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MONTHLY NEWS

Chemical Industry News for Central Europe, South East Europe and Eurasia

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Key points from Issue 351

Central European petrochemical markets

- PKN Orlen posted an EBITDA of zł 9.4 billion and net profit of zł 4.5 billion for 2019
- Polish propylene production rose in 2019 following the introduction of the metathesis plant at Plock, rising to 442,000 tons in 2019 against 311,600 tons 2018
- MOL produced 370,000 tons of propylene in 2019 against 421,000 tons in 2018
- MOL's polyol project is on schedule and on budget; the major construction site works started up in 2019 and the overall project completion is now at around 50%
- MDI imports into the Czech Republic amounted to 30,800 tons in 2019 against 31,100 tons in 2018, whilst MDI costs of imports dropped from €63.008 million to €49.597 million.

Russian chemical production

- Russia's output of chemical products increased by 3.6% in 2019 against 2018
- Russian ethylene production amounted to 2.978 million tons in 2019 up from 2.927 million tons
- Russian propylene production amounted to 2.352 million tons in 2019 against 2.196 million tons in 2018, showing an increase of 156,000 tons
- Russia produced 4.442 million tons of methanol in 2019 against 4.269 million tons in 2018

Russian chemical trade

- Russia exported 54.460 million tons of chemical, plastics and rubber products in 2019 for a total value of \$23.7 billion. Imports amounted to 15.659 million tons for a value of \$43.1 billion.
- Russian exports of synthetic rubber amounted to 992,000 tons in 2019 versus 1.015 million tons in 2018
- PTA imports into Russia totalled 383,600 tons in the whole of 2019 against 262,700 tons in 2018
- MDI imports into the Russian market amounted to 148,200 tons in the whole of 2019 against 135,100 tons in 2018

Russian chemical projects

- Linde signed an EPSS contract (engineering, procurement and site services) for the pyrolysis unit of SIBUR's Amur Gas Chemical Complex
- The Vysotsk methanol project is one of five planned for the Leningrad region, four of which are targeted on construction at Ust Luga.
- The polyethylene project of Irkutsk Oil Company (INK) was approved by the residents of the Ust-Kut district, following public hearings on the environmental impact assessment
- SIBUR and Gazprom are analysing the cost of a possible completion of the Novy Urengoy Gas Chemical project
- Metafrax is spending 6.3 billion roubles on the construction of a paraformaldehyde plant at Gubakha with a capacity of 30,000 tpa

CENTRAL & SOUTH EAST EUROPE

PKN Orlen Production Poland (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Ethylene	474.8	467.8
Propylene	442.0	311.6
Butadiene	62.7	49.4
Toluene	19.6	12.9
Phenol	44.6	42.5
Polyethylene	356.5	344.0
PVC	237.0	247.4
Polypropylene	342.5	273.6

PKN Orlen, Jan-Dec 2019

PKN Orlen increased its EBITDA by zł 1.1 billion in 2019 to zł 9.4 billion although net profit dropped from zł 5.604 billion to zł 4.487 billion.

PKN Orlen's revenues rose to zł 111 billion in 2019 against zł 110 billion in 2018 as the group achieved record-high crude oil throughput of 33.9 million tons and sales volumes of 43.3 million tons. The group's net profit was adversely impacted by inventory valuation following a decline in oil prices and an increase in depreciation and amortisation expenses.

Main Achievements for Orlen in 2019

- Purchase of a license for Bioethanol Unit in Orlen Południe
- Construction of Polyethylene Unit in the Czech Rep.
- Construction of Glycol Unit in Orlen Południe

Ethylene production at Plock rose slightly to 474,800 tons in 2019 against 467,800 tons in 2018 whilst propylene production for the Orlen Group rose from 311,600 tons to 442,000 tons.

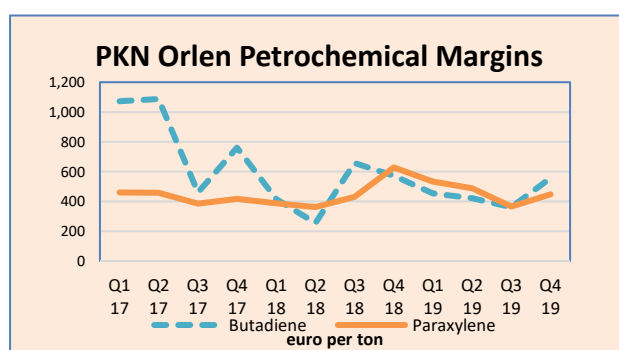
The metathesis project at Plock and the PPF splitter in Mazeikiai were completed in 2019 enabling increased propylene production. Moreover, work began by Orlen to expand fertiliser production capacity at Wloclawek in addition to building a propylene glycol unit. The third quarter last year witnessed the launch of Orlen Południe strategic propylene glycol unit project, as well as the purchase of a licence and front-end engineering design for a bioethanol unit. Market research into the bioethanol unit has been started. Aside

these projects further progress was made by Orlen on the Petrochemicals Expansion Programme, including phenol and olefin derivatives.

PKN Orlen Petrochemical Margins (€/ton)		
Product	2019	2018
Polyethylene	300	280
Polypropylene	418	412
Ethylene	571	641
Propylene	480	532
Toluene	197	191
Benzene	184	261
Butadiene	387	556
Paraxylene	431	448

Further steps were taken by Orlen in 2019 as part of preparations for the offshore wind project, with work on environmental, wind and seabed geological surveys continued. The process to select a contractor to design the offshore wind farm commenced, and the process to acquire a partner for the project is being finalised. In the M&A area, work continued towards acquisition of control of Grupa Lotos, and a tender offer for all shares in Grupa

Energia was announced.



In the fourth quarter 2019 PKN Orlen achieved a net profit of early zł 800 million which was down significantly due to a decrease in the model downstream margin by \$3/bbl.

PKN Orlen's downstream EBITDA for Q4 2019 came in at zł 1.1 billion, with growth in sales of petrochemical products, including olefins, fertilisers, and PTA by 46%, 6%, and 63%, respectively. PTA production totalled 648,000 tons in 2019 against 486,000 tons in 2018 which allowed an increase in sales to both domestic and

export markets to 647,000 tons against 507,000 tons. Monomer production for the Orlen Group in Central Europe rose from 873,000 tons in 2018 to 1.044 million tons in 2019.

PKN Orlen Group Chemical Sales (unit-kilo tons)		
Product Group	Jan-Dec 19	Jan-Dec-18
Monomers	1,022	869
Polymers	519	540
Aromatics	424	368
Fertilisers	1,030	1,067
Plastics	343	371
PTA	647	508

Orlen's petrochemical margins reflected a downward trend for the main olefin and aromatic monomers in 2019, notwithstanding benzene which jumped from the second quarter and was just marginally higher than the third quarter last year. Butadiene margins saw the greatest fall, after exceeding €1000 per ton in the first quarter in 2017 dropping to €387 per ton on average for the whole of 2019. Paraxylene margins dropped to €431 per ton in 2019 against €448 per ton in 2018.

PKN Orlen Product Revenues (€ million)		
Product Group	Jan-Dec 19	Jan-Dec-18
Monomers	833.7	758.1
Polymers	555.8	614.7
Aromatics	251.2	254.9
Fertilisers	210.0	191.9
Plastics	283.3	327.7
PTA	440.2	354.9

Polish PTA trade, Jan-Nov 2019

Polish PTA exports amounted to 279,951 tons in the first eleven months in 2019 for total revenues of €409.4 million whilst imports amounted to 4,665 tons at a total cost of €3.145 million. Germany was the main destination for Polish exports from the Orlen plant at Wloclawek, taking 212,070 tons in January to November 2019 for revenues of €306.165 million. Other destinations included Belarus with 23,346 tons and Turkey with 17,014 tons. PTA exports from Poland amounted

to 319,000 tons in 2018 against 329,100 tons in 2017. Domestic sales increased in 2019 reducing the availability for export.

Czech Petrochemical Exports (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Ethylene	71.1	69.0
Propylene	7.1	21.4
Butadiene	3.9	0.6
Benzene	37.0	39.2
Toluene	10.1	13.3
Ethylbenzene	151.7	126.5

Unipetrol 2019

Unipetrol processed 7.85 million tons of crude in 2019, with refinery product sales of 6.62 million tons and sales of petrochemical products totalling 1.65 million tons. Investments by Unipetrol totalled Kc 6.7 billion in 2019 which went primarily to the ongoing modernisation of production technologies, in the construction of a new gas-fired boiler house of the steam cracker and to the polyethylene unit, PE3.

Unipetrol reported revenues of Kc 128.8 billion in 2019, which was unchanged from 2018. The financial results were adversely affected by the macroeconomic environment, the costs of emission reduction and the rather low margins that were recorded in the refinery and petrochemical segment. The net profit for Unipetrol fell to Kc 726 million in 2019.

Czech Petrochemical Imports (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Ethylene	5.0	4.0
Propylene	36.2	54.8
Butadiene	19.8	37.2
Benzene	101.9	68.7
Ethylbenzene	4.8	5.6
Styrene	14.7	8.1

Czech petrochemical trade, Jan-Dec 2019

Unipetrol exported 71,100 tons of ethylene in 2019 of which 63,344 tons were sent to Germany. Propylene exports dropped by around two thirds to 7,100 tons which were shipped to Poland, Germany and Slovakia. Propylene imports into Czech Republic also dropped in

2019 to 36,200 tons from 54,800 tons in 2018, with the sources of supply last year divided between Germany, Russia, Ukraine, Poland and Bulgaria. Ethylbenzene exports from Kralupy in the Czech Republic increased in 2019 to 151,700 tons against 126,500 tons in 2018. All Czech ethylbenzene is shipped to Poland to the Oswiecim plant owned by Synthos. In the aromatics sector, benzene imports into the Czech Republic rose from 68,700 tons in 2018 to 101,900 tons in 2019. Last year Poland shipped 90,351 tons of benzene to the Czech Republic supplemented by 11,273 tons from Serbian refinery NIS at Pancevo. Most of the Polish exports are sent from the Blachownia plant at Kedzierzyn-Kozle to BorsodChem-MCHZ at Ostrava in eastern Bohemia.

Central European propylene market 2019

MOL produced 370,000 tons of propylene in 2019 against 421,000 tons in 2018, the fall due planned maintenance. Most of the propylene produced at Tiszaújváros and Bratislava is processed into

polypropylene and the group lacks a surplus. Polypropylene production dropped due to the lower propylene availability, falling from 517,000 tons to 461,000 tons.

Polish Propylene Imports (unit-kilo tons)		
Country	Jan-Nov 19	Jan-Dec 18
Austria	5.7	0.0
Azerbaijan	0.0	8.4
Czech Republic	0.9	16.7
Germany	8.6	60.1
Hungary	12.7	19.2
Lithuania	24.3	0.0
Russia	24.0	21.1
Ukraine	61.9	73.0
Others	0.0	8.5
Total	138.1	206.8

Owing to MOL's large-scale investment programme into creating a vertical chain for polyols, MOL will need to increase its availability of propylene to meet the extra demand for propylene glycol. MOL is targeting increased propylene yield from refining from FCCs.

Polish propylene production rose in 2019 following the introduction of the metathesis plant at Plock, rising to 442,000 tons in 2019 against 311,600 tons in January to December 2018. As a result of the increased production imports of propylene into Poland dropped by around 25% in the first eleven months to 138,100 tons. Ukraine provided the largest volume of imports into Poland, from Karpatneftekhim, and totalled 61,900 tons versus 73,000 tons in the whole of 2019.

Lithuania provided 24,300 tons of propylene to the Polish market in the first eleven months in 2019, having been made available from Orlen's new propylene FCC source at Orlen Lietuva. Imports from Germany into Poland dropped sharply from 60,100 tons in 2018 to 8,600 tons in the first eleven months in 2019.

Russia was the second largest supplier of propylene into Poland, shipping 21,000 tons at a cost of €18.1 million. Imports of propylene into Poland started to drop from April onwards due to increased propylene production at Plock, particularly following the start-up of the metathesis plant. Poland imports propylene mostly to meet the demand of oxo alcohol production at Kedzierzyn-Kozle.

MOL Group Sales of Refined Products and Petrochemical (unit-kilo tons)		
Country	Jan-Dec 2019	Jan-Dec 18
Hungary	5,075	5,009
Slovakia	1,931	1,858
Croatia	2,219	2,008
Italy	1,950	2,061
Other markets	8,807	8,938
TOTAL	19,982	19,875

MOL, Jan-Dec 2019

MOL Group generated \$598 million of EBITDA in Q4, bringing its full year to \$2.44 billion. Refined crude for the MOL Group in Hungary, Croatia and Slovakia totalled 17.468 million tons in 2019 against 19.171 million tons in 2018. The drop was due to extended maintenance in 2019. The downstream EBITDA dropped by 13% to \$866 million, after the Q4 EBITDA declined

21% to \$191 million as both refining and petrochemical margins fell away at the end of last year.

MOL's Olefin & Polyolefin Production (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Ethylene	734	800
Propylene	370	421
Butadiene	80	88
Raffinate	139	135
Product	Jan-Dec 19	Jan-Dec 18
LDPE	211	241
HDPE	355	402
PP	461	517

Ethylene production for MOL's two sites at Tiszaujvaros and Bratislava amounted to 734,000 tons in 2019 against 800,000 tons in 2018, whilst propylene dropped from 421,000 tons to 370,000 tons. Butadiene production at Tiszaujvaros dropped from 88,000 tons in January to December 2018 to 80,000 tons whilst raffinate production jumped to 139,000 tons from 135,000 tons.

MOL's polyol project is reported to be on schedule and on budget; the major construction

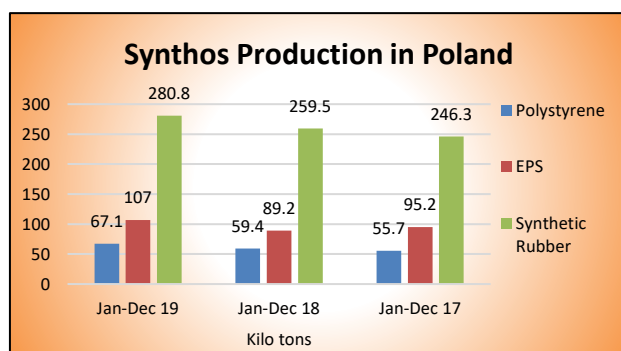
site works started up in 2019 and the overall project completion is now at around 50%. MOL's strategic direction consists largely of moving from commodity polypropylene to semi-commodity polyol. This would allow a €400-500 per ton step-up in average margin capture. By 2023, the company estimates that it could gain an additional \$100 million EBITDA uplift from the polyol plant and other strategic projects. Polyol capacity under construction by MOL at Tiszaujvaros is 200,000 tpa, including 70,000 tpa for propylene glycol. The EPC partner is Thyssenkrupp Industrial Solutions.

Czech Methanol Imports (unit-kilo tons)		
Country	Jan-Dec 19	Jan-Dec 18
Germany	15.3	28.4
Norway	13.0	12.1
Russia	43.4	42.2
Slovakia	0.0	1.1
Poland	5.3	1.6
Others	2.6	0.7
Total	79.6	85.9

tons followed by Belgium with 1,918 tons and Hungary with 1,490 tons. MDI imports into the Czech Republic amounted to 30,800 tons in 2019 against 31,100 tons in 2018, whilst costs of imports dropped from €63.008 million to €49.597 million.

Czech MDI Imports (unit-kilo tons)		
Country	Jan-Dec 19	Jan-Dec 18
China	2.0	2.8
Belgium	8.3	7.0
Germany	13.9	9.5
Italy	0.2	0.4
Hungary	3.9	7.2
Netherlands	1.5	1.2
Others	0.9	3.1
Total	30.8	31.1

Polish Chemical Production (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Caustic Soda Liquid	349.2	293.6
Caustic Soda Solid	67.0	95.5
Caprolactam	166.6	152.9
Acetic Acid	6.0	25.4
Polyethylene	356.5	344.0
Polystyrene	67.1	59.4
EPS	107.0	86.2
PVC	237.0	247.4
Polypropylene	342.5	273.6
Synthetic Rubber	280.8	259.5
Ammonia (Gaseous)	2452.0	2539.0
Ammonia (Liquid)	103.1	123.0
Pesticides	57.6	52.8
Nitric Acid	2335.0	2343.0
Nitrogen Fertilisers	1995.0	2010.0
Phosphate Fertilisers	459.2	437.4
Potassium Fertilisers	414.7	418.4



Czech chemical trade, Jan-Dec 2019

Methanol exports into the Czech Republic amounted to 79,600 tons against 85,900 00 tons in 2018. Russian shipments of methanol to the Czech Republic totalled 43,400 tons in 2019 versus 42,200 tons in 2018. Other importers included Germany and Norway.

TDI imports into the Czech Republic amounted to 8,339 tons in 2019 at a cost of €23.754 million, down from 12,995 tons in 2018 at a total cost of €36.079 million. The largest source of supply of TDI in 2019 was Germany with 3,482

Regarding DINP plasticizers, imports into the Czech Republic totalled 12,144 tons in January to December 2019 at a total cost of €14.344 million. This reflected a rise from 10,950 tons in January to December 2018 for a total cost of €13.6 million. DINP plasticizer exports from the Czech Republic totalled 39,046 tons in 2019 at a total cost of €45.001 million against 38,398 tons in 2018 for €45.183 million.

Czech polymer and rubber trade 2019

Exports of synthetic rubber from the Czech Republic totalled 191,631 tons in 2019 against 169,657 tons in 2018, whilst imports totalled 152,911 tons to 151,790 tons. Import costs for synthetic rubber totalled €241.1 million and €261.1 million whilst export revenues totalled €272.6 million from €276.8 million in 2018.

Polyethylene exports from the Czech Republic totalled 280,252 tons in 2019 against 325,643 tons in 2018, with revenues dropping from €405.9 million to €338.4 million in 2019. Polyethylene imports into the country totalled 335,254 tons in 2019 against 318,582 tons, with revenues dropping from €431.4 million to €400.6 million in 2019.

Polypropylene imports into the Czech Republic totalled 506,094 tons in 2019 for €762.3 million in costs against 523,186 tons for €726.9 million in 2018. Exports of polypropylene totalled 283,674 tons for €378.4 million in 2018 dropping to 276,862 tons for €350.7 million.

Synthos 2019

Synthos increased production of synthetic rubber in 2019 at its Polish site against 259,500 tons in 2018 and 246,300 tons in 2017. Polystyrene production at Oswiecim rose to 107,000 tons in 2019 against 89,200 tons in 2018 and expandable polystyrene rose from 59,400 tons to 67,100 tons. Production of synthetic rubber in Poland is insufficient to meet domestic demand; in both 2018 and 2019 the Polish tyre industry alone consumed 518,000 tons of rubber (synthetic and natural).

RUSSIA

Russian Chemical Production (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Caustic Soda	1,289.0	1,279.5
Soda Ash	3,383.0	3,433.0
Ethylene	2,984.0	2,990.0
Propylene	1,858.9	1,707.1
Benzene	1,470.0	1,406.0
Xylenes	374.1	487.9
Styrene	730.6	606.8
Phenol	1,131.7	163.0
Ammonia	18,200.0	17,800.0
Nitrogen Fertilisers	11,186.0	10,341.0
Phosphate Fertilisers	4,132.0	3,967.0
Potash Fertilisers	8,242.0	8,460.0
Plastics in Bulk	8,759.0	8,192.0
Polyethylene	2,357.0	2,189.0
Polystyrene	550.0	549.6
PVC	1,046.0	1,015.6
Polypropylene	1,425.5	1,480.4
Polyamide	167.0	168.5
Synthetic Rubber	1,522.0	1,640.0

Russian chemical production, Jan-Dec 2019

Russia's output of chemical products increased by 3.4% in 2019 over 2018. The largest increase in production volumes on an annualized basis were accounted for by mineral fertilisers and polymers in primary form. Russian enterprises produced 23.588 million tons of fertilisers, which is 3.2% more than in 2018. For ethylene production 2.984 million tons were produced in January-December 2019, up by 0.7%.

Benzene production amounted to 1,470 million tons in 2019, up by 0.6% whilst Russian xylene production totalled 374,100 tons in January to December 2019 against 487,900 tons in the same period in 2018. Production of caustic soda rose to 1.289 million tons versus 1.280 million tons a year earlier. Overall output of polymers in primary form totalled 8.759 million tons versus 8.192 million tons.

Russian chemical & polymer trade, Jan-Dec 2019

Russia exported 54.460 million tons of chemical, plastics and rubber products in 2019 for a total value of \$23.7 billion. Imports amounted to 15.659 million tons for a value of \$43.1 billion. Average prices for exports comprised \$434 per ton against \$423 in 2018, whilst imports averaged \$2,754 per ton versus \$2758 in the previous year.

Russian Chemical Trade Jan-Dec 2019				
Category Group	Exports ktons	Exports \$mil	Imports ktons	Imports \$mil
Inorganic	8391	3450	6065	3800
Organic	6678	3670	1656	4440
Pharmaceuticals	42.1	835	198	14100
Fertilisers	34636	8400	325	134
Cosmetics	144	771	353	3470
Soap and detergents	469	488	592	1520
Paints & lacquers	303	347	624	1900
Protein substances, enzymes	21.7	50.8	259	716
Explosives	38.4	113	18.4	55.2
Photo chemicals	0.732	12.9	18.8	293
Other Chemicals	878	990	1328	3400
Plastics	2066	2990	4000	9000
Syn & Nat Rubber	992.356	1580.889	221.9	300.9
Total	54660.3	23698.6	15659.1	43129.1

Fertilisers accounted for 63% of export volumes by weight in 2019, with inorganic and organic chemicals accounting for 15.3% and 12.2% respectively. By value, exports of fertilisers accounted for 35.4% of total chemical product revenues in 2019, whilst organic chemicals accounted for 15.5% of the sector and inorganic chemicals 14.6%.

Regarding imports, inorganic chemicals accounted for 37% of inward trade by weight but this only accounted for 8.8% of value whilst organic chemicals comprised 10.2% in value and

10.6% in weight. Imports of plastics comprised 23% of shipments and 21% of value whilst the largest value category came from pharmaceuticals which accounted for 32% of the entire sector although only accounting for 1.3% in weight.

In 2019 imports of pharmaceuticals into Russia rose from \$10.6 billion to \$14.1 billion, rising in weight from 164 tons to 198 tons. Organic chemicals comprise higher added value imports, whilst for exports Russia relies heavily on methanol for revenues. The plastics sector remains only a small part of Russian export volumes from the chemical sector but should rise as new projects are introduced.

Russian petrochemical projects

SIBUR-strategic and environmental outlook to 2025

At the start of 2019 the SIBUR's Board of Directors approved a development strategy for sustainable development. The company has set out intentions to increase investment in the processing of polymer waste, as well as work to reduce greenhouse gas emissions. The developed strategy for the period until 2025 covers five areas: responsible business, environmental protection, society and partnerships, a sustainable product portfolio and reduction of climate impact.

SIBUR intends to recycle at least 50% of all generated waste, reduce the specific mass of contaminants in wastewater by 40%, and cut water consumption per ton/unit by at least 5%. One specific goal is to make sure that at least 40% of manufactured PET contains recycled PET.

Amur Gas Chemical Complex-Linde

Linde signed an EPSS contract (engineering, procurement and site services) for the pyrolysis unit of SIBUR's Amur Gas Chemical Complex although the project has received final approval. Linde won a contract for the provision of design and construction services based on its own technology for the olefin cracker at the Amur Gas Chemical Complex to be located near Svobodny in the Amur Oblast. Services will be provided by Linde as part of a consortium with NIPGAZ.

Financial questions over the project remain to be resolved. The preliminary cost of the Amur Gas Chemical Complex project is estimated at 7-9 billion roubles; the possibility of SIBUR and Sinopec creating a JV for the petrochemical project is still under review, although provisionally Sinopec could take around 40% of shares. When the expected approval from the Board takes place SIBUR is ready to immediately begin construction which would mean that the complex could be launched by 2024.

Kazanorgsintez-modernisation

Lenniikhimmash Group of Companies has developed the documentation and supplied heat exchangers as part of the second stage of the modernisation of the ethylene plant of Kazanorgsintez. The company completed the full range of work necessary for the modernisation of production including adaptation of the Technip FMC basic project to Russian regulatory requirements.

The ethylene plant modernisation project at Kazan was launched in November 2017, the first phase of which was successfully completed in October 2018. As part of the second stage, Lenniikhimmash undertook a set of measures for the supply of heat exchangers of its own design, including the development of technical projects, maintenance of equipment manufacturing, necessary inspections, and delivery to the construction site.

Kazanorgsintez is seeking not only to increase ethylene capacity but also to diversify the raw material basket. Ethane is the base feedstock used by Kazanorgsintez, supplemented by propane fractions, but the aim of modernisation is to allow more usage of propane and to broaden the range of raw materials. Modernisation by Kazanorgsintez is seen as essential to meet the domestic competition from new producers such as ZapSibNeftekhim at Tobolsk in the production of polyethylene.

The Amur Gas Chemical Complex could provide the focal point of the largest gas chemical cluster in the Russian Far East. Both large companies and representatives of small and medium-sized businesses may become residents of the chemical cluster. The Amur Gas Processing Plant is already under construction in the Svobodny TOR.

Novy Urengoy Gas Chemical Complex update, January 2020

SIBUR and Gazprom are analysing the cost of a possible completion of the Novy Urengoy Gas Chemical project. Having dismissed western contractors Linde and Tecmont Gazprom has linked up with SIBUR to assess the prospects for the long-standing 400,000 tpa LDPE project which started in 1993. It has been broadly assumed for some time that the Novy Urengoy project would never materialise, but SIBUR is now taking part to see if the plant capacity can be finished.

Irkutsk Oil Company-polyethylene project local approval

The polyethylene project being managed by of Irkutsk Oil Company (INK) was approved by the residents of the Ust-Kut district, following public hearings on the environmental impact assessment

on 23 January in the Ust-Kut area of the northern Irkutsk Oblast. For the construction of the polymer plant, it is planned to use the most modern and highly efficient technologies that meet stringent international environmental requirements. Toyo Engineering Corporation is responsible for developing the ethylene and polyethylene plants and has contracted Russian company Omsk-METAL to supply about 4,000 tons of metal structures for the construction of the cracker. The production capacity of the polyethylene plant, under the subsidiary Irkutsk Polymer Plant (IZP), is being designed to produce 650,000 tpa. Natural and associated gas produced at the fields of the INK group of companies in Ust-Kut and other northern regions of the region will be the raw material for the petrochemical and polymer plants.

Russian petrochemical markets

Russian Ethylene Production (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Angarsk Polymer Plant	204.3	193.8
Kazanorgsintez	608.4	586.3
Stavrolen	283.6	320.3
Nizhnekamskneftekhim	618.2	611.1
Novokuibyshevsk Petrochemical	62.1	60.4
Gazprom n Salavat	338.0	382.8
SIBUR-Kstovo	411.7	353.1
SIBUR-Khimprom	50.0	56.7
Tomskneftekhim	275.5	262.6
Ufaorgsintez	126.0	99.9
Total	2977.8	2926.9

Russian Propylene Production (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Angarsk Polymer Plant	112.4	112.2
Kazanorgsintez	44.7	39.4
Lukoil-NNOS	304.2	247.9
Stavrolen	115.5	127.2
Nizhnekamskneftekhim	307.8	307.3
Novokuibyshevsk Petrochemical	46.3	43.4
Omsk Kaucuk	47.9	42.0
Polyom	183.6	187.1
Gazprom n Salavat	146.1	160.4
SIBUR Kstovo	177.2	172.6
SIBUR-Khimprom	63.8	66.1
Tomskneftekhim	149.2	140.7
SIBUR Tobolsk	463.7	380.3
Ufaorgsintez	189.7	169.3
Total	2352.1	2195.9

10,000 tons per month.

Russian propylene production, sales & exports, Jan-Dec 2019

Russian propylene production amounted to 2.352 million tons in 2019 against 2.196 million tons in 2018, showing an increase of 156,000 tons due largely to increases at SIBUR's Tobolsk plant and Lukoil's Kstovo refinery. SIBUR-Tobolsk increased production to 463,700 tons against 380,300 tons, whilst Nizhnekamskneftekhim produced 307,800 tons against 307,300 tons and Lukoil-NNOS produced 304,200 tons against 247,900 tons. For 2020 Russian propylene production is forecast to rise further following the start-up of the ZapSibNeftekhim complex at Tobolsk.

Russian Propylene Domestic Sales (unit-kilo tons)		
Company	Jan-Dec 19	Jan-Dec 18
Angarsk Polymer Plant	76.6	66.3
Omsk Kaucuk	0.0	1.3
SIBUR-Kstovo	152.5	113.4
Akrilat	5.5	5.0
Lukoil-NNOS	249.9	181.6
Gazprom neftekhim Salavat	1.2	0.2
SIBUR Tobolsk	0.1	0.3
Total	490.6	376.1

Russian ethylene production, Jan-Dec 2019

Russian ethylene production amounted to 2.978 million tons in 2019 versus 2.927 million tons in 2018. Kazanorgsintez produced 608,400 tons in January to December 2019 against 586,300 tons in 2018 whilst Nizhnekamskneftekhim produced 618,200 tons against 611,100 tons. Other important producers included SIBUR-Kstovo which produced 411,700 tons versus 353,100 tons and Gazprom neftekhim Salavat which produced 338,000 tons against 382,800 tons.

Regarding feedstocks, naphtha still provides the main source of olefin production in Russia which is supplied mostly from refineries either adjacent or close to petrochemical plants. Tomskneftekhim and Stavrolen both lack refineries and need to purchase merchant naphtha by rail and pipeline. LPGs provide additional feedstocks for some of the petrochemical producers, although acting as the main raw material for olefin production for SIBUR-Kstovo and Novokuibyshevsk Petrochemical Plant.

The major LPG suppliers to the merchant market include the Yuzhniy-Balyk Gas Processing Plant in the Tyumen Oblast, the Samara refineries at Novokuibyshevsk and Kuibyshev, and the Lukoil subsidiary Langepasneftegaz in the Khanty-Mansiisk region in West Siberia.

Kazanorgsintez continues to purchase other hydrocarbons to support ethane-based olefin production. Propane supplies are purchased by Kazanorgsintez mostly from Uralorgsintez and SIBUR-Novatek at Tobolsk, usually in volumes of 8-

Major Russian Propylene Domestic Purchasers (unit-kilo tons)		
Consumer	Jan-Dec 19	Jan-Dec 18
Saratovorgsintez	153.2	155.3
Volzhskiy Orgsintez	7.6	10.8
Akrilat	6.9	10.7
SIBUR-Khimprom	49.6	62.5
Omsk-Kaucuk	27.8	28.3
Tomskneftekhim	4.2	5.2
SIBUR Tobolsk	107.8	63.9
Moscow Refinery	15.7	13.5

The largest merchant consumer of propylene in Russia is acrylonitrile producer Saratovorgsintez at Saratov which purchased 153,200 tons in 2019 against 155,300 tons in 2018. The second largest merchant consumer is SIBUR Tobolsk which purchased 107,800 tons in January to December versus 62,500 tons in the same period in 2018.

Russian propylene exports amounted to 60,400 tons in 2019 versus 106,300 tons in 2018. Exports were divided between the plants in the Nizhny Novgorod region including Lukoil-NNOS and SIBUR-Kstovo, in addition to Stavrolen in the Stavropol Kray in southern Russia.

Russian Propylene Exports (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Lukoil-NNOS	39.2	63.3
SIBUR-Kstovo	9.4	23.6
Omsk Kaucuk	0.00	3.9
Stavrolen	11.8	15.6
Total	60.4	106.3

The main destinations for Russian propylene exports included Belarus and Poland, although in the second half of 2019 volumes to Poland declined due to competition from Karpatneftekhim in Ukraine.

Russian styrene production & sales, Jan-Dec 2019

Russia produced 734,700 tons of styrene in 2019 versus 736,800 tons in the same period in 2018. The largest producer Nizhnekamskneftekhim increased production from 300,300 tons to 307,400 tons. Gazprom neftekhim Salavat produced 199,100 tons against 200,500 tons, followed by SIBUR-Khimprom at Perm where production totalled 140,300 tons against 142,600 tons in the previous year. In terms of raw materials, four of the five producers are integrated back into ethylbenzene with the exception being Plastik at Uzlovaya, which takes its ethylbenzene under a long-term contract from SIBUR-Khimprom at Perm.

Russian Styrene Production (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Nizhnekamskneftekhim	307.4	300.3
Angarsk Polymer Plant	37.5	36.6
SIBUR-Khimprom	140.3	142.6
Gazprom n Salavat	199.1	200.5
Plastik, Uzlovaya	50.3	56.9
Total	734.7	736.8

Russian Styrene Exports (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Angarsk Polymer Plant	9.0	7.8
Plastik Uzlovaya	0.7	5.3
Gazprom neftekhim Salavat	100.4	95.1
Nizhnekamskneftekhim	6.6	0.0
SIBUR-Khimprom	2.8	9.9
Total	119.6	118.0

Styrene exports from Russia totalled 119,600 tons in 2019 against 118,000 tons in 2018. Gazprom neftekhim Salavat shipped 100,400 tons against 95,100 tons, whilst Angarsk Polymer Plant shipped 9,000 tons this year against 7,800 tons.

The main destination for styrene exported from Salavat is Finland taking 75% of shipments in the first three quarters in 2019, followed by Norway and Turkey.

Russian Styrene Domestic Sales (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Angarsk Polymer Plant	20.9	0.0
Plastik	0.7	16.3
Gazprom n Salavat	50.1	45.2
SIBUR-Khimprom	42.4	38.5
Nizhnekamskneftekhim	2.1	3.8
Total	116.1	103.9

expandable polystyrene. Main Russian consumers for merchant styrene in 2019 include rubber producers such as Voronezhskintezkaucuk.

Bulk Polymers

Russian HDPE Production (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Kazanorgsintez	495.7	505.1
Stavrolen	262.3	293.6
Nizhnekamskneftekhim	0.0	43.9
Gazprom n Salavat	106.0	119.2
Total	864.0	961.8

Russian HDPE-LLDPE production Jan-Dec 2019

Russian HDPE production amounted to 864,000 tons in 2019, against 961,800 tons in the same period in 2018. All producers reduced polyethylene production volumes, while Gazprom neftekhim Salavat and Stavrolen showed the largest reductions due to long stops for scheduled preventive repairs.

Kazanorgsintez reduced HDPE production in 2019 to 495,700 tons from 505,100 tons; the reduction due to some LLDPE production. Stavrolen reduced HDPE production by 11% to 262,300 tons, whilst Gazprom neftekhim Salavat produced 106,000 tons of HDPE in 2019 versus 119,200 tons in 2018.

Russian LLDPE Production (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Kazanorgsintez	34.0	8.2
Nizhnekamskneftekhim	196.6	168.0
Total	230.6	176.2

Kazanorgsintez produced 34,900 tons of LLDPE in 2019 against 8,200 tons in 2018. Nizhnekamskneftekhim increased production of LLDPE by 17% to 196,600 tons. At the end of 2019 ZapSibNeftekhim started production at Tobolsk where LLDPE capacity could go as high as 700,000 tpa if

required. In total, ZapSibNeftekhim has four polymerisation plants for the production of various grades of high-density polyethylene (HDPE) and linear low-density polyethylene (LLDPE) with a total capacity of 190 tons per hour (technology from INEOS). From Tobolsk polyethylene will be produced pressure pipes, auto parts, blown containers (bottles, cans, barrels, jars for cosmetics and yoghurts), films for food and industrial packaging, cable products.

Russian polyethylene trade, Jan-Dec 2019

Russian exports of polyethylene totalled 348,000 tons in 2019 against 332,000 tons in 2018, whilst imports rose from 655,000 tons to 834,000 tons. LDPE trade was fairly balanced with imports of 197,000 tons in 2019 against exports of 180,000 tons whilst imports of Imports of HDPE into Russia rose by 44% in January-December 2019 and totalled 396,000 tons against exports of 160,000 tons.

Russian PVC production & trade, Jan-Dec 2019

Russian PVC production increased by 2% in January-December 2019 to 973,100 tons compared to 958,700 tons. RusVinyl produced 339,800 tons, which is 2% more than in 2018, Sayanskkhimplast produced 294,500 tons against 278,800 tons and Bashkir Soda company produced 263,200 tons against 253,400 tons for 2018.

Russian PVC Production (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Bashkir Soda	263.2	253.4
Kaustik	77.6	92.2
RusVinyl	339.8	334.3
Sayanskkhimplast	292.5	278.8
Total	973.1	958.7

Kaustik at Volgograd reduced production to 77,500 tons against 92,200 tons in January to December 2018. Exports of suspension PVC into Russia totalled about 142,100 tons in 2019 compared to 96,200 tons, up by 48%.

Russian polystyrene imports, Jan-Dec 2019

Imports of general-purpose polystyrene (GPPS) and high impact polystyrene (HIPS) to Russia rose in 2019 by 10% to 48,200 tons against 43,800 tons. GPPS imports to Russia grew in 2019 by 23%, totalling 28,100 tons. HIPS imports dropped in 2019 by 4% to 20,100 tons. European material from Styrolution, Versalis and Trinseo accounted for about 90% of HIPS shipments and 62% of GPPS deliveries. Iranian GPPS of Petropaak and Artan Petro accounted for about 17% of the total imports.

Russian polycarbonate imports, Jan-Dec 2019

Imports of polycarbonate into Russia (excluding shipments from Belarus) rose in 2019 almost by two-fold to 21,300 tons against 10,900 tons. Extrusion grade PC accounted 13,450 tons whilst the share of injection moulding grades was 32% (6,900 tons) and that of blow moulding grades 5% (970 tons).

Imports of Covestro's material rose by more than two-fold, from 5,400 tons (49% of the total imports) in January-December 2018 to 11,700 tons in 2019 (55% of the total imports). Sabic's shipments also rose significantly in 2019 to 7,500 tons (35%) from 2,300 tons (21%, excluding Belarussian imports) in 2018.

Paraxylene-PTA-PET

Russian Paraxylene Production (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Gazprom Neft	104	137
Ufaneftkhim	111.3	132
Kirishinefteorgsintez	46.5	65
Total	261.8	334

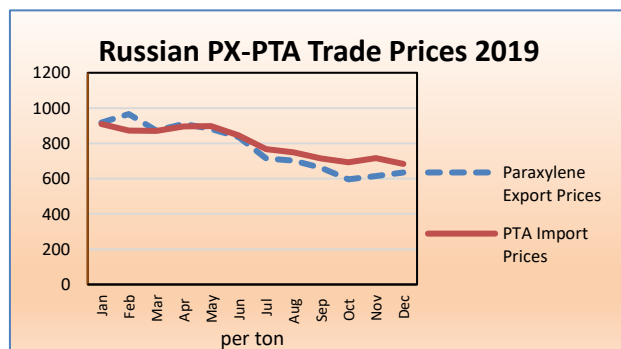
Russian paraxylene production Jan-Dec 2019

Paraxylene production in Russia totalled 261,800 tons in 2019 against 334,000 tons in 2018, the reduction mainly due to the shutdown at Polief in the first half of the year. Only Ufaneftkhim supplied paraxylene to the Polief plant in 2019, with

Gazprom Neft and Kirishinefteorgsintez focused solely on exports.

Russian paraxylene exports, Jan-Dec 2019

Paraxylene exports from Russia totalled 157,400 tons in 2019 against 163,000 tons in 2018. Paraxylene shipments were mostly sent to the Oiltanking complex at the Finnish port Kotka, whilst Liepaja in Latvia was used for small volumes. Russian exports of paraxylene to Finland and for further distribution from Kotka totalled 142,000 tons in 2019 against 151,000 tons in 2018. At Liepaja paraxylene is reloaded at the GI



Terminals terminal, which specializes in the transshipment of petrochemical products, including benzene, paraxylene and methanol, as well as base oils. Deliveries of paraxylene to Mogilevkhimvolokno in Belarus last year amounted to 13,300 tons versus 12,500 tons in 2018.

Over the course of 2019 paraxylene export prices declined at the same rate as PTA import prices. Paraxylene prices started 2019 at \$917 per ton and finished the year at \$635.

SIBUR's PTA & PET Production (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Paraxylene Purchases	96.1	176.4
PTA Production	104.0	268.9
PTA Domestic Sales	3.7	4.5
PTA Exports	0.2	3.2
PET Production	224.4	295.2
PET Domestic Sales	235.7	293.8
PET Exports	3.8	0.8

Following the process of modernisation, the intention is for Polief to increase the consumption of Russian paraxylene by to around 230-235,000 tpa. In 2019 paraxylene purchases made by SIBUR for Polief amounted to only 96,100 tons against 176,400 tons in 2018.

PTA capacity at Polief has been increased by 78,000 tpa to a total of 350,000 tpa. The modernisation and expansion at Blagoveshchensk started on 6 February 2019 and the process was completed in

June 2019.

During the third quarter, the installation was gradually revived but industrial effluent problems were encountered in early October which meant that PTA production totalled only 19,047 tons for the fourth quarter in 2019. Full year PTA production in 2019 totalled 104,047 tons against 268,900 tons in 2018. Although much of the shortfall in PTA production was met through imports, SIBUR's PET production at Tver and Blagoveshchensk dropped from 295,200 tons in 2018 to 224,400 tons in 2019.

Russian PTA imports, Jan-Dec 2019

PTA imports into Russia totalled 383,600 tons in the whole of 2019 against 262,700 tons in 2018. China creased shipments to Russia to 261,500 tons in January to December 2019 against 148,300 tons in

2018 whilst South Korea reduced deliveries from 83,100 tons to 69,100 tons. Thailand supplied 2,970 tons of PTA to Russia in January to December 2019 versus 20,000 tons in 2018, although most of the shipments from last year were delivered in the first quarter.

Russian PTA Imports by Country (unit-kilo tons)		
Country	Jan-Dec 19	Jan-Dec 18
Belgium	25.9	3.6
India	1.0	6.7
China	261.5	148.3
South Korea	69.1	83.1
Poland	12.2	0.0
Portugal	4.0	0.0
Turkey	6.3	0.0
Thailand	3.0	20.9
Others	0.6	0.0
Total	383.6	262.7

January 2020, which lasted until the second week of February.

Russian PTA Imports by Region (unit-kilo tons)		
Location	Jan-Dec 19	Jan-Dec 18
Kaliningrad	240.4	175.2
Moscow	74.8	83.3
Perm	20.9	0.0
Tver	8.1	0.0
Tyumen	30.1	0.0
Others	9.3	4.1
Total	383.6	262.7

The cost of imported PTA in 2019 amounted to \$312 million against \$225 million in 2018. Ekopet at Kaliningrad accounted for 64.7% of imports (\$348 million in value) over the two years of 2018 and 2019. Besides for PET production, PTA imports were also made for plasticizer production at SIBUR's DOTP plant at Perm which started in April 2019. PTA imports to both Perm and the Tyumen regions were delivered to the DOTP plant.

Ekopet at Kaliningrad increases PTA imports to 240,400 tons in 2019

Ekopet at Kaliningrad (formerly Alko-Naphtha) underwent a plant shut down for maintenance in January 2020, which lasted until the second week of February. Thus, this shutdown had some effect on PTA purchases in the first couple of months of 2020. The capacity of the PET plant at Kaliningrad is 220,000 tpa, starting production in 2011, and the plant is the major buyer of imported PTA into Russia.

For the whole of 2019 Ekopet imported 240,400 tons of PTA against 175,200 tons in 2018, whilst the other major PET importer Senezh imported 74,800 tons against 83,300 tons in January to December 2018. Senezh is part of the Europlast group and has a capacity of 100,000 tpa.

Ekopet was put up for sale by Trust Bank in the middle of February and a search is currently underway for potential investors. Share ownership in Ekopet has changed regularly in the past few years, although production has been largely unaffected by these changes.

Russian Benzene Production (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Rosneft	141.8	150.0
Gazprom Neft	74.0	100.8
Lukoil	102.0	102.3
Magnitogorsk MK	51.2	56.1
Nizhnekamskneftekhim	275.3	222.7
Novolipetsk MK	7.2	9.1
Gazprom neftekhim Salavat	187.1	177.3
Kirishinefteorgsintez	68.5	70.9
Slavneft	63.0	72.3
Severstal	40.7	37.0
Bashneft	79.6	93.8
Ural Steel	11.6	9.2
Uralorgsintez	86.5	92.8
Zapsib	70.6	72.0
SIBUR	81.9	74.1
Total	1341.0	1340.5

Rosneft's three benzene plants at Angarsk, Novokuibyshevsk and Ryazan produced a combined total of 141,800 tons against 150,000 tons in 2018, whilst Gazprom Neft at Omsk reduced benzene production from 100,800 tons to 74,000 tons.

Aromatics

Russian benzene production-sales, Jan-Dec 2019

Russian benzene production was unchanged in 2019 over 2018, totalling 1.341 million tons although significant differences were noted at plant level. Nizhnekamskneftekhim increased production from 222,700 tons to 275,300 tons, whilst Gazprom neftekhim Salavat increased production from 177,300 tons to 187,100 tons.

Benzene sales on the Russian domestic merchant market amounted to 695,200 tons in 2019 against 692,000 tons in January to December 2018. Kuibyshevazot remains the largest merchant buyer, purchasing 158,100 tons in 2019 against 169,400 tons in the same period last year. Azot at Kemerovo bought 109,700 tons versus 110,700 tons in 2018, whilst Shchekinoazot purchased 57,100 tons against 63,400 tons. For the production of cumene Kazanorgsintez purchased 60,300 tons of benzene in January to December 2019.

Russian Benzene Consumers (unit-kilo tons)		
Consumer	Jan-Dec 19	Jan-Dec 18
Kuibyshevazot	158.1	169.4
Azot Kemerovo	109.7	110.7
Shchekinoazot	57.1	63.4
Kazanorgsintez	60.3	58.6
Omsk Kaucuk	16.2	15.2
Nizhnekamskneftekhim	0.0	2.6
Samarorgsintez	1.7	16.8
Zapsib	48.7	31.9
SIBUR-Khimprom	56.2	42.4
Ufaorgsintez	0.0	0.7
Uralorgsintez	22.7	4.8
Others	164.6	175.5
Total	695.2	692.0

Regarding domestic suppliers, Uralorgsintez was the largest company shipping 83,200 tons of benzene to the domestic market in 2019 against 76,600 tons in 2018. SIBUR-Kstovo increased sales from 73,200 tons to 77,000 tons whilst Gazprom Neft reduced sales from 75,900 tons to 74,900 tons.

In January this year, the Russian market showed a slight decrease in demand for benzene due to lower caprolactam production. Even so domestic benzene prices rose following European price levels. Other leading suppliers included SIBUR-Kstovo which shipped 77,000 tons against 73,200 tons in 2018 and Gazprom Neft which shipped 74,900 tons versus 75,500 tons. Of the coke-based producers, West Siberian Metallurgical Complex was the largest, rising from 62,000 tons to 68,500 tons, followed by the Magnitogorsk Metallurgical Combine and Altay Koks.

Russian Benzene Imports (unit-kilo tons)		
Company	Jan-Dec 19	Jan-Dec 18
Karpatneftekhim	35.4	0.0
Zaporozhkoks	0.0	1.2
Ukratnafta	2.0	0.6
Yasinovsky Coke	4.5	0.0
Atyrau	24.6	11.1
Others	4.4	3.0
Total	70.9	15.9

At the end of 2019 caprolactam producers signalled intention to reduce capacity utilisation due to unfavourable conditions in the Asian market. Notwithstanding lower benzene sales, benzene prices rose in January following the European market. Gazprom neftekhim Salavat sold about 3,500 tons of benzene in January, whilst SIBUR-Kstovo shipped only 1,500 tons of benzene. In the Volga Federal District, spot lots of benzene went up to 43,500–46,800 roubles per ton in January with Kirishinefteorgsintez attempted to achieve higher than 49,000 roubles in the North-West Federal District without success.

Russian Benzene Exports (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Altay-Koks	4.1	4.7
Chelyabinsk MK	1.5	1.2
Gazprom Neft	0.0	1.6
Gazprom neftekhim Salavat	0.7	3.7
Koks	6.4	4.3
Magnitogorsk MK	14.0	13.6
Moskoks	8.4	5.5
Nizhniy Tagil	3.8	0.0
Novolipetsk MK	14.8	1.3
Kirishinefteorgsintez	29.4	15.9
SIBUR-Kstovo	2.0	1.4
Severstal	2.7	0.0
Ufaneftekhim	1.1	0.0
Uralorgsintez	0.6	0.0
Ural Steel	7.7	6.3
Total	97.3	59.7

Russian benzene trade, Jan-Dec 2019

Benzene imports to the Russian market more than quadrupled in 2019 from 15,900 tons to 70,900 tons. Although Russian benzene production overall was unchanged in 2019, more production was used for internal processing into styrene which meant less availability on the merchant market.

Reduced production from the refineries at Omsk, Yaroslavl and Ufa led to market shortfalls which were met through imported activity mainly from Ukraine and Kazakhstan. In addition to the Atyrau refinery (Kazakhstan) and the Ukrainian company Karpatneftekhim, the aromatics were shipped from the Kremenchug Oil Refinery (Ukraine), as well as Naftan and the Mozyr Oil Refinery (Belarus). At the same time, Ukrainian company Zaporozhkoks stopped the shipment of coal benzene for synthesis to the Russian market, as the company in November 2018 was included in the list developed by Russia in response to

sanctions from Ukraine.

Benzene supplies from Kazakhstan are carried out under the tariff agreements of the Customs Union which makes Kazakh product cheaper for Russian buyers than Ukrainian. The bulk of imported benzene was delivered to Kuibyshevazot, accounting for 66,400 tons. Deliveries were made by Karpatneftekhim (35,400 tons), Atyrau oil refinery (24,600 tons), Naftan (2,900 tons) and Kremenchug oil refinery through Ukratnafta (2,000 tons).

Russian exports of benzene totalled 97,300 tons in January to December 2019 against 59,700 tons in the same period in 2018. Kirishinefteorgsintez increased exports to 29,400 tons against 15,900 tons, whilst the Magnitogorsk Metallurgical Plant increased shipments from 13,600 tons to 14,000 tons.

Russian Caprolactam Production (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Kuibyshevazot	192.6	210.1
Shchekinoazot	60.5	55.8
SDS Azot	106.3	122.3
Total	359.3	388.2

210,100 tons to 162,600 tons whilst SDS Azot at Kemerovo dropped to 106,300 tons from 122,300 tons.

Shchekinoazot continues to modernize its production facilities and stabilize the production of caprolactam and cyclohexanone. Last year, filters from mechanical impurities on liquid caprolactam, a separator in the cyclohexanone workshop, and a cyclohexane purification column were installed at the production site, which made it possible to obtain a cleaner product. A new synthesis gas reactor with a new boiler was installed in the hydroxylamine sulphate workshop, which allowed to reduce energy costs. As a result of the measures taken, production reached its maximum capacity load of 168 tons of caprolactam per day.

Russian Orthoxylene Domestic Sales (unit-kilo tons)		
Company	Jan-Dec 19	Jan-Dec 18
Gazprom Neft	99.2	78.9
Ufaneftekhim	27.9	30.0
Kinef, Kirishi	16.2	34.5
Total	143.3	143.3

Russian orthoxylene & toluene market, Jan-Dec 2019

Orthoxylene sales on the Russian domestic market were unchanged in 2019 at 143,300 tons. Kamteks-Khimprom remains the largest buyer in Russia, purchasing 78,000 tons in January to December 2019 against 70,000 tons in 2018. Gazprom neftekhim Salavat increased purchases from 9,900 tons to 13,300 tons whilst other buyers were much smaller, taking volumes of several hundred tons.

Russian Toluene Domestic Sales (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Slavneft-Yanos	12.6	13.2
Severstal	5.1	3.9
LUKoil-Perm	28.1	28.8
Gazprom Neft	50.3	67.2
Zapsib	5.9	3.3
Kinef, Kirishi	33.1	35.5
Others	1.5	2.7
Total	136.6	154.7

Some of the applications for orthoxylene are fairly wide-ranging, including fuel and paints. The main outlet for orthoxylene thus remains phthalic anhydride where production in Russia totalled 98,300 tons in 2019 versus 92,300 tons in 2019.

in January-December 2019, export deliveries of orthoxylene from Russia dropped from 130,000 tons in 2018 to 57,500 tons in 2019. The bulk of the orthoxylene exports in 2019 was sent to the Finnish port of Kotka, amounting to 40,200 tons, for further transshipment at the Oiltanking complex.

Russian Phenol Production (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Ufaorgsintez	74.2	58.6
Kazanorgsintez	64.9	63.3
Novokuibyshevsk Petrochemical	75.9	62.4
Omsk Kaucuk, Omsk	4.5	0
Total	219.6	184.2

against 35,500 tons in 2018.

Toluene sales on the Russian domestic market totalled 136,600 tons in 2019 against 154,700 tons in 2018. The largest supplier to the domestic market was Gazprom Neft at the Omsk refinery which shipped 50,300 tons against 67,200 tons in the previous year. Kirishinefteorgsintez shipped 33,100 tons of toluene to the domestic market for 2019

Russian Market Phenol Sales by Supplier (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Omsk Kaucuk	3.3	0
Novokuibyshevsk Petrochemical	57.3	46.1
Kazanorgsintez	3.5	5.8
Ufaorgsintez	64.9	48.5
Borealis	1.3	9.4
Total	127.1	109.7

Russian phenol market, Jan-Dec 2019

Russian phenol production rose in 2019 to 219,600 tons from 184,200 tons in 2018. Novokuibyshevsk Petrochemical increased production from 62,400 tons to 75,900 tons whilst Ufaorgsintez increased production from 58,600 tons to 74,200 tons. Kazanorgsintez produced 64,900 tons versus 63,300 tons. The significant event in the Russian phenol market in 2019 comprised the start-up of the modernised plant at Omsk Kaucuk which produced 4,500 tons in December.

Russian phenol exports, Jan-Dec 2019

Phenol exports totalled 20,400 tons in 2019, considerably up from 2018 when exports totalled 14,600 tons. Belarus took 34.4% of Russian export deliveries, followed by Poland with 20.7% and the Netherlands 16.5%. Cumene exports from Russia totalled 48,500 tons against 26,300 tons in 2018.

Sales of phenol on the Russian domestic market rose in 2019 to 127,100 tons from 109,700 tons in 2018. The two largest suppliers were Novokuibyshevsk Petrochemical and Ufaorgsintez, rising from 46,100 tons to 57,300 tons and from 48,500 tons to 64,900 tons in 2019 respectively. The largest consumers are focused on the production of resins. Omsk Kaucuk

returned to the market in December which should have important effects throughout 2020.

Omsk Kaucuk officially opens phenol-acetone plant and outlines further plans

The production of phenol and acetone at Omsk Kaucuk, which started in late 2019 and was officially opened on 27 January 2020, represents the first stage of investment for Titan's strategic programme. The updated facilities have increased the production capacity of phenol up to 90,000 tpa and acetone up to 55,800 tpa. Both products are available at 99.5% purity.

Kuibyshevazot-Production (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Polyamide-6	147.6	151.3
High Tenacity Tech Yarns	5	5.6
Caprolactam	212.7	210.1
Ammonia	1085	1106.0
Urea	366.9	358.5
Ammonium Nitrate	672.8	625.4
Ammonium Sulphate	531.5	532.3

Kuibyshevazot Jan-Dec 2019

Kuibyshevazot's net profit decreased by 2019 to 4 billion roubles in 2019 from revenues of 53.9 billion roubles. Profits declined from 7.1 billion roubles in 2018, whilst revenues dropped from 59.7 billion roubles.

Urea production at Kuibyshevazot increased by 2.9% to 366.900 tons, ammonium nitrate- by 7.6% to 672.800 tons. Ammonium sulphate production amounted to 531,000 tons, which is equivalent to the level of the previous year. The company increased caprolactam

production by 1.2% to 212,700 tons, whilst polyamide-6 production dropped by 2.4% to 147,600 tons.

Synthetic rubber

Russian C4 Purchases (unit-kilo tons)		
Consumer	Jan-Dec 19	Jan-Dec 18
Omsk Kaucuk	56.9	52.0
Nizhnekamskneftekhim	170.2	144.0
Togliattikaucuk	187.2	175.7
Others	7.8	9.7
Total	422.2	381.4

Russian C4s, Jan-Dec 2019

C4 sales on the domestic market in Russia totalled 422,200 tons in 2019 against 381,400 tons in 2018. Togliattikaucuk increased merchant purchases of C4s from 175,700 tons to 187,200 tons, whilst Nizhnekamskneftekhim increased purchases from 144,000 tons to 170,200 tons and Omsk Kaucuk rose from 52,000 tons to 56,900 tons.

The largest supplier C4 in 2019 consisted of SIBUR-Kstovo which shipped 97,400 tons against 90,700 tons in 2018. Tomskneftekhim shipped 81,400 tons in January to December 2019 versus 64,300 tons, whilst Stavrolen dropped from 63,100 tons to 55,100 tons. Gazprom neftekhim Salavat supplied a total of 33,600 tons of C4s to Nizhnekamskneftekhim and Togliattikaucuk, against 6,600 tons in 2018.

Russian rubber production and market balance 2019

Synthetic rubber production in Russia decreased by 2% in 2019 to 1.624 million tons, whilst domestic consumption dropped by around 10.5% to 751,100 tons. These figures reflect the global downward trend in demand for rubbers and, consequently, their prices.

Russian Synthetic & Natural Rubber Market (unit-kilo tons)		
	Jan-Dec 19	Jan-Dec 18
Production	1522.0	1640.0
Exports	992.0	1014.7
Imports	221.1	214.1
Supply/Demand Balance	751.1	839.4

In 2019, the Russian market for passenger cars and lorry tyres dropped 3%, falling for the first time in the past five years. This led to a loss by domestic manufacturers of more than 7 billion roubles due to reduced output. Rubber consumption by tyre manufacturers dropped from 454,200 tons in 2018 to 388,900 tons in 2019.

Reduced demand for passenger tyres did not affect import suppliers of tyres into the Russian market. In 2019, the share of imported products increased by 2% against 2018. Importers increased the supply of tyre products for passenger cars by 3%, bringing the total import volume of passenger tyres in 2019 to 21 million units.

Russian Tyre Production (unit-mil pieces)		
Product	Jan-Dec 19	Jan-Dec 18
Car Tyres	41.0	47.5
Lorry tyres	6.5	7.8
Agricultural tyres	1.5	1.9
Total	49.0	57.2

Russian Tyre Production (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Car Tyres	325.4	377.0
Lorry tyres	51.6	61.9
Agricultural tyres	11.9	15.2
Total	388.9	454.2

The overall drop in demand in the car market affects related industries. Nokian Tyres is developing export from the Russia in order to reduce dependence on the domestic market, as well as losses from the prohibition of self-recycling tyres.

The share of exports now amounts to more than 60% of the total production of the Vsevolozhsk plant near St Petersburg. Regarding raw materials for tyre production Nokian buys what it is possible from Russian sources but is forced to import certain chemicals. In addition, there are such types of raw materials as natural rubber, which is not produced in Russia, and it is impossible to replace

it, especially in winter tyres. Thus, Nokian imports large volumes of natural rubber, mainly from the countries of Southeast Asia.

Russian Synthetic Rubber Exports (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
E-SBR	42.5	32.6
Block	40.5	30.1
SSBR	12.5	8.8
SBR	75.1	89.3
Polybutadiene	236.5	237.6
Butyl rubber	123.5	131.1
Halogenated butyl	141.9	135.8
NBR	35.6	32.8
Isoprene	274.2	279.5
Others	15.6	37.2
Total	992.0	1014.7

Russian synthetic rubber exports, Jan-Dec 2019

Russian exports of synthetic rubber amounted to 992,000 tons in 2019 versus 1.015 million tons in 2018. Revenues from synthetic rubber exports amounted to \$1.580 billion against \$1.722 billion in January to December 2018. Regarding shipment destinations China represented the largest market for Russian exporters 2019, accounting for 13.2% of sales. This was followed by Poland with 11.4%, after which came India with 8.1% and Hungary with 8.0%.

The highest value product category exported from Russia is halogenated butyl rubber (HBR) where exports totalled 141,900 tons in 2019 at a total value

of \$334 million. Polybutadiene exports from Russia amounted to 236,500 tons in 2019 at a value of \$412 million and isoprene rubber exports totalled 274,200 tons for \$385.9 million.

The largest destination for Russian isoprene rubber exports was Poland which took 48,600 tons in 2019 for \$64.8 million, followed by Mexico with 20,800 tons and the US with 17,800 tons. More detail of volumes and revenues for isoprene rubber and other product categories are available on the CIREC website or by contacting us at support@cirec.net.

Russian Synthetic Exports by Destination Jan-Dec 2019		
Country	Qty (unit-ktons)	Value (mil)
China	138.6	206.7
Poland	110.9	179.4
Hungary	72.4	121.2
India	75.9	127.7
US	51.6	85.3
Mexico	50.8	80.7
Turkey	48.1	73.3
Slovakia	42.9	61.8
Romania	47.4	72.0
Brazil	30.1	48.5
Czech	35.2	57.3
Germany	31.2	51.2
Belarus	36.5	54.8
Ukraine	19.0	25.5
Others	201.3	312.2
Total	992.0	1557.6

Voronezhsintezkaucuk-exports 2019 and expansion of thermoplastic elastomer

Voronezhsintezkaucuk exported 163,300 tons of synthetic rubber in 2019, including thermoelastomers, against 140,000 tons in the same period in 2018. SBR exports rose to 76,900 tons from 69,800 tons whilst butadiene rubber exports rose 100 tons to 70,100 tons.

Lower demand for rubber from the automotive industry has impacted on Voronezhsintezkaucuk's (VSK, part of SIBUR) profitability in the past two years. About 60% of all VSK products are exported and the main consumers include the five largest global tyre holdings. On the domestic market VSK sells thermoplastic elastomers and rubbers in small shipments; for instance, some rubber is sold to the Pirelli tyre plant at Voronezh. TEPs are used in roads of the Voronezh region but so far these are rather isolated cases in the Russian market.

VSK remains concentrated on two expensive investment projects including the capacity expansion of butadiene rubbers SK-DND by 37% to 48,000 tpa and the construction of a second line for the production of 50,000 tpa of styrene-butadiene thermoplastic elastomers. Last year VSK purchased a new licence for new TEP grades that will require further homologation with the customers. The company will begin production of a new branded series of thermoplastic elastomers (TEP) by the end of February.

Voronezhsintezkaucuk Exports (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Polybutadiene	70.1	70.0
SBR	76.9	69.8
Others	16.3	0.2
Total	163.3	140.0

Regarding the SK-DND project modernisation is expected to start in March 2020 with the middle of 2021 targeted for completion. The thermoplastic elastomer (TEP) project is the largest of the two where the company has recently launched wastewater treatment plant representing an important part of the production process. Other projects considered at

Voronezh include latex production, but this was rejected on the basis of profitability.

Togliattikaucuk Rubber Exports (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Isoprene Rubber	35.4	22.1
Butyl Rubber	55.6	58.1
SBR	38.3	41.2
Others	0.5	0.0
Total	129.8	121.4

Togliattikaucuk-rubber exports 2019

Togliattikaucuk (formerly SIBUR Togliatti), having joined the Tatneft, expects further development of production involving the creation of new rubber industries for the tyre business. In 2019, Togliattikaucuk exported 129,800 tons of synthetic rubber against 121,400 tons in 2018. Isoprene rubber exports rose from 22,100 tons to 35,400 tons, after the plant capacity was increased to 75,000 tpa.

Togliattikaucuk Capacities	
Product	Capacities (unit-ktpa)
MTBE	120
Butadiene	80
Isoprene	90
Isobutylene-isobutane	165
Isobutylene	60
Butyl rubber	75
Isoprene rubber	82

The acquisition by Tatneft of the listed assets at Togliatti aims to ensure the vertical integration of the Kama Tyros' business in Tatarstan and to increase its value. The aim is to continue its development of the Togliatti facilities as part of the implementation of Tatneft's petrochemical and chemical strategy. Togliatti will help close the basic raw materials needs of the Tatneft tyre complex, which has been struggling in the past couple of years due to the pricing policy of the current sole supplier Nizhnekamskneftekhim.

Nizhnekamskneftekhim rubber exports Jan-Dec 2019

Nizhnekamskneftekhim's exports of synthetic rubbers amounted to 578,300 tons in 2019 against 591,100 tons in 2018. Isoprene rubber exports amounted to 198,800 tons in the period January to

December 2019 against 211,600 tons last year whilst exports of halogenated butyl rubber rose from 136,900 tons to 142,000 tons.

Isoprene rubber in Russian market replaced with natural rubber

The replacement of isoprene rubber with natural rubber has been an ongoing process in the Russian market over the past two decades. In 2004 natural rubber consumption in Russia amounted to around 30,000 tons which rose to 129,000 tons in 2019. At the same time as natural rubber has risen, isoprene rubber consumption in the country decreased from 240,000 tons in 2004 to around 132,000 tons, that is by 45%. This change in application is partly due to the arrival on the Russian market of foreign tyre companies which are focused on the use of mainly natural rubber.

Nizhnekamskneftekhim maintains plans to launch production of divinyl styrene synthetic rubber (DSSK) in 2020. Currently, based on Japanese technology the installation of metal structures is underway at the site. Construction of the facility started in 2019 using environmentally friendly modern technologies. The production capacity will be 60,000 tpa of DSSK. The new installation will also produce thermoplastic elastomers (TEP, SBS) with a capacity of up to 10,000 tpa.

Divinyl-styrene synthetic rubber is used in the rubber and shoe industries, in the manufacture of conveyor belts. This type of rubber is used in the production of environmentally friendly green tyres, which have good wear resistance, frost resistance and dynamic endurance.

Nizhnekamskneftekhim rubber exports (unit-kilo tons)

Category	Jan-Dec 19	Jan-Dec 18
Isoprene Rubber	198.8	211.6
Butyl Rubber	68.9	73.7
HBR	142.0	136.9
Polybutadiene	168.6	168.9
Total	578.3	591.1

SIBUR, synthetic rubber, Jan-Dec 2019

SIBUR produced 485,600 tons of synthetic rubber in 2019 against 504,400 tons in 2018. Thermoplastic elastomer production at Voronezh rose from 79,300 tons to 83,000 tons whilst production of speciality rubber rose from 104,900 tons to 101,000 tons.

In 2019, SIBUR's revenue from rubber and elastomers sales was almost flat at 55.048 billion roubles compared to 55.021 billion in 2018. An 8.1% decrease in the average price was more than

compensated by an 8.8% increase in sales volumes mainly due to higher contractual obligations and change in inventory balances. SIBUR also recorded an increase in purchases for resale under trading arrangements following the sale of Togliatti-based assets. In November 2019, SIBUR and Tatneft closed transaction on the sale and purchase of SIBUR's petrochemical facilities at Togliatti.

Despite the sale of the Togliatti assets, SIBUR has not withdrawn interest from the rubber sector. In February 2020 for instance, subsidiary Voronezhskintezkavuk launched a new brand of high-viscosity polybutadiene rubber.

A total of 66.0% of synthetic rubber sales for SIBUR came from exports in 2019, against domestic sales of 34.0%. Exports of synthetic rubber rose from 309,300 tons in 2018 to 356,300 tons in 2019. The largest rise was recorded for commodity rubber exports, comprising 217,600 tons versus 191,000

tons in January to December 2019. Commodity rubbers accounted for 5.9% of SIBUR's revenues in 2019, up from 5.5% in 2018 whilst speciality rubbers rose from 2.2% to 2.4%.

Domestic sales for rubber produced by SIBUR dropped from 37.4% in 2018 to 35.0%, dropping from 11.639 billion roubles to 11.033 billion roubles. In volume terms, domestic synthetic rubber sales for SIBUR dropped from 177,700 tons to 141,400 tons. Domestic sales of thermoplastic elastomers for SIBUR decreased from 49,200 tons to 44,200 tons. Sales of thermoplastic elastomers accounted for 2.1% of SIBUR's total revenues in 2019 against 2.0% in 2018.

Methanol

Russian Methanol Production (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Shchekinoazot	931.5	592.0
Sibmetakhim	884.6	877.3
Metafrax	1091.0	1169.5
Akron	106.1	107.6
Azot, Novomoskovsk	258.4	295.0
Angarsk Petrochemical	48.4	3.7
Azot, Nevinnomyssk	129.2	120.0
Tomet	835.4	882.6
Ammoni	157.5	221.0
Totals	4442.2	4268.6

Russian methanol production Jan-Dec 2019

Russia produced 4.442 million tons of methanol in 2019 against 4.269 million tons in 2018. Metafrax produced 1.091 million tons against 1.170 million tons whilst Sibmetakhim at Tomsk increased production from 877,300 tons to 884,600 tons. Tomet at Togliatti reduced production to 835,400 tons from 882,600 tons.

Shchekinoazot reported the most significant results, rising from 592,000 tons to 931,500 tons following the installation of the new 450,000 tpa plant in 2018. The increase at Shchekino helped offset declines in production at Novomoskovsk where Azot reduced output from 295,000 tons to 258,400 tons and at Mendelevsk where Ammoni reduced from 221,000 tons to 157,500 tons.

No important capacity additions are expected in 2020 production volumes for Russia are forecast to total 4.5-4.6 million tons, dependent on downtime scheduling. The next major projects to be completed comprise the third plant (of 500,000 tpa) for Shchekinoazot and Nizhnekamskneftekhim (also 500,000 tpa), which are expected to come on stream in 2022. Thereafter, in 2023-2024, possibly one or more large projects could come on stream each of which would significantly increase Russian production volumes.

Russian Methanol Exports (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Azot, Nevinnomyssk	0.0	2.5
Azot Novomoskovsk	75.7	153.3
Akron	9.0	14.7
Metafrax	418.5	481.6
Sibmetakhim	445.9	450.5
Tomet	394.7	271.5
Shchekinoazot	685.1	417.2
Ammoni	13.5	6.1
Others	65.7	29.5
Total	2108	1827.0

Various projects at Nakhodka, Skovorodino, Volgograd, Vysotsk and Ust Luga are all undergoing motions of selecting licenses, general contractors, etc, but possibly some fail to be completed. The Volgograd project appears to represent the only concept where the methanol plant becomes the heart of a chemical cluster, but in the short to medium term at least the plant would be dependent on export activity. Logistics then become an issue as the costs from transporting from Volgograd to the ports, either by river vessel or rail, may wipe out any advantages of low gas prices. For instance, it would be difficult for methanol coming out of Volgograd to compete internationally with methanol production at Vysotsk or Ust Luga, although it would possess greater advantage in the domestic market.

Russian Methanol Exports by Destination		
Country	Jan-Dec 19	Jan-Dec 18
Finland	895.1	763.7
Poland	364.5	261.1
Slovakia	154.0	108.5
Romania	95.3	75.7
Belarus	70.0	80.2
Lithuania	113.1	76.6
Turkey	32.3	13.0
Netherlands	215.8	50.1
Others	168.8	209.3
Total	2108	1827

Russian methanol export sales, Jan-Dec 2019

Russian companies increased their methanol shipments for export to over 2.0 million tons in 2019 for the first time, totalling 2.042 million tons versus 1.827 million tons in 2018. Shipments to foreign markets, in particular, were increased by Shchekinoazot from where exports rose from 417,200 tons in 2018 to 685,100 tons in 2019. Tomet was the only other producer to significantly increase exports, shipping 394,700 tons versus 271,500 tons in 2018.

The bulk of methanol into eastern parts of Europe was shipped to the Polish market, and deliveries were also made to the Czech Republic, Slovakia, eastern parts of Germany and Austria. The main outlet for Russian methanol exports

remains Finland where volumes totalled 895,100 tons in 2019 against 763,700 tons in 2018. Poland increased purchases from Russia to 364,500 tons in 2019 against 261,100 tons in 2018, whilst Slovakia increased volumes from 108,500 tons to 154,000 tons.

Russian Methanol Domestic Sales (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Azot Nevinnomyssk	35.1	23.2
Azot Novomoskovsk	158.4	135.0
Metafrax	251.3	308.7
Sibmetakhim	380.0	372.5
Tomet	424.5	540.2
Shchekinoazot	165.2	70.1
Ammoni (Mendeleevsk)	100.8	152.0
Total	1515.2	1601.6

Russian methanol domestic sales, Jan-Dec 2019

Domestic sales of methanol on the Russian market amounted to 1.515 million tons in January to December 2019 versus 1.602 million tons in 2018. Tomet at Togliatti reduced sales from 540,200 tons in 2018 to 424,500 tons in 2019, partly due to lower production and partly to higher exports. Ammoni at Mendeleevsk also reduced domestic shipments to 100,800 tons from 152,000 tons. Sibmetakhim at Tomsk site increased sales from 372,500 tons to 380,200 tons whilst Azot at Novomoskovsk increased sales from 135,000 tons to 158,400 tons.

Russian Methanol Consumption (unit-kilo tons)		
Consumer	Jan-Dec 19	Jan-Dec 18
Nizhnekamskneftekhim	244.7	244.6
Togliattikaucuk	156.5	126.8
Uralorgsintez	82.4	71.1
SIBUR-Khimprom	21.8	15.5
SIBUR Tobolsk	44.4	53.2
Ektos-Volga	59.9	56.5
Omsk Kaucuk	91.1	85.6
Novokuibyshevsk NPZ	49.4	67.8
Uralkhimplast	43.5	22.5
Slavneft-Yanos	14.2	17.1
Others	709.4	846.0
Total	1517.4	1606.7

Of the main domestic consumers, Nizhnekamskneftekhim purchased 244,700 tons in 2019 against 244,600 tons in 2018 whilst Togliattikaucuk (formerly SIBUR-Togliatti) increased purchases from 126,800 tons in January to December 2018 to 156,500 tons in 2019.

Russian plants increased the production of MTBE by 2% in 2019 to 1.22 million tons (excluding the Ufa refinery). The most significant production of MTBE was increased by Togliattikaucuk, which came under the control of Tatneft in November. The company produced 128,700 of MTBE, increasing production by 5%.

Other than the MTBE producers resin manufacturers represent the next main outlet for methanol. These included Uralkhimplast which purchased 43,500 tons in January to December 2019, exceeded both by Metadynea with 80,379 tons and Kronospan with 104,374 tons.

Metafrax paraformaldehyde plant

Metafrax is spending 6.3 billion roubles on the construction of a paraformaldehyde plant at Gubakha. The capacity of the new installation will be 30,000 tpa of grade A paraformaldehyde, which is linked to the construction of another formaldehyde plant with a capacity of 180,000 tpa.

In 2019, Metafrax signed a contract for the construction of a formaldehyde project with the Norwegian company Dynea AS. The installation will be integrated with the paraformaldehyde production complex using the technology of the German concern GEA. The capacity of the units will be 180,000 tons of 55% formaldehyde and 30,000 tons of paraformaldehyde.

At present, paraformaldehyde is not produced in Russia, and its main importers include Spain, Germany and Iran. This product is used in the manufacture of plastics, paints, resins, adhesives, tannins, insulation materials and other products. Part of the production is planned to be exported; Metafrax has already signed preliminary agreements for the supply of paraformaldehyde to North America and Asia.

Metafrax AKM investment

Metafrax is heavily focused on investments in the project to build the Ammonia-Urea-Melamine (AKM) complex at Gubakha, which is set to start in 2021, whilst mapping out plans for the construction of a second melamine plant. After installing large scale plant equipment during the first half of 2020, and a water treatment department and a steam boiler in 2020 the complex will be commissioned in 2021.

Metafrax is building a complex with a design capacity for 562,000 tpa of urea, 298,000 tpa of ammonia and 80,000 tpa of melamine. Since the start of the project, investment has amounted to more than 54 billion roubles (including VAT). The total investment in the construction of the complex is estimated at €950 million. The contract with Swiss Casale SA, which is an EP contractor for the project, is worth €388 million. The payback period of the project has been estimated at 13 years. The

production of urea and melamine is planned for 2021 to meet the production needs of the company and its subsidiaries Metadynea (Russia) and Metadynea (Austria).

Vysotsk methanol project to use Haldor Topsoe technology

Gaz Sintez has selected Haldor Topsoe's SynCOR Methanol™ for its methanol project at Vysotsk. The plant will produce 1.6 million tpa of AA grade methanol based on Topsoe's SynCOR Methanol™ technology. Gaz Sintez is developing the methanol plant project at the port of Vysotsk in the northern part of the Leningrad region, with Hyundai Engineering having already started the development of the FEED-package.

SynCOR technology is capable of producing up to 10,000 tons per day of methanol, whilst also leaving a smaller CO2 footprint, and lower water consumption compared to traditional licensed technologies. The 1.83 million tpa plant is expected to be completed in 2023 with all output intended for exports from the Lukoil product terminal at Vysotsk. The terminal currently specializes in the transshipment of diesel fuel, naphtha, fuel oil and vacuum gas oil. Design work for the methanol project will be completed by the end of 2020.

Russian methanol projects Leningrad region

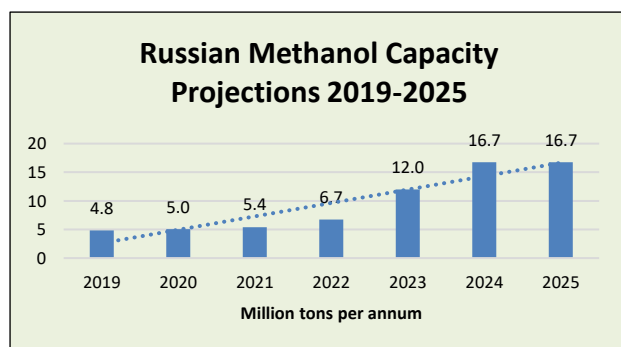
The Vysotsk methanol project is one of five planned for the Leningrad region, four of which are targeted on construction at Ust Luga.

In 2019 SAFMAR has signed a memorandum of understanding with Maire Tecnimont and Novaya Gavan terminal, which comprises the design and construction of a methanol plant in the Kingisepp District of the Ust Luga Bay. The parties intend to attract funding from international banks with the support of one or several export credit agencies. The commissioning of the plant is scheduled for 2024.

Evrokhim also plans to build a plant at Kingisepp in the Luga Bay to produce 1.7 million tpa of methanol, in addition to 1 million tpa of ammonia and 1.2 million tpa of urea.

Methanol Projects Planned for Leningrad Region				
Company	Location	Capacity (ktpa)	Technology	Start-Up
Baltic Gas Chemical Company	Ust Luga	1700	Haldor Topsoe	2023
Evrokhim	Kingisepp	1700	Not decided	2024
SAFMAR	Kingisepp	1800	Maire Tecnimont	2024
Ruskhimkom	Ust Luga	1700	Not decided	2023
Gaz Sintez	Vysotsk	1830	Haldor Topsoe	2023

Baltic Gas Chemical Company has outlined plans for a methanol plant at Ust Luga with a capacity of 1.7 million tpa, whilst a similar project in Ust-Luga (with a capacity of 1.7 million tpa) is also being designed by Ruskhimkom, which is part of the Indiga investment group.



Aside the range of ambitious million-ton grassroots projects in the Gulf of Finland, both Shchekinoazot and Nizhnekamskneftekhim intend to introduce new plants of 500,000 tpa by 2021-2022, whilst Tomet expects to increase capacity by 200,000 tpa by 2021. Thus, whilst uncertainty remains over the new grassroots projects Russia can at least expect to add 1.2 million tpa of additional capacity by 2022. As this increase is likely to impact significantly on export volumes, questions arise over logistics and distribution channels.

**Nakhodka Methanol & Fertiliser Plant signs license agreement with Haldor Topsoe**

The syndicate VTB Bank, VEB.RF and the Far East and Arctic Development Fund have opened financing for the Nakhodka Mineral Fertiliser Plant (NZMU) in the Primorsky Krai (Nakhodka). The contractor China Chengda Engineering has received an advance payment and has already begun work on the EPC contract. The output of NZMU at full capacity is planned before the end of 2023.

The total design capacity of the production at the first stage of the project will be 1.8 million tpa of methanol. Natural gas for production will be supplied from fields in Sakhalin. Haldor Topsoe

was selected in late 2019 as licensor for methanol production.

Organic chemicals

Russian N-Butanol Production (unit-kilo tons)		
	Jan-Dec 19	Jan-Dec 18
Angarsk Petrochemical Company	28.0	30.6
Azot, Nevinnomyssk	16.8	16.3
Gazprom neftekhim Salavat	60.5	69.2
SIBUR-Khimprom, Perm	41.1	39.7
Total	146.5	155.7
Russian Isobutanols Production (unit-kilo tons)		
	Jan-Dec 19	Jan-Dec 18
Angarsk Petrochemical Company	17.0	15.8
Gazprom neftekhim Salavat	34.0	41.1
SIBUR-Khimprom, Perm	55.3	53.0
Total	106.2	105.5

50,900 tons in January to December 2018. Whilst Gazprom neftekhim Salavat reduced butanol sales from 9,100 tons to 6,300 tons, SIBUR-Khimprom increased shipments from 24,600 tons to 28,300 tons and Angarsk Petrochemical increased from 15,700 tons to 17,600 tons. The two largest domestic purchasers in January to December 2019 were Dmitrievsky Chemical Plant with 18,700 tons, versus 12,200 tons last year, and Aktilat at Dzerzhinsk with 17,700 tons against 17,500 tons.

Russian Butanol Domestic Sales (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Gazprom n Salavat	6.3	9.1
SIBUR-Khimprom	28.3	24.6
Angarsk Polymer Plant	17.6	15.7
Azot Nevinnomyssk	2.2	2.6
Totals	54.5	50.9

N-butanol availability in the Russian market is affected by processing by both Gazprom neftekhim Salavat and SIBUR-Khimprom. Gazprom neftekhim Salavat uses a significant part of its own n-butanol to produce butyl acrylate, whilst SIBUR uses it also for internal processing. Angarsk Petrochemical is the only Russian producer with available product where there is no internal demand.

Gazprom neftekhim Salavat plans to begin scheduled repairs of acrylate production on 20 April, lasting until 30 May. The complex includes the production of acrylic acid with a capacity of 80,000 tpa, butyl acrylate (ether of acrylic acid and butanol) with a capacity of 80,000 tpa and glacial acrylic acid with a capacity of 35,000 tpa. The acrylate complex allows the production of raw materials for the superabsorbents, acrylic dispersions and acrylic paints.

Russian Organic Chemical Exports (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
N-Butanol	25.1	45.2
Iso-butanol	37.0	38.7
2-EH	7.4	24.2
Pentaerythritol	13.7	13.9
Acetone	43.4	34.1
Acetic Acid	53.7	27.1
VAM	27.9	30.8
Butyl Acetate	30.2	23.3
Acrylic Acid	23.3	20.9
Butyl Acrylate	78.5	75.5
Phthalic Anhydride	65.3	62.3

In 2019 butanol exports from Russia dropped from 83,900 tons to 62,100 tons. The main destinations for Russian butanol exports remain China, Poland, India and the Netherlands.

The share of normal butanol in all-Russian exports from January to December 2019 narrowed by 34%, although isobutanol increased by 18%. China was the main market for Russian normal butanol exports in 2019, taking 41%, followed by Poland with 19% and the Netherlands 18%. For isobutanol the Netherlands was the main destination last year, accounting for 32% of shipments, followed by Turkey and Ukraine. Due to increased domestic consumption, 2-EH exports dropped in 2019 to 7,400 tons from 24,200 tons in 2018. Shortages have been created on the domestic market through the almost complete consumption of 2-EH at SIBUR facilities in the production of

dioctyl terephthalate (DOTP). Due to the shortage of 2-EH in the Russian market the production of DOP at Kamteks-Chemical Industry was stopped in January, whilst the Roshalsky plasticizer plant continues to import the product from Korea.

Russian Acrylonitrile Exports (unit-kilo tons)		
Country	Jan-Dec 19	Jan-Dec 18
Turkey	143.7	119.1
India	0.0	9.2
Hungary	7.8	0.5
Portugal	0.0	4.9
Total	151.5	133.6

Acrylonitrile stoppage for maintenance 2020

Saratovorgsintez plans to stop acrylonitrile production for scheduled repairs in early April 2020. The production of acrylonitrile will be stopped for 10 days. Previous repairs were carried out in September 2019. Saratovorgsintez operates the production of acrylonitrile with a capacity of 170,000 tpa and sodium cyanide with a capacity of 30,000 tpa. In 2020, the opening of the production of acrylamide and

polyacrylamide Lukoil and the French SNF should take place at the Saratovorgsintez site. Investments in the first place of production as of 2018 were estimated at 2.5 billion roubles.

Russian Organic Chemical Imports (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Ethylene glycol	56.7	52.2
Propylene glycol	22.5	25.1
Isopropanol	7.1	5.1
Maleic anhydride	5.8	6.4
DINP	29.7	24.8
DOP	3.4	6.8
Phthalic anhydride	15.9	14.9
PTA	383.6	261.7
TDI	51.6	44.5
Lysine	60.6	85.0
Other Amino acids	17.8	27.8
Methionine	34.2	28.2

Russian organic chemical trade, Jan-Dec 2019

Methanol remains by far the largest organic chemical to be exported from Russia, rising in 2019 to 2.108 million tons against 1.827 million tons in 2018. The next largest commodity export is caprolactam where exports from Russia dropped to 224,000 tons in January to December 2019 from 228,000 tons. Melamine exports rose from 16,000 tons to 21,700 tons, whilst phthalic anhydride exports rose from 62,300 tons to 65,300 tons. Imports of phthalic anhydride into Russia were up marginally to 15,900 tons in 2019, whilst PTA imports increased from 261,700 tons in January to December 2018 to 383,600 tons.

DINP imports into Russia rose from 24,800 tons to 29,700 tons whilst DOP imports dropped from 6,800 tons to only 3,400 tons. Imports of the amino acid lysine dropped from 85,000 tons in 2018 to 60,600 tons in 2019 due to rises in domestic production.

Methionine imports rose in 2019 to 34,200 tons from 28,200 tons in 2018, with values dropping from \$34.1 million to \$26.1 million.

Russian Acetone Production (unit-kilo tons)		
Producer	Jan-Dec 19	Jan-Dec 18
Ufaorgsintez	46.7	39.7
Kazanorgsintez	41.4	44.8
Samaraorgsintez	47.2	42.1
Omsk Kaucuk	3.0	0.0
Total	138.4	126.7

Russian acetone production & exports, Jan-Dec 2019

In 2019 Russian acetone production increased on the back of higher phenol production, rising from 126,700 tons to 138,400 tons. In 2020 acetone will be made available from the new Omsk Kaucuk plant which produced 3,000 tons in the last few weeks of the year.

Acetone exports from Russia rose from 34,143 tons in January to December 2018 to 43,340 tons in the whole of 2019. Prices for acetone dropped last year and averaged less than \$457 per ton in 2019. Belarus was the largest consumer of Russian acetone last year, taking 46.7% of shipments followed by the Netherlands. Revenues from the export of acetone from Russia amounted to \$18.9 million in 2019 versus \$27.9 million in 2018. The largest exporter of acetone in Russia is Dmitrievsky

Chemical Plant which shipped 10,488 tons against 9,499 tons in 2018; in both years most of the product went to the Netherlands.

Russian Acetone Exports (unit-kilo tons)						
Country	Q3 18	Q4 18	Q1 19	Q2 19	Q3 19	Q4 19
Belarus	4.7	1.1	0.0	3.3	3.7	2.7
Netherlands	2.6	2.4	2.8	2.1	2.3	1.7
Turkey	1.6	1.3	1.2	2.6	1.9	5.1
Others	1.0	1.4	5.5	2.4	2.4	2.6
Total	10.0	6.2	9.6	10.4	10.2	12.1

SIBUR-oxo alcohol and plasticizer production, Jan-Dec 2019

In 2019 SIBUR's production of oxo alcohols totalled 159,941 tons against 170,510 tons in 2018. Domestic merchant sales from SIBUR dropped from 92,878 tons to 55,487 tons in 2019 whilst exports fell from 52,017 tons to 35,004 tons. Merchant and export sales were affected by the increase in internal processing in the production of the plasticizer DOTP at Perm.

DOTP production for SIBUR amounted to 57,738 tons in 2019 after the plant started in the first and second quarters in 2019. Sales of DOTP totalled 54,746 tons of which 37,010 tons were directed to the Russian domestic market and the remainder to exports.

SIBUR's Production-Intermediates (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
DOTP	57.6	0.0
Oxo Alcohols	160.0	170.2
Acrylates	50.3	50.4

Although the production of acrylates at Dzerzhinsk dropped from 50,400 tons to 50,300 tons in 2019 SIBUR was able to increase sales from inventory. Exports rose from 30,236 tons to 33,102 tons

whilst domestic sales rose from 22,685 tons to 28,239 tons. In total therefore sales of acrylates from SIBUR's Dzerzhinsk division rose from 52,921 tons to 61,341 tons.

SIBUR's Acrylate Sales (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Domestic	28,2	22,7
Exports	33,1	30,2
Total	61,3	52,9

SIBUR ethylene oxide supplies to increase to Sintez

SIBUR may double its supply of ethylene oxide to the Sintez OKA Group at Dzerzhinsk. SIBUR-Neftekhim currently ships about 30,000 tpa of ethylene oxide to the Sintez plant at Dzerzhinsk and the parties are discussing the possibility of increasing supplies up to 60,000 tpa to support the plans of the Sintez OKA Group to increase capacities. This could involve the possibility of signing a 10-year contract for the supply of ethylene oxide. The Sintez OKA group is a leader in the market of ethanolamines and alkyl ethanolamines in Russia.

SIBUR's Ethylene Oxide Production and Sales (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Production	323.0	306.0
Domestic Sales	85.3	72.9
Exports	25.2	15.3
Total sales	110.5	88.2

Norkem-oxides

Norkem subsidiary Sintanol at Dzerzhinsk has invested around 420 million roubles into three production lines for the processing of ethylene oxide and propylene oxide into various chemical products and were prepared for commissioning by the end of 2019. This will lead to an increase in the capacity of oxyalkylation lines of up to 30% with the possibility of a significant expansion of the product range.

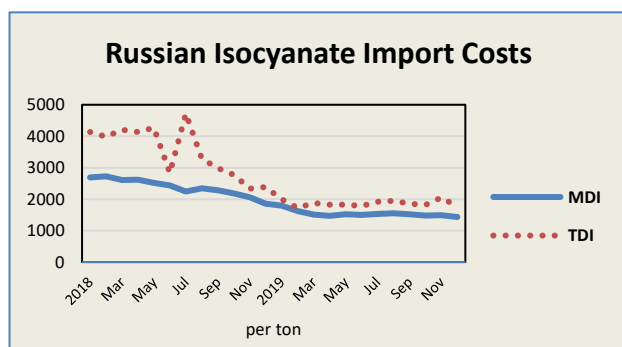
The modernisation will allow Sintanol to process propylene oxide and ethylene oxide of around 50,000 tpa. The Norkem group is the largest producer of surface-active substances in Russia with installed capacity for the production of non-ionic, anionic and amphoteric surfactants, as well as water-soluble polymers at the level of 200,000 tpa.

TDI/MDI**Russian TDI imports, Jan-Dec 2019**

Russian TDI imports amounted to 51,600 tons in 2019 against 44,500 tons in 2018. Germany reduced shipments from 19,400 tons in January to December 2018 to 9,600 tons in 2019 whilst Hungary shipped 9,600 tons in 2019 against 8,600 tons. Saudi Arabia supplied 8,200 tons to the Russian market, the same as in

2018, whilst the US increased shipments from 6,300 tons to 10,100 tons making it the largest importer in 2019.

The main regions inside Russia accounting for TDI purchases, include Moscow and the Moscow area taking 52.7% of shipments in 2019, followed by Tatarstan with 17.4%. Germany is the main supplier of TDI to Tatarstan where it accounted for 41.6% in 2019, whereas in the Moscow region imports from Germany follow shipments from the US, South Korea and Saudi Arabia.



Imports costs of TDI into Russia in 2019 dropped sharply from \$158.2 million in 2018 to \$96.2 million due to the sharp drop in prices. In 2019, TDI import prices into Russia averaged \$1865 per ton against \$3304 per ton for the whole of 2018. The graphic opposite shows the trend for TDI prices from 2017 through to December 2019.

Russian MDI imports, Jan-Dec 2019

MDI imports into the Russian market amounted to 148,200 tons in the whole of 2019 against 135,100 tons in 2018. Import costs for MDI in 2019 totalled \$226.4 million against \$295.1 million in 2018, with average prices dropping to \$1534 per ton versus \$2185 per ton in 2018.

Russian Imports of MDI (unit-kilo tons)		
Country	Jan-Dec 19	Jan-Dec 18
Hungary	7.3	4.6
Germany	16.9	13.1
China	29.1	21.2
South Korea	2.1	2.0
Saudi Arabia	38.9	36.0
Japan	1.9	2.4
Belgium	15.5	15.9
Netherlands	34.3	33.9
Others	2.0	2.0
Total	148.0	131.1

The main supplier of MDI imports to the Russian market last year was Saudi Arabia, shipping 38,900 tons against 36,000 tons in 2018. China supplied 29,100 tons to Russia against 21,200 tons in January to December 2018, whilst the Netherlands shipped 34,300 tons versus 33,900 tons.

Regarding regional sales, Moscow and the Moscow area accounted for 41.6% of import shipments of MDI in 2019, followed by the Vladimir Oblast with 19.2% and the Kaluga Oblast with 14.4%.

The main suppliers of MDI for the Moscow area come from China accounting for 49.4% of sales in 2019, whilst Saudi product accounted for 49.4% of shipments to the greater Moscow and 63.2% to the Vladimir region. The Netherlands accounted for 99.3% of shipments to the Kaluga region.

Ukraine

Ukrainian Polypropylene Imports (unit-kilo tons)		
Category	Jan-Dec 19	Jan-Dec 18
Homo	100.6	100.2
Block	14.0	13.4
Random	16.0	17.5
Other	1.9	2.4
Total	132.5	133.5

Ukrainian polymer imports & production, Jan-Dec 2019

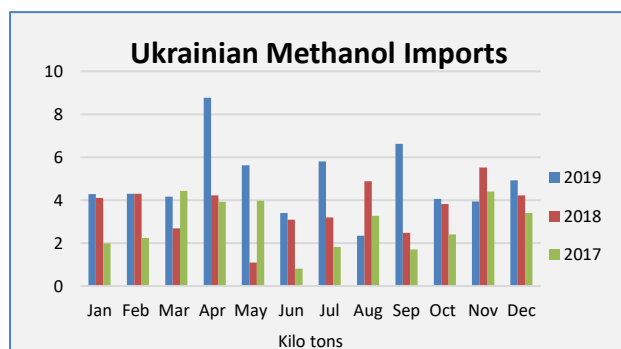
Polypropylene imports to the Ukrainian market amounted to 132,500 tons in 2019, against 133,500 tons in 2018. The total supply of homopolymer amounted to 100,200 tons against 100,600 tons in 2019. Imports of propylene block copolymers amounted to 14,000 tons versus 13,400 tons in 2018, whilst random copolymer imports were unchanged at 16,000 tons. The total volume of deliveries of other propylene copolymers amounted to 1,900 tons against 2,400 tons.

Ukrainian Polymer Imports (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
PVC	49.0	66.1
LDPE	79.7	75.2
LLDPE	81.5	73.7
HDPE	95.0	79.3
Ethylene Vinyl Acetate	12.5	15.1
Polypropylene	132.5	133.5

Imports of PVC into Ukraine totalled 49,000 tons in 2019 against 66,100 tons in 2018. The key suppliers of resin to the Ukrainian market comprise producers from Europe, their share in total imports for the period under review was about 64%. The second largest were US producers with a share of about 36%.

Polyethylene imports into the Ukrainian market grew by 10% in 2019 and amounted to 268,700 tons against 244,400 tons. HDPE imports rose from 79,300 tons to 95,000 tons, whilst LDPE exports rose 5% to

79,700 tons. LLDPE imports rose from 73,700 tons to 81,500 tons whilst other types of polyethylene, including ethylene vinyl acetate (EVA) amounted to 12,500 tons against 15,100 tons.



Ukrainian methanol imports, Jan-Dec 2019

Ukrainian methanol imports increased to 58,233 tons in 2019 against 43,600 tons in the same period in 2018 and 34,324 tons in 2017. Most of the methanol imports came from Russia last year.

Ukrainian ammonia transportation 2019

The volumes of transit ammonia transported through the Togliatti-Odessa product pipeline totalled 2.51 million tons in 2019, the highest on

record according to the pipeline management company Ukhimtransammiak.

Such high shipments were achieved primarily due to the stable operation of Togliattiazot (TOAZ) where production totalled 3 million tons and of which 1.9 million tons were shipped through the pipeline. The remaining transit volumes were divided between the Russian company Minudobrenya (Rossosh) and Ukrainian producers. During 2019, 80,360 tons of liquid ammonia were transported to the domestic market of Ukraine.

Although 2019 was a record year current disputes about pipeline tariffs could result in TOAZ shipping ammonia exports through other routes. The total length of the ammonia pipeline is 2417 km, of which 1018 km pass through Ukraine. Ukhimtransammiak acts as the operator of the Togliatti-Odessa ammonia pipeline passing through Ukraine, whilst the Russian part is served by Transammiak.

Karpatneftekhim Petrochemical Exports (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Propylene	90.2	81.7
Benzene	66.7	59.3

Karpatneftekhim, Jan-Dec 2019

Karpatneftekhim produced 204,400 tons of PVC in 2019 against 209,840 tons in 2018, whilst PVC exports from Kalush rose 15% in 2019 compared to 2018. Karpatneftekhim is capable of producing 300,000 tpa of PVC, 200,000 tpa of caustic soda, 180,000 tpa of chlorine, as well as 250,000 tpa of ethylene and 100,000 tpa of polyethylene.

Karpatneftekhim exported 90,200 tons of propylene in 2019 against 81,700 tons in 2018. Benzene exports rose from 59,300 tons to 66,700 tons. Karpatneftekhim had to postpone the repair work on the benzene plant at Kalush for an indefinite period due to the late delivery of the necessary equipment.

Ukrainian feedstocks

Ukraine increased purchases of LPG on foreign markets by 13% in 2019, most of which came from Russia. At the same time deliveries of LPGs into Ukraine by sea rose to a record high of 54,200 tons against 18,200 tons in 2018. Sea based deliveries are expected to continue in 2020, which mostly go through the Odessa terminal Ukrlodsystem, which is controlled by the Privat group. LNG consumption in Ukraine in 2019 increased by 11.1% to 2.03 million tons.

The volume includes 110,000 tons of butane, which were supplied as raw materials to the Karpatneftekhim. Ukraine is seeking alternative gas and LPG supplies for 2020 and is considering deliveries from Qatar either through the Trans-Balkan gas pipeline or by ship through the Straits of Bosphorus and Dardanelles.

Karpatneftekhim restarted the import of Russian naphtha by rail in November 2019 after reaching agreement with Russian Railways supply 50,000 tpa of naphtha from the Volgograd refinery. Regarding other feedstocks, Ukraine is seeking alternative gas and LPG supplies for 2020 and is considering deliveries from Qatar either through the Trans-Balkan gas pipeline or by ship through the Straits of Bosphorus and Dardanelles.

Karpatneftekhim intends to resume production of HDPE by 20 March after a forced outage. The stop of the production of polyethylene took place in early January and was due to the high cost of raw materials, which did not correspond to the world prices of the polymer. In 2019 Karpatneftekhim produced 93,000 tons of HDPE which is 4% higher than in 2018.

Belarus

Belarussian petrochemicals 2019

For Belarussian petrochemical production in 2019, ethylene and propylene at Polymir both increased over 2018 rising from 66,700 tons to 102,100 tons and from 42,500 tons to 64,800 tons respectively.

Belarussian Chemical Production (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Ethylene	102.1	66.7
Propylene	64.8	42.5
Benzene	115.4	105.9
Caprolactam	111.3	113.2
OX	10.7	0.0
PX	18.1	42.8
Methanol	83.6	83.9

The rise in olefin production was made possible after repairs were completed to the Polymir cracker at Polotsk. The increase in propylene production resulted in a drop in imports from Russia, dropping from 52,300 tons in 2018 to 33,400 tons in 2019. Propylene is used in Belarus mainly for the production of acrylonitrile. Caprolactam and methanol production by Azot at Grodno were both similar to 2018.

The chemical holding Belneftekhim's strategic targets up to 2030 includes the prospects to construct an ethylene-propylene plant at the Polymir Naftan plant. Other potential projects include ABS plastics and polycarbonate. The Mozyr refinery is to be developed in the fuel direction, including the construction of a catalytic reforming unit with continuous catalyst regeneration.

Belneftekhim has outlined plans for an increase in the production of nitrogen and phosphorus fertilisers. The holding hopes to attract a strategic investor to Mogilevkhimvolokno for the second stage of the polyester production complex. The major challenges facing Belneftekhim revolve around the insufficient raw material base within the country.



Regarding crude, difficulties in negotiations with Russia has meant that Belarus is currently preparing to sign an agreement on duty-free oil supplies with Kazakhstan.

In January Minsk purchased about 86,000 tons of Norwegian raw materials from the Johan Sverdrup field with delivery made through the port of Klaipeda and further by rail to the Novopolotsk refinery. In addition, the US has indicated some readiness to provide oil.

Belarus is currently exploring oil supplies from the Baltic ports to the refinery at Novopolotsk (located in the north of the republic by pipeline) rather than by rail. The refinery is connected with the Baltic states through the Polotsk-Ventspils pipeline, although the pipeline is inactive at present and would need investment to enable a reverse flow of crude to be delivered from Ventspils to Polotsk.

Belarussian Aromatic Imports (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Orthoxylene	13.2	24.1
Paraxylene	12.8	12.8
Benzene	3.0	3.0
Toluene	5.9	5.0

Belarussian trade aromatics , Jan-Dec 2019

Orthoxylene imports into Belarus dropped from 24,100 tons in 2019 against 13,200 tons in the same period in 2019, whilst paraxylene imports remained unchanged at 12,800 tons. Prices for paraxylene imports into Belarus amounted to \$958 per ton in 2019 against \$1038 in 2018. Russia remains the sole supplier of orthoxylene and paraxylene into Belarus.

Belarussian Organic Chemical Exports (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Acrylonitrile	47.2	45.4
Melamine	6.1	3.5
Caprolactam	7.9	10.5
Phthalic anhydride	36.1	45.5
Methanol	34.9	22.5

Benzene imports into Belarus totalled 3,048 tons in 2019 against 3,033 tons in 2018, whilst toluene imports rose to 5,925 tons from 4,981 tons. Regarding exports Belarus shipped 3,909 tons of benzene in 2019 against zero in 2018,

with 2,854 tons delivered to Russia and 1,032 tons to the Netherlands. Belarussian benzene exports were conducted through both the Mozyr and Novopolotsk refineries.

Belarussian Acrylonitrile Exports (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Russia	2.5	2.7
Hungary	0.0	5.1
India	0.0	3.7
Iran	0.0	3.1
Netherlands	13.0	4.2
Turkey	28.1	26.4
UAE	3.9	0.0
Total	47.5	45.4

Belarussian organic chemical trade, Jan-Dec 2019

Acrylonitrile export volumes from Belarus in 2019 totalled 47,467 tons against 45,408 tons in 2018. Exports were targeted mainly on Turkey and the Netherlands, amounting to 28,100 tons and 13,000 tons respectively.

Acrylonitrile export prices from Belarus dropped to \$1344 per ton in 2019 against \$1699 per ton in 2018, which meant that total export revenues dropped to \$63.819 million from \$77.171 million in the previous year.

Phthalic anhydride exports from Belarus totalled 36,058 tons in 2019 against 45,483 tons in 2018, with average export prices dropping from \$905 per ton to \$799. Russia was the main destination for phthalic anhydride from the plant at Lida, totalling 15,827 tons in 2019 against 13,335 tons in 2018.

Belarussian Methanol Market (unit-kilo tons)		
	Jan-Dec 19	Jan-Dec 18
Production	83.6	83.9
Exports	34.9	22.5
Imports	50.1	94.6
Balance	98.9	156.0

Methanol imports into Belarus dropped from 94,600 tons to 50,100 tons whilst exports rose from 22,500 tons to 34,900 tons. Export prices for methanol dropped from \$381 per ton in 2018 to \$248 per ton in 2019, whilst import costs dropped from \$334 per ton to \$223. Methanol consumption overall in Belarus dropped in 2019 from 156,000 tons to 98,900 tons.

Belarussian polymer trade, Jan-Dec 2019

Imports of PVC to Belarus increased to 69,700 tons against 64,500 tons. Russian producers accounted for 82% of the market share. Imports of polypropylene into Belarus increased by 10% in 2019 to 114,700 tons compared to 102,700 tons in 2018. The total supply of PP-homo rose 8.7% to 75,200 tons of which Russia supplied 85%. Imports of propylene copolymers rose by 12.7% to 34,200 tons.

Belarussian Polymer Imports (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
PVC	69.7	64.5
Polypropylene	114.7	102.7
LDPE	49.1	53.8
Other Polyethylene	29.1	36.8
HDPE	70.5	50.5

In the polyethylene sector, LDPE imports into Belarus dropped from 53,800 tons in 2019 to 49,100 tons whilst HDPE imports rose from 50,500 tons to 70,500 tons. LDPE exports from Belarus jumped from 64,415 tons in 2018 to 96,358 tons in 2019 whilst HDPE rose from 9,981 to 20,454 tons.

Belarussian exports of polyamide amounted to 60,223 tons in 2019 at a price of \$1,706 per ton against 70,107 tons in 2018 at a price of \$2,096 per ton. Due to the fall in both volumes and prices, revenues dropped from \$146.961 million to \$102.736 million. Destination

sales for Belarussian polyamide exports are focused largely on the CIS and European markets.

Belarussian MDI Imports (unit-kilo tons)		
Country	Jan-Dec 19	Jan-Dec 18
Russia	2.2	2.2
Belgium	4.0	4.3
Hungary	1.1	2.4
Germany	9.9	5.2
China	1.8	2.2
Saudi Arabia	1.1	3.6
Others	0.7	1.3
Total	20.7	21.3

Belarussian MDI imports, Jan-Dec 2019

Import deliveries of MDI into from Belarus in 2019 amounted to 20,763 tons in 2019 against 21,282 tons in 2018. Germany was the largest supplier, increasing shipments from 5,200 tons at \$2605 per ton up to 9,900 tons at a much-reduced price of \$1582 per ton. Hungary reduced shipments of MDI into Belarus from 2,400 tons in 2018 to 1,100 tons in 2019. Overall, MDI import costs per ton dropped from \$2471 per ton in 2018 to \$1595 per ton in 2019.

Belarussian PTA Imports (kilo tons)		
Country	Jan-Dec 19	Jan-Dec 18
Russia	0.0	1.2
Belgium	0.0	0.5
Turkey	1.0	1.0
South Korea	12.5	5.3
Portugal	7.8	4.0
Poland	35.8	16.3
Thailand	0.2	1.9
Total	57.3	30.3

Belarussian PTA imports Jan-Dec 2019

PTA imports into Belarus totalled 57,272 tons in 2019, versus 30,327 tons in 2018. Average prices dropped from \$900 per ton in 2018 to \$842 in 2019, but higher volumes meant that total import costs rose from \$27.284 million to \$48.194 million

Imports from South Korea increased to 12,500 tons in 2019 from 5,324 tons in 2018, at a price of €891 per ton in 2019 against €769 per ton. Poland increased shipments of PTA to Belarus from 16,280 tons to 35,283 tons, with prices dropping from €896 per ton in 2018 to €821 per ton in 2019. The other main supplier in 2019 comprised Portugal which shipped 7,794 tons against 4,014 tons.

Central Asia/Caucasus

Azerbaijan Methanol Production (unit-kilo tons)		
Product	Jan-Dec 19	Jan-Dec 18
Methanol	345.5	128.1

SOCAR methanol production Jan-Dec 2019

In 2019, 345,500 tons of methanol was produced in Azerbaijan, representing an increase of 80.5% over 2018. The inventory stock available at the end of 2019 amounted to 7,100 tons. SOCAR produced 200,000 tons of urea in 2019 which is expected to rise to 500,000 tons in 2020 and 620,000 tons in 2021.

SOCAR-modernisation of ethylene-polyethylene plant

SOCAR plans to complete the modernisation of the Ethylene-Polyethylene plant at Sumgait, either in the second or third quarter of 2020. The implementation of the project will increase the production of ethylene

Azerkhimya Olefin Expansion (unit-kilo tons)		
Product	Existing	Post project
Ethylene	120.0	192.0
Propylene	90.0	187.0

from 100-120,000 tpa to 192,000 tpa, propylene from 80,000-90,000 tpa to 187,000 tpa. In addition, the project provides for the modernisation, updating and replacement of the production departments and equipment existing at the EP-300 installation, the

transition to automation of control systems, improvement of the existing power supply system and auxiliary installations.

From the 192,000 tpa of ethylene and 187,000 tpa of propylene, around 120,000 tpa of ethylene and 140,000 tpa of propylene will be sent to SOCAR Polymer plants. The remaining volume of ethylene will be used for

the production of LDPE at the Ethylene-Polyethylene plant. Currently, the company produces over 60,000 tpa of polyethylene.

Kazakh HDPE imports, Jan-Dec 2019

In 2019 Imports of HDPE to Kazakhstan increased by 2% against 2018 and amounted to 131,200 tons against 128,300 tons. Volumes of purchases of polyethylene from Uzbekistan increased significantly, while supplies from Russia decreased. Imports from Uzbekistan totalled 66,800 tons against 52,500 tons in 2018, whilst shipments from Russia fell to 45,000 tons against 64,900 tons.

Kazakh paraxylene exports, Jan-Dec 2019

Kazakh exports of paraxylene totalled 98,700 tons in 2019 against only 300 tons in the previous year. Most of the paraxylene was exported from the

Atyrau plant in western Kazakhstan to China, delivered by rail. The first shipments of paraxylene were made in December 2018, delivered through the Kulevi terminal in Georgia.

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