russia has also been affected by the tyre sector, with overall production dropping from 115,800 tons to 90,000 tons.

Synthetic rubber production fell from 1.023 million tons in January to August 2022 to 934,700 tons in the same eight months this year. Only exports of synthetic rubber to China have helped sustain production in Russia, with the tyre industry reporting much lower output. Tyre production has been affected partly by the exit of Western manufacturers but mostly due to the drop in car sales against pre-war sales. Potential problems facing rubber and polymer exporters could come from the requirement to sell foreign currency into roubles and also from a tax on exports which the Russian government is currently considering. Both of these measures could be introduced partly to extract more revenue for supporting the military sector and funding the war in Ukraine and partly to strengthen the rouble which has lost value in the past few months.

Russian petrochemical project update

SIBUR-propylene expansion at Tobolsk

SIBUR has started work on building an additional plant for propylene production at Tobolsk in the Tyumen Region at the ZapSibNeftekhim site. The project involves the construction of a propane dehydrogenation unit and the production of polypropylene, making use of the existing energy and raw material infrastructure of the Tobolsk site.

ZapSibNeftekhim is the largest petrochemical complex in Russia, with a total capacity of 2.5 million tpa of base polymers (1.5 million tpa of polyethylene and 1 million tpa of polypropylene). The company is located 10 km east of Tobolsk. A government incentive for building petrochemical plants means that SIBUR will receive a reverse excise tax on raw materials from the propane dehydrogenation unit at Tobolsk if it invests at least 110 billion roubles in the modernisation of production.

Amur Gas Chemical Complex equipment deliveries for 2023-2024

Equipment deliveries from the De-Kastri port on the Russian pacific coast to the Amur Gas Chemical Complex were completed in July this year, and the next deliveries will be made in 2024. The equipment delivered from China is towed along the Amur estuary to the seaport of Nikolaevsk-on-Amur, before further reloading in order to complete the long journey along the Amur and Zeya rivers. To date 118 units of equipment have already been delivered to the unloading berth near Svobodny in the Amur Oblast, 44 units are still to be delivered.

The transport route for equipment entails the transfer from sea vessels to river barge-tug trains for delivery via the Amur and Zeya rivers. In total, it is planned to deliver more than 160 units of large-sized and heavy equipment with a total weight of almost 15,000 tons to the Amur Gas Chemical Complex for the current navigation. The largest cargoes include the ethylene polymerisation reactor with a length of 43.6 m and a weight of 557 tons, and the product purge column with a height of 58.5 m and a weight of 426 tons. This equipment is part of the polyethylene production plant. By water and by land, large-sized and heavy columns and units are transported to the site.

Irkutsk Polymer Plant-project progress	
Status	***September 2023***
Overall complex	73.4%
Ethylene plant	77.8%
Polyethylene plant	75.9%
Alpha-olefin plant	67.8%
Pyrolysis furnaces	70.8%

The raw material for the Amur Gas Chemical Complex involves ethane fractions and LPG, both of which will come from the Amur Gas Processing Plant (progress in the construction of the Amur Gas Processing Plant by the beginning of April 2023 amounted to 88,6%).

Irkutsk Polymer Plant delayed start-up to 2025

The Irkutsk Oil Company (INK) has postponed the launch of the Irkutsk Polymer Plant from 2024 to 2025. The completion of construction and the physical start-up of the plant are still scheduled for December 2024 although production, however, will not start until 2025. The overall progress of the project for the construction of the Irkutsk polymer plant reached 73.4% by the end of September.

Russian helium plants-Irkutsk and Amur

Irkutsk Oil Company (INK) has launched a pilot helium plant at the Yarakta oil and gas condensate field in the Irkutsk region. Due to global shortages, there is a strong potential for new helium capacity, but export opportunities may be limited by Russia's economic isolation. INK also aims to build another helium plant with a capacity of 7-10 million cubic metres per annum on the basis of the Markovskoye oil and gas condensate field in the Irkutsk Oblast.

Currently there are no direct sanctions on helium exports from Russia, but Western shipping companies are not allowed to call on Vladivostok. Thus, there are much fewer sailings in and out and it is more difficult to get the helium containers that in and out of Russia.

Irkutsk Oil Company is undertaking the construction of a polymer plant at Ust-Kut as part of the creation of a gas chemical cluster in the north of the Irkutsk Oblast, including gas production, treatment, transportation and processing facilities. The production capacity is being designed to with a capacity of 650,000 tpa. Toyo Engineering remains engaged in the project and has not been affected by Japanese sanctions.

The Irkutsk Polymer Plant (IPP) is the first plant in East Siberia for the production of polymers from ethane, and will be provided with its own raw materials. It is expected to start production maybe at least two years earlier than SIBUR's Amur project which may help to spread out Russia's production of polyethylene.

Russian petrochemical markets

Russian Ethylene Production (unit-kilo tons)		
Producer	***Jan-Aug 23***	***Jan-Aug 22***
Angarsk Polymer Plant	101.227	131.028
Kazanorgsintez	430.173	445.854
Stavrolen	216.243	212.267
Nizhnekamskneftekhim	435.156	435.464
Novokuibyshevsk Petrochemical	20.783	29.226
Gazprom n Salavat	188.643	220.390
SIBUR-Kstovo	278.971	269.311
SIBUR-Khimprom	35.461	36.205
Tomskneftekhim	191.577	176.326
Ufaorgsintez	70.227	68.217
ZapSibNeftekhim	1026.373	903.880
Total	2994.833	2928.168

Russian ethylene production, Jan-Aug 2023
Russian ethylene production totalled 2.995 million tons in the first eight months in 2023 against 2.928 million tons in January to August 2022.

The main reason for higher output this year was due to ZapSibNeftekhim at Tobolsk which produced 1.026 million tons, up from 903,880 tons from January to August 2022.

Nizhnekamskneftekhim produced 435,156 tons of ethylene in January to August against 435,464 tons, whilst Kazanorgsintez reduced production from 445,854 tons to 430,173 tons. Kazanorgsintez has recently completed maintenance at its Ethylene-500 plant which forms the main part of the company's ethylene capacity of 650,000 tpa.

In Bashkortostan Gazprom neftekhim Salavat's production reduced to 188,643 tons in the first eight months from 220,390 tons last year, whilst Ufaorgsintez increased production from 68,217 tons to 70,227 tons. Gazprom neftekhim Salavat closed for maintenance in August and parts of September after difficulties were incurred during maintenance. The official reason is the need to overhaul the installation, the unofficial reason is the lack of spare parts needed in the crude oil processing lines. Due to sanctions pumps and compressors need to be replaced using Russian equipment.

Other important ethylene producers included SIBUR-Kstovo in the Nizhniy Novgorod region which produced 278,971 tons in the first eight months versus 269,311 tons in 2022. SIBUR-Kstovo does not consume ethylene internally but sells to RusVinyl for PVC production and SIBUR-Neftekhim for ethylene oxide production. In July SIBUR-Neftekhim suffered a fire which interrupted ethylene oxide and glycols production for several days.

Russian Propylene Production (unit-kilo tons)		
Producer	***Jan-Aug 23***	***Jan-Aug 22***
Angarsk Polymer Plant	52.208	72.374
Kazanorgsintez	32.918	36.168
Lukoil-NNOS	162.577	207.024
Stavrolen	85.906	105.123
Nizhnekamskneftekhim	215.224	215.778
Novokuibyshevsk	19.584	18.061
Omsk Kaucuk	42.286	36.817
Polyom	109.149	127.558
Gazprom n Salavat	83.477	96.629
SIBUR Kstovo	114.740	116.354
SIBUR-Khimprom	49.921	54.488
Tomskneftekhim	104.166	91.640
Ufaorgsintez	113.402	112.460
ZapSibNeftekhim	693.446	590.210
Total	1879.004	1880.682

Stavrolen at Budyennovsk produced 216,243 tons of ethylene which was up slightly from 212,267 tons from January to August 2022. In Siberia the Angarsk Polymer Plant produced 101,227 tons of ethylene in the first eight months in 2023 versus 131,028 tons in the same period in 2022, whilst Tomskneftekhim increased production to 191,577 tons against 176,326 tons.

Russian propylene production, Jan-Aug 2023
Russian propylene production amounted to 1.879 million tons in January to August 2023 against 1.880 million tons in the same period last year. ZapSibNeftekhim produced 693,446 tons in January to August this year up from 590,210 tons. In Tatarstan Nizhnekamskneftekhim produced 215,224 tons of propylene against 215,778 tons in the first eight months in 2022 whilst Kazanorgsintez produced 32,918 tons against 36,168 tons.

In Bashkortostan Gazprom neftekhim Salavat produced 83,477 tons of propylene in January to August 2023 versus 96,629 tons, whilst Ufaorgsintez increased production from 112,400 tons to 113,308 tons. In the Nizhny Novgorod region SIBUR-Kstovo reduced production of propylene from 116,354 tons to 114,740 tons, with the decline attributed to the loss of export opportunities. Lukoil-

NNOS at Kstovo reduced production from 207,024 tons to 162,577 tons which was lower due to a combination of less export activity and due to extended maintenance.

Russian Propylene Exports (unit-kilo tons)		
Producer	***Jan-Aug 23***	***Jan-Aug 22***
Lukoil-NNOS	20.708	54.454
SIBUR-Kstovo	0.483	10.552
Stavrolen	0.000	5.100
Angarsk Polymer Plant	21.110	18.699
Total	42.301	88.805

Russian propylene sales Jan-Aug 2023

Propylene exports from Russia amounted to 42,301 tons in the first eight months in 2023 against 88,805 tons in the same period in 2022. Lukoil-NNOS reduced export shipments from 54,454 tons to 20,708 tons whilst SIBUR-Kstovo did not ship propylene in the first eight months after shipping 10,552 tons in the period January-August last year.

Russian Propylene Domestic Purchases (unit-kilo tons)		
Consumer	***Jan-Aug 23***	***Jan-Aug 22***
Saratovorgsintez	115.912	116.977
Volzhskiy Orgsintez	4.766	7.655
Akrilat	15.512	17.846
SIBUR-Khimprom	23.986	24.480
Omsk-Kaucuk	20.005	5.039
Tomskneftekhim	2.927	1.706
ZapSibNeftekhim	45.916	78.904
Moscow refinery	5.523	1.739
Ufaorgsintez	8.692	7.453
Gazprom n Salavat	4.500	0.000
Stavrolen	3.270	0.000
Khimprom Kemerovo	2.154	4.185
Plant of Synthetic Alcohol	0.252	3.436
Others	3.546	19.467
Total	288.096	287.711

Exports of propylene to Europe started to drop in the second half of 2022, and by the end of the year China was the only destination for Russian shipments. Angarsk Polymer Plant shipped 21,110 tons in the first eight months this year against 18,699 tons in the same period in 2022.

Russian sales of propylene on the domestic merchant market amounted to 288,096 tons in the first eight months in 2023 against 287,711 tons in the same period in 2022. The largest propylene supplier to the domestic market was Lukoil-NNOS, shipping 148,187 tons against 134,759 tons in January to August 2022. SIBUR Kstovo increased domestic sales in the first eight months from 91,905 tons in 2022 to 108,121 tons.

Russian Propylene Domestic Sales (unit-kilo tons)		
Company	***Jan-Aug 23***	***Jan-Aug 22***
Angarsk Polymer Plant	13.941	16.109
Akrilat	**6.644**	**13.216**
SIBUR-Kstovo	108.121	91.905
Lukoil-NNOS	148.187	134.759
Tomskneftekhim	8.692	7.453
Stavrolen	8.692	7.453
Others	3.167	2.595
Total	288.096	287.711

Russia's largest merchant consumer Saratovorgsintez reduced purchases of merchant propylene from 116,977 tons in the first eight months last year to 115,912 tons, followed by SIBUR-Khimprom at Perm which reduced purchases from 24,480 tons to 23,986 tons. ZapSibNeftekhim reduced purchases from 78,904 tons to 45,916 tons.

Russian Butadiene Production (unit-kilo tons)		
Producer	***Jan-Aug 23***	***Jan-Aug 22***
ZapSibNeftekhim	154.763	185.697
Nizhnekamskneftekhim	120.417	151.830
Togliattikaucuk	30.755	33.050
Sterlitamak Petrochemical Plant	13.940	18.421
Omsk Kaucuk	28.570	25.395
Total	348.445	414.393

Other consumers of merchant propylene in Russia include Akrilat at Dzerzhinsk which reduced purchases from 17,846 tons in the first eight months last year against 15,512 tons in the same period in 2022. Akrilat uses propylene in the production of acrylic acid and acrylates.

Russian butadiene production Jan-Aug 2023

Russian butadiene production amounted to 348,445 tons in the first eight months in 2023 against 414,393 tons in the same period in 2022. ZapSibNeftekhim reduced production from 185,697 tons in January to August 2022 to 154,763 tons this year, whilst Nizhnekamskneftekhim reduced production from 151,830 tons to 120,417 tons. Other producers include Omsk Kaucuk, Togliattikaucuk and Sterlitamak Petrochemical Plant.

Russian bulk polymers

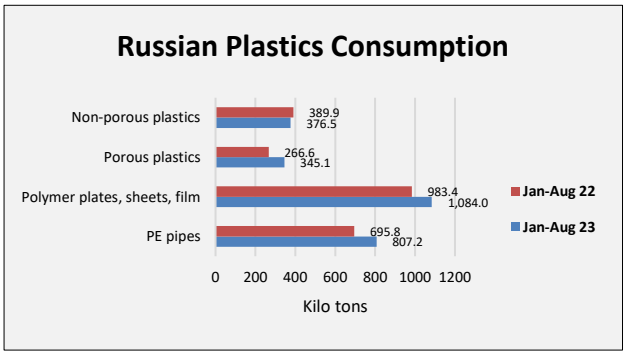
Russian plastics and polyethylene production Jan-Aug 2023

The production of bulk plastics in Russia amounted to 7.176 million tons in the first eight months this year versus 6.948 million tons in the same period in 2022. Despite the challenges presented by sanctions the production of bulk plastics continues to perform at stable levels. Most of the growth this year has come from polyethylene. The production of styrene polymers in Russia increased by 0.6% but at the same time falls were recorded in the production of polyamides, PVC, and urea-formaldehyde resins. PVC production in the first eight months in 2023 amounted to 636,700 tons, versus 687,000 tons in the same period last year.

Polyethylene production totalled 2.411 million tons in the first eight months in 2023 against 2.302 million tons in January to August 2022. By comparison the production of polyethylene in the first eight months in 2019 amounted to 1.514 million tons and since then the increase has been largely driven by output at Tobolsk after the ZapSibNeftekhim complex started at the end of 2019.

Russian polymer pipe market Jan-Aug 2023

Domestic consumption of plastics has increased this year as domestic manufacturers have filled some market gaps left by Western companies that had previously sold into Russia. The production of polymer pipes in Russia rose from 695,800 tons in the first eight months of 2022 to 807,200 tons in the same period this year. Production of polymer plates, sheets and film rose from 983,400 tons to 1084,000 tons whilst porous plastics increased from 266,600 tons to 345,100 tons. Only non-porous plastics recorded a decline, dropping from 389,900 tons to 376,500 tons in January to August 2023.



The market for polymer pipes is growing due to the implementation of large-scale state programmes such as the Housing and Utilities Modernisation Programme for 2023-2027, and the Gazprom Gasification Programme for 2025-2027.

The polymer pipe market is characterized not only by an increase in production volumes, but also by an annual increase in production capacity. The only exception was 2020, when, under the conditions of Covid restrictions, some companies closed. Capacity growth continued in 2023 with 14 new projects. However, the distribution of capacities, as well as their workload, are uneven across the territory of Russia.

PE100 most used polymer for pipes

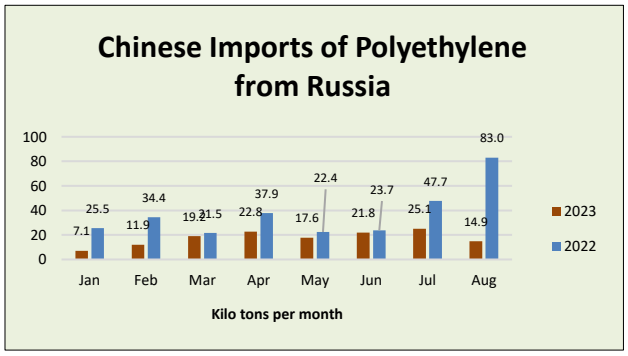
More than half of the total volume of raw materials falls on pipe grades of polyethylene PE100. The second most popular raw material is polypropylene although the domestic pipe industry consumes more than three times less of its brands. At the same time, the consumption of PE100 polyethylene is growing faster than other polymers.

Until mid-2023, Russian demand for RC brands was completely covered by imports. Until the beginning of 2022, the main suppliers were Borealis, LyondellBasell and SABIC, located in Sweden, Germany and Finland. After February 2022, European producers began to curtail the supply of RC grades to Russia. Russian pipe manufacturers experienced an acute shortage of those products and assessed the problem with their supply as one of the priorities. In total, ZapSibNeftekhim operates four production lines for the production of various grades of polyethylene with a total capacity of 1.5 million tpa. Currently, the production of 36 grades of polyethylene has been mastered, of which six are intended for the production of pipes, including three related to black, one to white and two new to colour. In general, the new pipe grades

are part of SIBUR's attempts to fill parts of the market which previously depended on Western imports.

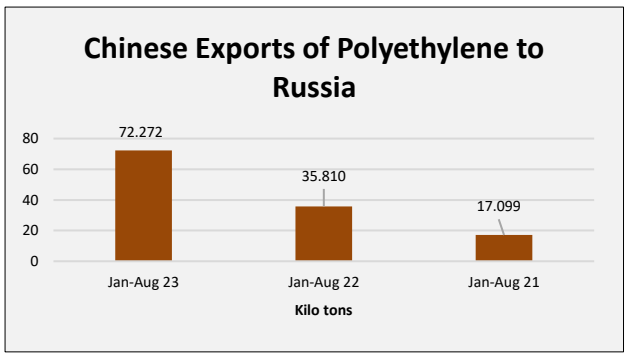
Russian polyethylene trade Jan-Aug 2023

Russian exports of polyethylene to China fell from 296,198 tons in January to August 2022 to 140,421 tons in the same period in 2023. HDPE exports from Russia to China dropped from 151,209 tons in the first eight months in 2022 to 60,687 tons.



HDPE exports from Russia to China have declined sharply in the past two years; in January to August 2021 volumes from Russia into China amounted to 244,503 tons.

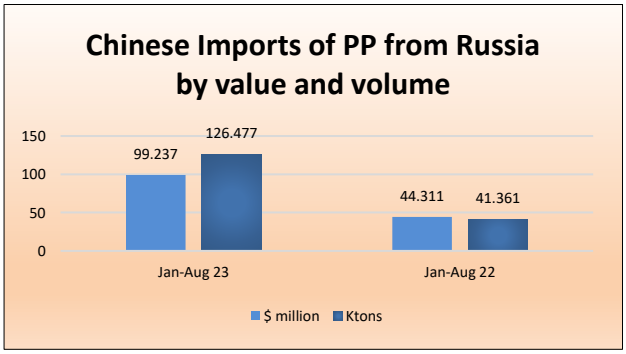
Overall Chinese polyethylene exports to Russia by value amounted to $115.453 million in the first eight months against $61.060 million in the same period last year and $24.379 million in January to August 2021. By volume exports increased from 35,810 tons to 72,272 tons in January to August this year.



Imports of polyethylene from China into Russia are more diversified than Russian exports to China and include higher grades such as ethylene-vinyl acetate copolymers. EVA imports into Russia from China amounted to 10,570 tons in the first eight months this year against 4,686 tons in the same period in 2022. Import values of EVA from China amounted to $34.471 million in the period January to August 2023 versus a total of $14.486 for the same period last year.

South Korean Polyethylene Exports to Russia		
	Jan-Aug 23	***Jan-Aug 22***
$ million	59.1	80.3
Ktons	78.8	136.9

Partly due to increased domestic production at Tobolsk, exports of polyethylene from South Korea to Russia showed signs of slowing in the first eight months this year. Exports dropped from 89,100 tons in January to August 2022 to 56,600 tons in the same period in 2023.



Russian polypropylene market Jan-Aug 2023

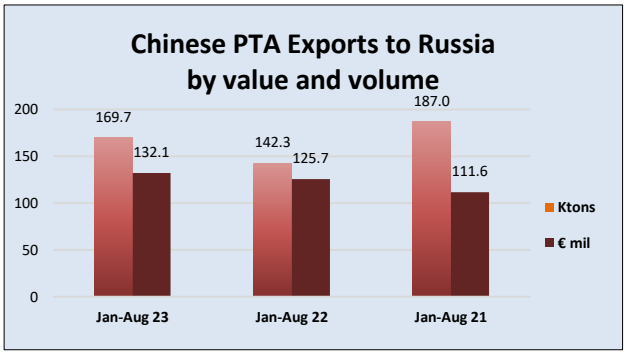
Russian polypropylene exports to China have increased since the second quarter last year. By volume Russia shipped 126,477 tons of polypropylene to China in the first eight months versus only 41,361 tons in the same period in 2022, with revenues rising from $44.311 million to $99.237 million.

It is noticeable that as the year has progressed volumes from Russia to China have tended to slow. Russian imports of polypropylene increased in the first eight months in 2023 to 36,315 tons from 12,794 tons in the same period last year. Values increased from $17.395 million to $67.763 million. Most of the polypropylene imported from China into Russia consists of higher value-added copolymer grades.

Russian PTA-PET Chain

PTA deliveries from China to Kaliningrad

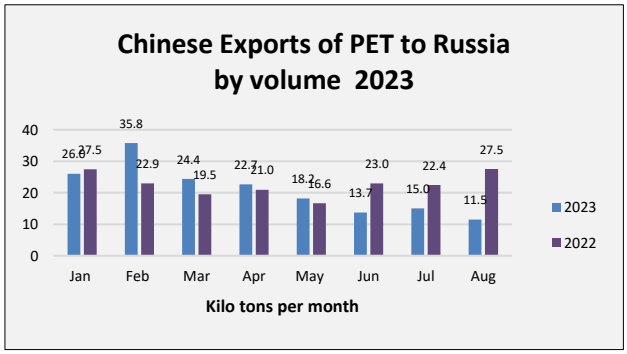
Russian paraxylene production amounted to 122,237 tons in the first eight months in 2023, with almost all production directed to domestic usage at Polief. PTA production at Polief amounted to around 150,000 tons in the first eight months from the total capacity of 374,000 tpa. Some technical problems were encountered in the second and third quarters which reduced operating time.



PET production for Polief amounted to 118,000 tons in the first eight months, including usage of secondary raw materials.

Ekopet at Kaliningrad produced 155,000 tons of PET in the first eight months, with nearly all PTA supplied from China. MEG supplies were prior to the war supplied by SABIC in Saudi Arabia, but since 2022 have been supplied largely by SIBUR-Neftekhim.

PTA exports from China to Russia totalled 169,700 tons in the first eight months in 2023 against 142,300 tons in the same period in 2022 and 187,000 tons in 2021. Russian imports from China amounted to $132.1 million in value the first eight months against €125.7 million in 2022, with average prices dropping from €846.8 per ton to €774.8 in January to August 2023.



Russian PET market and imports from China

PET imports into Russia from China amounted to $154.817 million by value in the first eight months in 2023 against $201.867 million in the same period in 2022 and $108.495 million in 2021. By volume this converted into 167,269 tons versus 180,427 tons in January to August 2022 and 131,443 tons in the same period in 2021. Russian PET imports from China in 2022 amounted to a total of 238,000 tons, which is 34.7% more than in 2021. As a result, the share of Chinese PET in total Russian imports increased from 84% to 95%. Russia imported 194,260 tons of PET from China in 2021 for $194.690 million, whilst Import values rose to $296.478 million.

Titan-Polymer PET start-up by 2026

The Titan-Polymer company (Pskov, part of the Titan Group of Companies) plans to complete the second stage of the creation of its integrated industrial complex in the Moglino-2 SEZ near Pskov by 2026. The capacity at the second stage is expected to comprise either 140,000 tpa of PET and 80,000 tpa of polybutylene terephthalate, or 200,000 tpa of PET. Foundations are already being laid for the production unit and a final decision on PET capacity will follow in due course.

Currently Titan operates a BOPET plant in the Mogilino-2 SEZ with a capacity of 72,000 tpa. The created complex for the production of PET granules and BOPET films will be a platform for the formation of intersectoral cluster with the participation of enterprises of the Pskov region, located in western Russia near the border with Belarus. The capacity of the new plant is 72,000 tpa including two lines. Up to 20,000 tpa of BOPET film are imported into Russia, mainly from Egypt, India, and Turkey. Titan-Polymers product line includes six types of BOPET film with a thickness of eight to 50 micrometres (paper thickness, for example, is from 70 to 180 micrometres), including a transparent, metallized white film with a twist effect for packaging sweets and chocolate. Titan-Polymer intends to produce film from domestic and imported PET.

Russian synthetic rubber

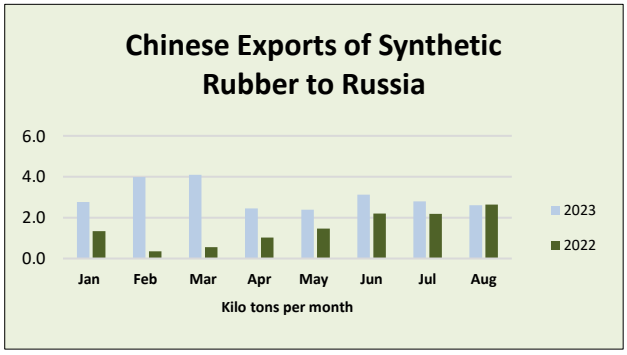
Russian rubber production and consumption Jan-Aug 2023

Russian production of synthetic rubber in the first eight months in 2023 in Russia amounted to 934,700 tons which was down against 1.023 million tons in the same period last year. Despite achieving record levels in May, the production volumes in 2023 have even been lower than the pandemic year of 2020. Production in June and August both fell under 100,000 tons, indicating the weakness of the market.

Russian Tyre Production (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
Car Tyres	114.3	165.7
Lorry tyres	26.5	23.5
Agricultural tyres	5.5	6.7
Total	146.3	195.9

Only exports of synthetic rubber to China have helped sustain production in Russia, with the tyre industry reporting much lower output. Tyre production has been affected partly by the exit of Western manufacturers but mostly due to the drop in car sales against pre-war sales.

Chinese Imports of Synthetic Rubber from Russia ($ million)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
SBRs (HS Code 40021990)	68.427	28.333
Butadiene Rubber	89.714	31.715
Butyl Rubber	99.647	81.235
HBR	75.061	82.624
ABR	30.924	6.973
Isoprene Rubber	57.367	39.379
Others	53.644	17.442
Total	474.784	287.701
Chinese Imports of Synthetic Rubber from Russia (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
SBRs (HS Code 40021990)	58.303	19.640
Butadiene Rubber	71.040	23.881
Butyl Rubber	65.103	56.689
HBR	35.158	40.059
NBR	21.815	7.552
Isoprene Rubber	38.928	38.796
Others	36.123	12.589
Total	326.471	199.206



Whilst export trade with China has helped to replace European business, the domestic tyre industry remains suppressed by weak demand. The sharp declines in the Russian automotive sector meant that rubber consumption in the production of passenger car tyres fell from 195,900 tons in the first eight months in 2022 to 146,300 tons in the same period this year. Tyres for the agricultural sector also have fallen, dropping from 6,700 tons in the first eight months last year to 5,500 tons. The only sector to show growth was for lorry tyres where consumption rose from 23,500 tons to 23,500 tons.

As an illustration of how tyre manufacturers are performing Nizhnekamskshina (part of the Kama Tyres group) reduced profits by 2.8 times in the first half this year against the first half of 2022. Until mid-2022, Nizhnekamskshina was part of NK Tatneft when it was sold to Tatneftekhiminvest-holding, whilst Tatneft acquired the assets of Nokian Tyres, taking the plant at Vsevolozhsk.

Russian-Chinese trade Jan-Aug 2023

The value of Russian synthetic rubber exports to China amounted to $474.784 million in the first eight months this year against $287.701 in the same period in 2022.

By volume this resulted in an increase from 199,206 tons to 326,471 tons. The largest categories of synthetic rubber exports comprised butyl rubber, butadiene rubber and SBRs.

All of the main product categories recorded rises, apart from halogenated butyl rubber which dropped from 40,059 tons to 35,158 tons in January to August 2023. Butyl rubber exports, by contrast, increased from 56,689 tons in January to August 2022 to 65,103 tons.

In other product groups, butadiene rubber exports from Russia to China increased from 23,881 tons to 71,040 tons and isoprene rubber from 38,796 tons to 38,928 tons. Exports of SBRs under HS code 400219 increased from 19,640 tons to 58,303 tons with values rising from $20.890 million to $57.554 million. Whilst China is now the most important market for Russian rubber exports, trade with Europe is allowed in some product areas to continue until June 2024.

Russian isoprene monomer capacity

Capacity for isoprene monomer production in Russia amounts to 370,000 tpa to 390,000 tpa, depending on whether Nizhnekamskneftekhim uses isopentane dehydrogenation (180,000 tpa) or by the synthesis method from isobutylene (200,000 tpa). Isoprene is consumed internally by Nizhnekamskneftekhim for the production of isoprene rubber, butyl rubbers and plastics. isoprene monomer is also produced by Togliattikaucuk (Tatneft, synthesis from isobutylene) with a capacity of 90,000 tpa and Sintez-Kaucuk (Sterlitamak, isopentane dehydrogenation) 100,000 tpa. Almost 95% of isoprene produced in Russia is used for the production of isoprene rubbers of various grades.

Whilst isoprene monomer capacity has not changed over the past two decades producers have invested in the feedstock base for isoprene, typically by investing in isobutylene capacity. In 2022 Nizhnekamskneftekhim undertook large-scale maintenance of the isoprene monomer plant. During the period of scheduled shutdown overhaul, repairs were made to the column and auxiliary equipment, in addition to replacing dynamic pumping equipment, replacing catalysts. This made it possible to increase the reliability and safety of production, reduce consumption rates, improve the quality of products, and generally increase the economic and environmental efficiency of the plant. Currently, the plant operates in a stable mode, producing MTBE, isoprene, isobutylene and formaldehyde. These products are necessary for the production of synthetic rubbers.

Russian rubber prices feeling effects of weaker rouble

The sharp devaluation of the rouble since June has led to a rise in price of isoprene rubbers and isoprene copolymers, amounting to 10.3% over the third quarter. The depreciation of the domestic currency has meant that the imports of natural rubber have become more expensive thus helping to drive up synthetic rubber pricing. Despite the gradual rise in price of products, prices are still lower than last year. The direction of the rouble in the coming months will represent the key factor in how domestic rubber prices perform.

Merger of Sintez-Kaucuk and Sterlitamak Petrochemical Plant

The shareholders of Sintez-Kaucuk and Sterlitamak Petrochemical Plant (SNKhZ), which are managed by Roskhim, decided in September to reorganise the enterprises in the form of affiliation. As a result of the reorganisation, the assets of the two enterprises will be merged to consolidate the possibilities of raising funds and undertaking larger projects.

Geographically, the industrial sites of the enterprises are closely adjacent to each other. The merger of the two plants is justified not only by the fact that the two plants are located on the same territory, but also have common goals and objectives such as increasing the pace of production, implementing production, investment plans and introducing innovative approaches. It is expected that the reorganization procedures will be completed by the end of this year.

Omsk Kaucuk-polyisobutylene project

Omsk Kaucuk has started construction on a plant for the production of polyisobutylene, with a capacity of 10,000 tpa. This material is used in adhesives, sealants and emulsifiers and is currently almost completely imported. The project is planned to be completed by 2025 based Russian technology provided by GC Titan.

Omsk Kaucuk has also announced the launch of a modernized production facility for processing the butane-butylene fraction which will increase the processing of the technical butane fraction to 210,000 tpa. The aim is to sell more butane on the domestic market and export where possible.

Sterlitamak Petrochemical Plant and Sintez-Kaucuk produce diversified products of low-tonnage chemicals, including phenolic antioxidants under the trademark "Agidol", neodymium polyisoprene rubbers of the SKI-5 and SKI-5PM brands. After the merger, all products manufactured at industrial sites will be marked with the production of SNKhZ. In January 2023, Roskhim (formerly Russian Hydrogen) became the management company of both companies.

Russian methanol market

Russian Methanol Production (unit-kilo tons)		
Producer	***Jan-Aug 23***	***Jan-Aug 22***
Shchekinoazot	842.465	1014.159
Gazprom Methanol	499.590	489.310
Metafrax Chemicals	721.179	745.025
Akron	55.610	64.145
Azot Novomoskovsk	9.320	152.980
Angarsk Petrochemical	16.740	21.410
Azot Nevinnomyssk	71.808	74.441
Tomet	270.236	365.248
Ammoni	49.476	66.477
Totals	2536.424	2993.195

Russian Methanol Exports by Producer (unit-kilo tons)		
Producer	***Jan-Aug 23***	***Jan-Aug 22***
Azot Nevinnomyssk	5.205	1.350
Azot Novomoskovsk	48.032	55.353
Akron	0.000	4.885
Metafrax Chemicals	258.495	287.384
Gazprom Methanol	265.115	195.115
Tomet	70.894	119.907
Shchekinoazot	458.548	746.025
Ammoni	0.000	1.470
Total	1106.290	1411.489

Summary of Russian Methanol Export Destinations (unit-kilo tons)		
Country	***Jan-Aug 23***	***Jan-Aug 22***
Belarus	102.502	162.075
China	534.731	38.870
Finland	106.441	486.971
Germany	5.265	1.110
Kazakhstan	31.818	25.946
Latvia	1.230	58.673
Lithuania	9.019	44.234
Netherlands	20.814	137.072
Poland	126.002	291.119
Romania	0.000	26.488
Slovakia	0.000	49.035
Turkey	164.322	70.050
UK	0.000	8.398
Ukraine	0.000	11.916
Others	2.529	0.547
Total	1104.673	1412.636

Russian methanol production Jan-Aug 2023

Russia produced 2.563 million tons of methanol in the first eight months in 2023 against 2.993 million tons in the same period in 2022. Most producers recorded a decline in production, with only Gazprom Methanol reporting a rise from 489,310 tons to 499,590 tons. Gazprom Methanol however shut for maintenance from 11 September and the plant remained down into October. Renationalised Metafrax (over 95% of shares are now owned by the state) reduced production from 745,025 tons to 721,179 tons.

The largest Russian producer remained Shchekinoazot which produced 874,465 tons in the first eight months against 1.014 million tons in January to August 2022. Tomet reduced production from 365,248 tons to 270,236 tons in January to August 2023 whilst Azot at Novomoskovsk reduced production from 152,980 tons to 9,320 tons. Ammoni in Tatarstan reduced methanol production from 66,477 tons in the first eight months in 2022 to 49,476 tons in the same period in 2023.

Russian methanol exports, Jan-Aug 2023

Russian producer exports of methanol fell from 1.411 million tons in the first eight months in 2022 to 1.106 million tons in the same period in 2023. Tomet reduced exports to 70,894 tons of methanol against 119,907 tons in January to August last year. Metafrax Chemicals reduced exports from 287,384 tons in January to August 2022 to 258,495 tons whilst Gazprom Methanol increased exports from 195,115 tons to 265,115 tons.

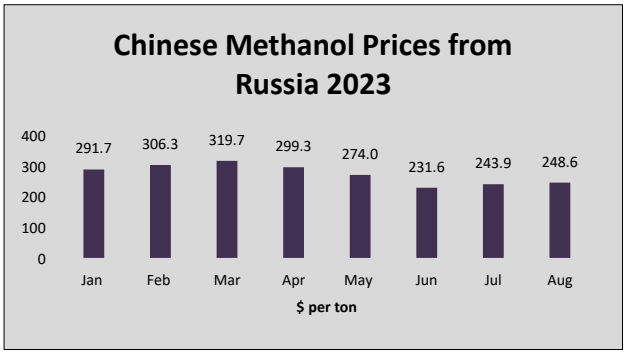
The largest Russian exporter was Shchekinoazot which shipped 458,548 tons in the first eight months in 2023 against 746,025 tons last year. Azot at Novomoskovsk reduced methanol exports in the first eight months to 48,032 tons from 55,353 tons in the same period in 2022. The plant produced only 9,320 tons in the first eight months this year.

In the first eight months this year China represented the largest destination for Russian methanol exports, accounting for 534,731 tons from the total of 1.104,673 tons. Finland accounted for 106,441 tons of Russian methanol, down from 486,971 tons in January to August 2022 whilst Poland reduced inward shipments from Russia from 291,119 tons to 126,002 tons. Exports to the Netherlands dropped to 20,814 tons from 137,072 tons.

Direct exports to Hungary, Romania, Slovakia and Ukraine stopped earlier in 2022, whilst the full EU sanctions on Russian methanol took effect from 18 June. The reorientation to new markets in the Asia-Pacific region, at this stage solely China, has been accompanied by a multiple increase in transport costs.

Nearly all Russian exports to China go through the port of Nakhodka-Vostochny. Gazprom Methanol from Tomsk has been the leading supplier to China this year shipping 206,050 tons. Rail costs from Tomsk are estimated at around $130 per ton, whilst as the second largest exporter

Metafrax the tariff rises to $160 per ton. For shipments from Togliatti and Shchekino, rail costs are estimated at $182 and $200 per ton respectively which at current prices yields only small margins.



Rail costs have been partially mitigated by state support aimed at reducing the cost of transporting methanol, but sending product to China remains much less profitable than to EU markets.

The government is considering the possibility of introducing a new duty, which will withdraw from 4% to 7% of the customs value of goods from exporters. There is concern that such a mechanism may have a negative impact on investment projects and foreign trade in methanol, making exports unprofitable. The reason for considering this duty is to address the growing budgetary deficit.

Russian methanol domestic sales, Jan-Aug 2023

Merchant sales of methanol on the Russian domestic market amounted to 991,216 tons in the first eight months in 2023 against 1,096,458 tons in the same period in 2022. Tomet reduced sales from 239,487 tons to 195,751 tons whilst Gazprom Methanol reduced sales from 247,908 tons to 205,459 tons. Metafrax Chemicals increased shipments to the domestic market from 261,013 tons in January to August 2022 to 308,357 tons in January-August 2023.

Russian Methanol Domestic Sales (unit-kilo tons)		
Producer	***Jan-Aug 23***	***Jan-Aug 22***
Azot Nevinnomyssk	4.934	15.540
Azot Novomoskovsk	1.760	98.193
Metafrax Chemicals	308.357	261.013
Gazprom Methanol	205.459	247.908
Tomet	195.751	239.487
Shchekinoazot	255.908	199.033
Ammoni (Mendeleevsk)	19.047	35.284
Total	991.216	1096.458

The impact of sanctions on logistics of Russian methanol exports

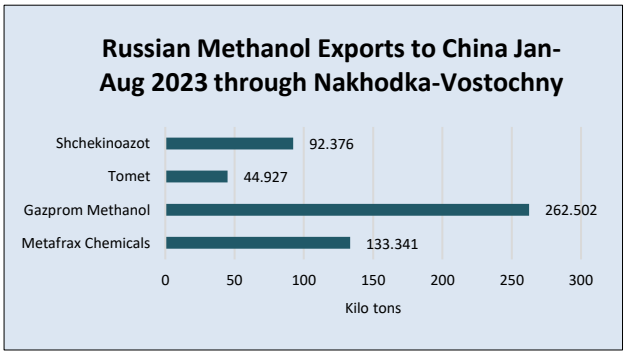
The sanctions have impacted heavily on the dynamics and management of methanol logistics. Russian producers, Russian Railways and the Ministry of Industry have all acknowledged that it will require considerable time and investment in the infrastructure before producers can fully replace the European market. Exports of methanol and domestic merchant sales declined by around 15% in the first eight months in 2023 over 2022, including rail and road deliveries.

Logistics of exports are now undergoing huge changes, and it has come to the attention of the Ministry of Industry and Trade that the sector may need help. In particular investment is required in the Russian railway network in order to allow the greater flow of methanol shipped to port destinations.

In order to address these issues a working group has been created under the Ministry of Industry and Trade which will examine logistics, in addition to possibilities for using methanol as a bunker fuel. This latter task involves pilot projects by Russian Railways to convert diesel engines of shunting diesel locomotives to work on gas engine fuel. Thus far this project idea has tended to stall due to the high costs of logistics related to gas but may represent an opportunity in future. In other areas of potential consumption, shipping methanol could be used for auxiliary vessels in the waters of seaports.

The main challenge in the short term is concentrated on export logistics in order to allow producers to continuing exporting at relatively satisfactory rates even if profitability is lower. Kotka-Hamina was the main export route for Russian methanol exports for the past two decades, whilst other foreign ports such Odesa and Sillamae have disappeared from the supply chains. Deliveries through the southern Russian ports of Temryuk and Kavkaz have gained momentum since early 2022, but still remain relatively insignificant and is certainly unprofitable for sending methanol to Asian countries. Moreover, shipping methanol to Asia in tank containers through the existing seaports of north-west

Russia does not seem viable. Possible methanol terminals at Ust Luga and Vysotsk do not seem to be making progress, particularly as free berths are currently reserved for transshipment of coal and LNG.



Thus Nakhodka-Vostochny in the Far East represents effectively the only port terminal for large volumes of Russian methanol exports. At two berths, it is possible to tranship up to 1 million tpa of methanol, but achieving full capacity is difficult due to the limitations of Russian Railways. Furthermore, there is competition between the transhipment of methanol against petroleum products, whilst there are attempts to increase shipments and liquefied gases.

In the first eight months this year Gazprom Methanol exported 262,502 tons of methanol through Nakhodka-Vostochny, but despite the fact that the Tomsk plant is closest to the terminal at Nakhodka-Vostochny margins have been very tight. As a result, Gazprom Methanol shut for maintenance on 11 September, which although officially was scheduled was attributed partly to the lower margins. Export prices to China for Russian methanol averaged at $248.6 per ton in August, whilst gas prices and transport prices per ton have left little profit for producers.

Russian methanol producer profitability

In addition to redirected export markets Russian methanol producers are facing tighter margins and profitability levels. In rouble terms Shchekinoazot reduced its net profits in 2022 to 14.231 billion against 16.439 billion roubles in the same period in 2021, despite increased revenues from 48.418 billion to 54.582 billion roubles.

Revenues for Shchekinoazot and other producers are expected to be lower in 2023 due to lower commodity prices overall and in particular export prices of methanol to the Chinese market.

Metafrax Group's revenue amounted to 78.2 billion roubles in 2022 (down 2% versus 2021), whilst the net profit dropped from 12.7 billion roubles to 10.6 billion roubles. Metafrax at Gubakha reported a drop in revenues in 2022 to 26.9 billion roubles versus 31.6 billion in 2021. The company's return on sales last year decreased by 10.7% compared to 2021 and amounted to 39.4%. In June 2023, the company launched a complex for the production of urea, ammonia and melamine with a total capacity of 1 million tpa.

Metafrax renationalisation

The main block of shares (95.88%) of the authorized capital of Metafrax Chemicals was credited to the personal account of the Russian Federation. The recipient was the Federal Agency for State Property Management.

The possibilities of railway border crossings are also limited by having to compete with the transportation of liquefied gas. Some small methanol volumes are shipped through Zabaikalsk, but this far this has amounted to only several hundred tons. It is worth nothing that it has become possible to pass LPG to China through Mongolia and theoretically, this railway crossing could be extended for methanol.

Regarding other forms of transport, road deliveries were previously carried out through Belarus and Poland. Theoretically, methanol can be exported by river although exporters are silent about water transportation. It is only known that some of them have the ability to organize such routes. Indirectly, this was also indicated by projects announced earlier in connection with the construction of a number of domestic terminals for methanol.

Besides the Vostochny Petrochemical Terminal, the volume of methanol transhipment has tripled this year both through the port of Kavkaz (Yugneftekhimtransit) tripled and the port of Temryuk (Kargokhim terminal).

Sales of Russian methanol to China have been supported by regulated gas prices in Russia, as without the feedstock advantage it would be harder for Russian volumes to compete. The export of methanol though to the east is hampered by the shortage of carrying capacity of the railways, whilst there are also difficulties with the connecting to the southern ports of Kavkaz and Temyruk.

Russian organic chemicals

Russian N-Butanol Production (unit-kilo tons)		
Producer	***Jan-Aug 23***	***Jan-Aug 22***
Angarsk Petrochemical company	17.057	20.276
Azot Nevinnomyssk	13.465	11.141
Gazprom neftekhim Salavat	48.789	44.431
SIBUR-Khimprom, Perm	20.849	20.598
Total	100.159	96.446
Russian Isobutanol Production (unit-kilo tons)		
Producer	***Jan-Aug 23***	***Jan-Aug 22***
Angarsk Petrochemical Company	13.029	14.241
Gazprom neftekhim Salavat	26.780	22.928
SIBUR-Khimprom, Perm	46.134	37.876
Total	85.942	75.045

Russian butanol production Jan-Aug 2023

Production of butanols increased in the first eight months for both normal and iso grade. Russian normal butanol production rose from 96,446 tons in the first eight months in 2022 to 100,159 tons in the same period this year. Gazprom neftekhim Salavat was the largest Russian producer, increasing production from 44,431 tons to 48,789 tons in January to August 2023.

Isobutanol production in Russia increased from 75,045 tons in the first eight months in 2022 to 85,942 tons in the same period in 2023. SIBUR-Khimprom increased production from 37,876 tons in January-August 2022 to 46,134 tons in the same period this year.

Russian Butanol Exports (unit-kilo tons)		
N-Butanol	***Jan-Aug 23***	***Jan-Aug 22***
Gazprom neftekhim Salavat	8.557	2.584
SIBUR-Khimprom	0.000	0.683
Angarsk Petrochemical	6.993	1.235
Azot Nevinnomyssk	0.771	1.819
Dmitrievsky Chemical Plant	0.000	1.631
Total	16.321	7.952
Isobutanols	***Jan-Aug 23***	***Jan-Aug 22***
Gazprom Neftekhim Salavat	5.013	20.217
SIBUR-Khimprom	9.848	11.503
Angarsk Petrochemical	0.118	0.000
Dmitrievsky Chemical Plant	1.665	0.498
Total	16.644	32.217

Regarding export activity Russian exports of butanols increased from 7,952 tons in the first eight months in 2022 to 16,321 tons in the same period this year whilst isobutanol exports dropped from 32,217 tons to 16,644 tons.

Russian acetone & solvents market Jan-Aug 2023

Russian acetone production amounted to 107,785 tons in the first eight months in 2023 against 100,941 tons in the same period in 2022. Omsk Kaucuk produced 25,874 tons of acetone against 21,165 tons whilst Kazanorgsintez increased production from 36,313 tons to 37,683 tons. Novokuibyshevsk Petrochemical Combine increased production from 19,466 tons to 20,448 tons.

Russian Acetone Production (unit-kilo tons)		
Producer	***Jan-Aug 23***	***Jan-Aug 22***
Ufaorgsintez	23.780	23.997
Kazanorgsintez	37.683	36.313
Novokuibyshevsk Petrochemical	20.448	19.466
Omsk Kaucuk	25.874	21.165
Total	107.785	100.941

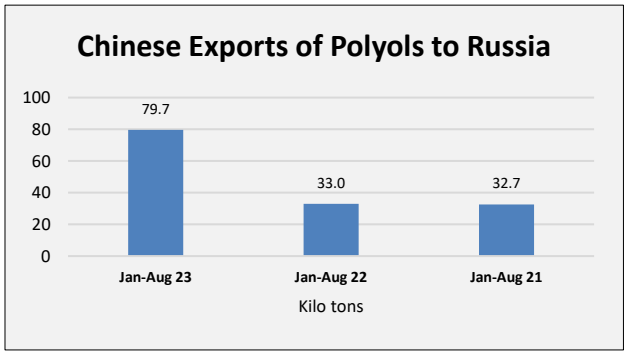
Acetone exports from Russia totalled 3,757 tons in the first eight months in 2023 against 55,660 tons in the same period in 2022.

Russian exports of organic chemicals to China increased in the first eight months in a number of product areas.

Russian Exports of Organic Chemicals to China (unit-kilo tons)		
Product	***Jan-Aug 23***	***Jan-Aug 22***
Propylene	31.170	23.567
Methanol	457.297	0.000
N-Butanol	6.946	1.812
Isobutanol	10.243	1.627
Methyl Acrylate	3.837	0.000
Butyl Acrylate	4.886	1.921
Caprolactam	101.705	46.411

Methanol saw the largest volumes, but also oxo alcohol exports were higher this year in addition to acrylates from the Salavat plant. Other products included propylene and caprolactam. The loss of EU markets has been a major factor in leading to more Sino-Russian trade in chemicals, despite the high logistics costs.

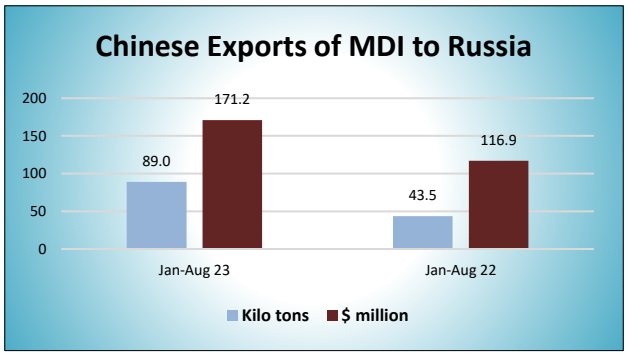
This year has seen in a rise in butanol imports from Russia, including an increase in isobutanol shipments from 1,627 tons in January to August 2022 to 10,243 tons, and for normal butanol from 1,812 tons to 6,946 tons.

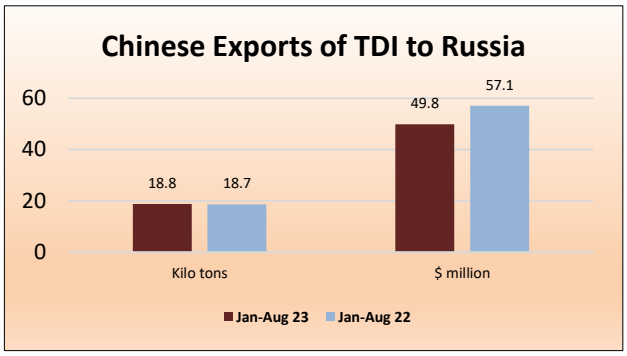


Russian polyurethane raw materials 2023
In the first eight months this year polyol imports into Russia from China amounted to 79,700 tons against 33,000 tons in the same period in 2022 and 32,700 tons in 2021.

Regarding isocyanates, imports of MDI from China into China rose from 43,500 tons in January to August 2022 to 89,000 tons in the same period in 2023. Costs of MDI imports rose from $116.9 million to $171.2 million.

TDI costs increased from $49.8 million to $57.1 million, despite volumes dropping slightly from 18,800 tons to 18,700 tons. TDI prices have been higher this year due more to supply issues even though global demand has been weak.





The Elastokam plant at Nizhnekamsk coped with the consequences of the departure of its foreign partner and the search for new suppliers of raw materials for the production of polyurethane systems. Until 2022, the company was a joint venture between SIBUR and BASF. However, in 2022, due to the departure of BASF and the lack of access to many components, the company was on the verge of stopping.

Propylene glycol project starts in Russia
Nizhnekamskneftekhim has started producing propylene glycol grade A at a specially modernised plant which was used previously for the production of ethyl cellulose. Should the production be expanded to a commercial level, the plant at Nizhnekamskneftekhim could provide more than 20% of the demand from the Russian market, currently estimated at 40,000 tpa. The only producer at present is Khimprom at Kemerovo which produces only about 1,000 tpa. Food grade propylene glycol is almost completely imported into Russia and this project could provide its own food-grade propylene glycol, which will be used in pharmaceuticals, cosmetics and the food industry.

Current propylene glycol supply in Russia

- *Production 1,000 tpa*
- *Deficit, 40,000 tpa*

Current propylene oxide supply in Russia

- *Production 80,000 tpa*
- *Deficit, 100,000 tpa*

Russian propylene oxide supply deficit
Whilst Nizhnekamskneftekhim could help to meet the demand for propylene glycol, it places pressure on other parts of the production chain such as propylene oxide which may be more important. By producing propylene glycol from propylene oxide this creates other market imbalances. Over the past two decades the focus of Russian investors has been on large-scale projects in polyolefins rather than smaller nuance-based projects which helps production chains.

Grade A propylene glycol is obtained by hydration of propylene oxide, which means that SIBUR will produce it from propylene oxide produced by Nizhnekamskneftekhim. Propylene oxide in Russia is produced by only two production sites Nizhnekamskneftekhim and Khimprom at Kemerovo. The total production volume is about 80,000 tpa (of which more than 70,000 tpa are produced in Nizhnekamsk).

The deficit of propylene oxide in the Russian market in 2022 was estimated at 100,000 tpa. The main area of application of propylene oxide in Russia is the production of polyesters, the main producer of which is the same Nizhnekamsk site of SIBUR; in addition to SIBUR, notable consumers of propylene oxide in Russia are Norkem, Sintez-Oka, and Macromer.

The production of these products requires a more complex production process than the synthesis of propylene glycol, and, accordingly, they are significantly more expensive. At the same time, importing propylene oxide is not possible due to transport restrictions. The missing propylene oxide enters the Russian market in the form of its derivatives, which are more expensive than propylene glycol. Due to the shortage of Russian propylene oxide, Russia is importing products with high added value that it is not able to produce itself.

SIBUR-propylene oxide

SIBUR's monopolistic position on propylene oxide production and technology from one side provides a strong market player but overall does not benefit the development of the domestic chemical industry. Moreover, other companies also have technologies for producing propylene oxide, for example, Sintez-Oka and the entire market would find it easier to breathe if it brought its technology to a stable, constant production process.

There is also an obvious need to bring other chemical technologies developed in Russia to industrial use. If there was a ready-made technology for the production of propylene glycol from glycerine, it would be possible to use glycerine for the synthesis of propylene glycol.

Propylene glycol from glycerine

Could propylene glycol be produced from glycerine? In the early 2010s, the production of propylene glycol from glycerine was launched in the US by Technical glycerine, in turn, is formed in large volumes in the production of biodiesel from triglycerides of fatty acids.

Glycerin Solution at Tambov started a large glycerine plant in 2018 which produces more than the Russian market uses and this could provide a raw material for propylene glycol. However, the technology represents the missing component which may only be available from so-called unfriendly countries.

US company Archer Daniels Midlands licensed a new process in 2011 followed by BASF in 2012. In 2021, an agreement was signed between Metadynea and Air Liquide, which provided for the construction of a complex for the synthesis of propylene glycol from glycerine at Orekhovo-Zuyevo in the Moscow Region. This project was based in using BASF technology and thus the project was scrapped after the Russian invasion of Ukraine in February 2022. In short glycerine would be used if such a Russian technology existed, and thus effectively propylene oxide remains the only route.

Khimprom calcium hypochlorite and polylactide projects

Khimprom is planning to construct two new plants in the Novocheboksarsk Special Economic Zone (SEZ). The first is the production of calcium hypochlorite with a capacity of 15,000 tpa. The second is the production of polylactide (PLA) using innovative technology with a capacity of 10,000 tpa. PLA is used in the food industry as well as in the production of biodegradable plastics. Khimprom's net profit increased by 25.8% in the first six months this year to 1.377 billion roubles, even if revenue increased only by 0.3% to 7.3 billion roubles.

Kazanorgsintez-cumene expansion

Kazanorgsintez has completed the large-scale modernisation of the cumene plant as part of the production chain of the Kazan polycarbonate complex. In 2022, the company increased capacity from 77,000 tpa to 100,000 tpa.

The applied technology for the production of isopropylbenzene is based on the use of solid zeolite catalysts, which are able to work without replacement for several years.

Epoxy resin project St Petersburg

The Attica Group of Companies has announced plans to invest around 900 million roubles ($9.3 million) in a plant for the production of epoxy resins in the Tosnensky district near St Petersburg. The project envisages the construction of the plant in two stages, including the production of liquid epoxy resins by November 2024 and the production of powder epoxy resins in 2025. The planned production capacity will be 18.000 tpa, including 10,000 tpa of liquid epoxy resin and 8,000 tpa of powder epoxy resins.

Kazakhstan

KazMunaiGaz-Silleno project

Sinopec has eventually reached agreement in the project for the construction of the 1.25 million tpa polyethylene plant complex in Kazakhstan with a share of 30%. It means that the share breakdown in the Kazakh polyethylene project comprises 40% for Kazakh investors, and 30% for SIBUR (having previously been agreed for 40%). The 40% controlled from Kazakhstan includes 29.9% for KazMunaiGaz and 10.1% for KMG Petrochem.

At the moment, licensors are developing basic technological documentation, and engineering contractors are laying down the main technical solutions. A final investment decision is expected in mid-2024. The estimated cost of the project is $7.7 billion, and hypothetically the plant is expected to be completed in 2028. The original project start-up was intended between 2021 to 2025 but due to the exit of Borealis the project has needed to be restructured and now the target start-up date is 2028.

Kazakh polyolefin consumption

The polyethylene project was first presented back in 2005, but still remains only on paper. Despite the rise in domestic demand there have been arguments proposed recently that the project should be cancelled. Consumption of polymers in the world continues to grow, but the growth rate of demand has slowed down compared to previous years.

SIBUR's involvement in Kazakh polyethylene market

Kazakh industry experts are beginning to ask why a Russian company SIBUR, which itself is building additional capacity, should be taking part in the project in Kazakhstan in the face of excess global supply. SIBUR is currently constructing a world scale petrochemical complex in the Amur Oblast and thus it is hard to see the advantages of building more capacity in third countries. It has been argued that SIBUR's goal towards the polyethylene project in Kazakhstan is not very genuine and the group would not be disappointed to see the project cancelled.

Over the past five years, domestic demand for polymers in Kazakhstan has more than doubled, and at the moment it comprises about 250,000 tpa. Broken down, 70,000 tpa comprises polypropylene and 180,000 tpa comprises polyethylene. The launch of the KPI complex at the end of 2021 now makes it possible to completely cover not only current consumption, but also the growing needs of local polypropylene processors. The polyethylene market will remain completely import-dependent until the Silleno complex is constructed.

Atyrau polypropylene plant increases production after maintenance

After scheduled repairs at KPI's polypropylene plant at Atyrau in July-August production has increased to 1,500 tons per day. Scheduled repairs ensured the readiness of the entire facility for further warranty tests and the achievement of the design performance and quality parameters. The plant is capable of producing up to 550,000 tpa of polypropylene. There are now four packaging machines in the production of KPI for PP pellet packaging, with the fourth added at the start of September. The company employs 631 people, and contractors employ about 1000 people.

The country's petrochemical industry is faced with the task of developing domestic consumption and processing of polymers. To achieve this goal, in particular, it is planned to create an industrial zone for the production of polymer products at Atyrau. In close proximity to the KPI and Silleno production facilities, it is planned to create a technopark and develop small and medium-sized businesses for the production of final polymer products.

Financing for Kazakh polyethylene project

Kazakhstan has engaged Linde to construct the polyethylene of 1.25 million tpa, consisting of two units of 625,000 tpa. In accordance with previous agreements, Linde is developing an advanced basic design for ethane cracking and air separation plants (nitrogen, process air) used in the production of polyethylene on the basis of its own technology. The two polyethylene units have been licensed to Chevron Phillips and Univation.

KazMunayGaz (KMG) and Germany's Euler Hermes have agreed to cooperate in raising financing for the construction of a polyethylene plant. German contractors are involved in the project which could complicate the involvement of SIBUR. The polyethylene complex with a capacity of 1.25 million tons is planned to be located next to the polypropylene plant in the Karabatan special economic zone of the Atyrau region. Finished products are planned to be sent to the domestic

market and for export. The capacity of the domestic market amounts to 180,000 tpa with an annual growth of 4%. The remaining volumes will be exported, including the CIS countries and China.

Kazakh sodium cyanide project

The State Development Bank of Kazakhstan (DBK) has signed a cooperation agreement with the German bank Landesbank Hessen-Thüringen (Helaba) to finance the construction of a sodium cyanide plant in Kazakhstan worth €100 million. The project for the construction of sodium cyanide production is being undertaken by Altynalmas Reagents in the FEZ Himpark Taraz in the Dzhambyl region. The design capacity of the plant is 25,000 tpa of sodium cyanide with a purity of at least 98% (used in gold hydrometallurgy). Raw materials for the project include ammonia, methane, caustic soda and air.

Tajikistan-urea investments

The Chinese company Runzhong Holding has announced intentions to invest more than $300 million in the construction of a new urea plant in Tajikistan. The capacity of the new enterprise has been identified at 300,000 tpa. In addition, another $50 million will be allocated to modernize the current urea production facility in the country, where capacity stands at 180,000 tpa. This plant was idle between 2009 and 2023 when it restarted at 50% of the 180,000 tpa plant. Annual demand for urea consumption in Tajikistan is estimated to be comprise about 550,000 tpa. The construction of a new plant and the modernization of Azot will make it possible to almost completely cover these needs.

Uzbekistan-MTO project

Larsen & Toubro Limited (India) has completed the production of the first reactor for the innovative complex for the production of polymers Gas Chemical Complex Based on MTO Technology, which is currently being built in the Karakul district of the Bukhara region of Uzbekistan. The new reactor will be used to produce ethylene oxide, ethylene glycols, polyethylene glycols and ethylene glycol ethers, as well as ethanolamines. The ethylene glycol obtained from ethylene oxide will be used in subsequent technological cycles for the production of polyethylene terephthalate.

Contents from Issue No 395