

# CIREC

## MONTHLY NEWS

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

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Czech Republic | Slovakia | Hungary | Poland | Bulgaria | Romania | Croatia | Slovenia | Yugoslavia | Baltic States | Russia | Belarus | Ukraine | Transcaucasus | Central Asia | Kazakhstan

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### Features from this issue

#### Central European petrochemical markets

- PKN Orlen has selected Fluor has been selected for petrochemical project advice
- Polymery Police share issue partly successful whilst Lotos pledges investment despite potential conflict of interest in regard to the Lotos-Orlen fusion; Orlen already has a JV for polyolefins through BOP
- BorsodChem aims to complete 200,000 tpa aniline plant in Hungary in 2021

#### Russian chemical production

- Russian chemical production in the period January to October 2019 rose 3.9% over the same period in 2018
- Russian plants produced 1.956 million tons of propylene in the first ten months in 2019 versus 1.816 million tons in the same period in 2018
- Russian ethylene production totalled 2.464 million tons in the first ten months in 2019 against 2.426 million tons in the same period in 2018.
- Russia produced 603,600 tons of styrene in the first ten months in 2019, against 606,600 tons in 2018
- Russian caprolactam production totalled 317,200 tons in the first ten months in 2019 against 330,500 tons in the same period in 2018
- GC Titan began the sale of phenol and acetone from Omsk in the domestic market in November. According to railway statistics, for the whole of November Omsk Kaucuk delivered 100 tons of acetone and 52 tons of phenol to its customers. In early December, 399 tons of phenol were shipped.

#### Russian chemical trade

- Russian propylene exports amounted to 55,200 tons in the first ten months in 2019 against 92,000 tons in the same period in 2018
- Russian methanol exports totalled 1.745 million tons in the first ten months in 2019 against 1.447 million tons in the same period in 2018
- Russian PTA imports totalled 309,400 tons in the first ten months in 2019 against 207,500 tons in the same period in 2018

#### Russian & regional chemical projects

- Around 60% of the project schedule for the Amur Gas Processing Plant had been achieved by end of 2019
- SIBUR reiterates its intention to reach a decision on the configuration of the Amur Gas Chemical Complex project
- Baltic Chemical Complex LLC (BHC, a 100% subsidiary of RusGasDobycha) selected Univation Technologies as the licensor for the production of polyethylene
- The Russian government has indicated that petrochemical producers using ethane on production capacities in excess of 500,000 tpa of ethylene will receive a tax deduction (reverse excise tax) of 9,000 roubles/ton
- In the Mangistau region, the construction of a plant for the production of methanol and olefins for \$ 1.8 billion was launched

## CENTRAL & SOUTH-EAST EUROPE

PKN Orlen Group Production Poland (unit-kilo tons)		
Product	Jan-Oct 19	Jan-Oct 18
Ethylene	418.1	388.7
Propylene	365.7	248.3
Butadiene	52.4	39.8
Toluene	10.3	11.3
Phenol	37.6	35.4
Polyethylene	302.9	289.2
PVC	222.3	201.2
Polypropylene	289.4	226.0

### PKN Orlen-Fluor petrochemical projects

As part of PKN Orlen's project to expand its olefin production complex at Plock engineering company Fluor has been selected for technical consultancy and project management contractor (PMC) services. The services provided under the contract with Fluor will involve end-to-end project management across all functional areas from managing its timescales, costs, contractors and risks, through ensuring work safety, technical support and supervision of technical design standards, to managing procurement and actual execution. Fluor will help to determine choices of products; olefins and phenol are already expected to form part of the strategy.

Polish Propylene Imports (unit-kilo tons)		
Country	Jan-Sep 19	Jan-Sep 18
Azerbaijan	0.0	6.4
Austria	5.7	0.0
Czech Republic	0.9	10.7
Germany	6.9	40.8
Lithuania	15.8	0.0
Russia	22.4	19.3
Ukraine	47.8	57.8
Slovakia	0.5	0.0
Hungary	8.9	10.9
Others	0.9	0.0
Total	109.8	145.8

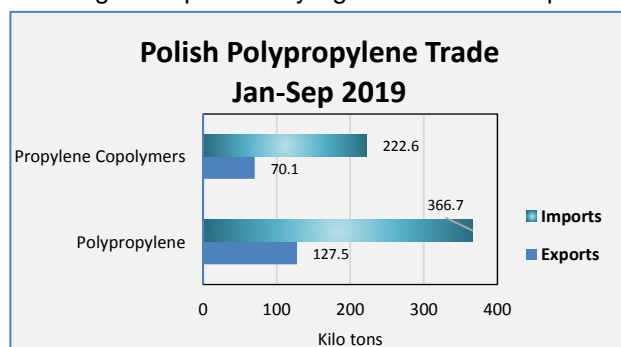
Investments under PKN Orlen's Petrochemicals Development Programme are expected to add around 30% to PKN Orlen's existing capacity, while ensuring a marked improvement in Poland's overall trade balance in petrochemicals. The programme of investment is forecast to be completed by 2023. In 2020 PKN Orlen will launch a Research & Development Center to generate a range of proprietary technologies. The ongoing projects to expand the phenol capacity and construct an aromatic derivatives plant are also at an advanced stage.

In the fuel division of the Orlen group Unipetrol in the Czech Republic is developing hydrogen as a source of clean energy in North-West Bohemia. It is to be used for the first time in transport services.

### Grupa Lotos signs agreement for Polymery Police financing complications

Grupa Azoty reduced its shares in Police plants to 62.86% from 66% following the effects of the issue of series C shares carried out by Grupa Azoty Zakłady Chemiczne Police. However, the share issue only met half of the amount offered so questions still remain over financing. Notwithstanding Grupa Azoty has instructed Hyundai Engineering to commence project construction from the start of 2020.

Regarding other financial arrangements for the large-scale propylene and polypropylene project, Grupa Lotos signed a preliminary agreement with Grupa Azoty Polyolefins on 13 December. Lotos is investing



around zł 500 million (€117.144 million) into Polymery Police and is based on agreement is the basis for agreeing on the final documentation regarding participation in project financing. Lotos announced that as part of the agreement, the company envisages to invest zł 300 million in the form of share capital and zł 200 million in the form of a subordinated loan.

The total budget of the project is estimated at €1.52 billion. According to the schedule, commercial operation is expected to start in the

fourth quarter of 2022. Hyundai Engineering has been selected as the general contractor with a salary of €992.8 million. Grupa Azoty Police signed an investment agreement in December with the State Treasury to take up new shares' worth approximately zł 56.2 million at the price of zł 10.2. One of the chief issues facing Lotos is that project participation in Polymery Police could cause a conflict of interest in respect to the Orlen merger and the JV Basell Orlen Polyolefins (BOP).

The Polymery Police project is designed to largely compensate for the deficit in polypropylene in the Polish market. In addition to the construction of the installation, the project provides for the modernisation of the Police port and railway logistics facilities north of Szczecin. For Lotos to press ahead with both Polymery Police and the Orlen merger may lead to LyondellBasell withdrawing from the JV BOP and thus represents a dilemma to be resolved somehow.

Synthos Production (unit-kilo tons)		
Product	Jan-Oct 19	Jan-Oct 18
Polystyrene	53.2	50.5
EPS	92.2	73.2
Synthetic Rubber	233.5	225.3

#### Synthos-Siemens

Synthos has selected Siemens as the preferred partner for the construction of a gas-steam block for Synthos Dwory at Oswiecim. The turnkey contract will start in the first quarter of 2020 and the block will be commissioned in 2022. The block will have high efficiency of energy production above 85%. The use of a modern SGT-800 Siemens gas turbine

will also enable the combustion of a wide spectrum of gaseous fuels, including fuels with high hydrogen content. Currently, the company bases its production capacity on coal. The investment will increase the share of natural gas as an energy source in the chemical production process, which will allow Synthos to counterbalance the risk of increasing energy costs.

Czech Aniline Exports (unit-kilo tons)		
Country	Jan-Oct 19	Jan-Oct 18
Hungary	89.0	73.8
Slovakia	5.3	4.4
Others	3.2	0.9
Total	97.5	79.1

#### BorsodChem-aniline investment

BorsodChem is working on an aniline project involving costing around €145 million under licenses provided from US, Swiss and Canadian companies. Construction of the 200,000 tpa plant for aniline began in 2017 and is expected to be completed by 2021. The new plant will mean that BorsodChem will no longer need to import Chinese aniline, although it may continue to use aniline from its Ostrava subsidiary in the Czech Republic. Another major

Czech Petrochemical Exports (unit-kilo tons)		
Product	Jan-Oct 19	Jan-Oct 18
Ethylene	65.7	64.4
Propylene	7.1	17.4
Butadiene	3.9	0.6
Benzene	33.9	30.1
Toluene	8.8	12.3
Ethylbenzene	129.1	102.7

investment for BorsodChem in Hungary involves a €20 billion project for a thermoplastic polyurethane plastic HPM which should be completed by 2020. HPM, an MDI derivative, will be the first product in Hungary to be manufactured under a Wanhua license.

#### Czech petrochemical exports, Jan-Oct 2019

Ethylene exports from Unipetrol totalled 65,700 tons in the first ten months in 2019 against 64,400 tons in the same period in 2018. At the same time propylene exports from Unipetrol dropped to 7,100 tons from 17,400 tons, whilst ethylbenzene exports from the Czech Republic totalled 129,100 tons against 102,700 tons. Benzene exports increased from 30,100 tons to 33,900 tons.

Czech Methanol Imports (unit-kilo tons)		
Country	Jan-Oct 19	Jan-Oct 18
Germany	12.8	23.9
Norway	9.7	9.7
Russia	38.3	33.3
Slovakia	0.0	1.1
Poland	3.8	1.5
Others	2.1	0.5
Total	66.6	69.9

#### Central European methanol market

Methanol imports into the Czech Republic totalled 66,600 tons in the first ten months in 2019 against 69,900 tons in the same period in 2018. Russia supplied 38,300 tons of methanol to the Czech market in January to October for a total of €11.115 million, whilst Germany supplied 12,933 tons for a total of

MSK Exports (unit-kilo tons)		
Product	Jan-Sep 19	Jan-Sep 18
Methanol	74.8	91.4
Acetic Acid	51.5	66.4

€4.285 million.

Romanian methanol producer Viromet is aiming to operate in 2020 despite outstanding bankruptcy reports. Serbian state-owned company Infrastruktura Železnice Srbije has launched a €3.4 million

project for reconstruction of the railway line linking the town of Kikinda to the methanol and acetic acid plant of state-run chemicals group MSK. Upon completion of the project, the speed of trains will be lifted to 50 km/h from the current 10 km/h and the axle load capacity will be increased to 22.5 tons per axle from 16 tons at present. After efforts to privatise MSK at Kikinda on two occasions, the government is not planning a third call for privatisation as MSK is no longer a burden on the state.

<b>Polish Methanol Imports (unit-kilo tons)</b>		
<b>Country</b>	<b>Jan-Sep 19</b>	<b>Jan-Sep 18</b>
Belarus	7.2	7.2
Russia	290.3	337.0
Norway	34.6	57.0
Germany	30.7	75.0
Netherlands	5.0	0.3
Finland	75.1	19.0
Venezuela	35.3	54.5
Others	10.4	32.5
<b>Total</b>	<b>488.6</b>	<b>582.5</b>

in the first three quarters in 2019 against 57,000 tons in January to September 2018 whilst Germany reduced shipments from 75,000 tons to 30,700 tons.

<b>Polish PTA Exports (unit-kilo tons)</b>		
<b>Country</b>	<b>Jan-Sep 19</b>	<b>Jan-Sep 18</b>
Belarus	19.7	13.2
Russia	2.0	0.0
Switzerland	3.3	1.0
Netherlands	0.0	3.8
Lithuania	3.0	7.9
Germany	180.8	227.1
Italy	1.8	0.0
Turkey	12.1	0.0
Others	9.0	7.7
<b>Total</b>	<b>231.6</b>	<b>260.7</b>

#### **Polish PTA Exports, Jan-Sep 2019**

Polish exports of PTA from the Wloclawek plant totalled 231,600 tons in the first nine months in 2019 against 260,700 tons in the same period in 2018. PKN Orlen reduced exports in 2019 to Germany to 180,800 tons against 227,100 tons in the same period in 2018, with shipments dropping particularly for the third quarter. Shipments to Belarus increased to 19,700 tons from 13,200 tons.

#### **Czech chemical trade, Jan-Oct 2019**

Propylene imports into the Czech Republic totalled 28,700 tons in the first ten months in 2019 against 46,300 tons in January to October 2018. Benzene imports into the Czech Republic rose to 58,800 tons in the first ten months in 2019 from 52,000 tons in the same period in 2018. Almost all of the benzene imported into the Czech Republic was supplied from Poland.

<b>Czech MDI Imports (unit-kilo tons)</b>		
<b>Country</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
China	1.8	2.5
Belgium	6.6	5.4
Germany	11.2	7.0
Italy	0.2	0.2
Hungary	3.4	6.1
Netherlands	1.2	0.9
Others	0.8	3.1
<b>Total</b>	<b>25.3</b>	<b>25.1</b>

TDI imports into the Czech Republic totalled 7,034 tons in the first ten months in 2019 against 11,067 tons in January to October 2018. TDI import costs dropped from €30.866 million in 2018 to €19.194 million. MDI imports into the Czech Republic rose slightly from 25,100 tons to 25,300 tons.

Regarding Czech exports, shipments of phthalic anhydride totalled 11,078 tons in the first ten months in 2019 against 13,632 tons in the same period in 2018. For January to October 2019 exports of DINP amounted to 33,208 tons versus 32,328 tons.

DINP export destinations in the first ten months in 2019 included Italy with 6,613 tons, Romania with 3,541 tons and Germany with 2,215 tons. Caprolactam exports (from Spolana) dropped slightly to 24,736 tons in the first ten months in 2019 against 28,991 tons in the same period in 2018.

<b>Polish Imports of TDI (unit-kilo tons)</b>			
<b>Country</b>	<b>Jan-Sep 19</b>	<b>Jan-Dec 18</b>	<b>Jan-Dec 17</b>
Germany	22.3	24.9	26.9
Netherlands	4.9	4	3.6
Hungary	20.1	30.4	27
Belgium	1.5	2.6	5.4
Others	4.9	8.9	7
<b>Total</b>	<b>53.7</b>	<b>70.8</b>	<b>69.9</b>

#### **Polish TDI Imports, Jan-Sep 2019**

Imports of TDI into Poland in the first three quarters in 2019 totalled 53,700 tons, measured against 70,800 tons in the whole of 2018 and 69,900 tons in 2017. In

the first nine months in 2019 Germany supplied 22,300 tons at an average price of €1709 per ton whilst Hungary supplied 20,100 tons at an average price of €1662. Overall TDI import prices averaged €1700 per ton in the first nine months, against a full year average of €2745 in 2018 and €2679 in 2017.

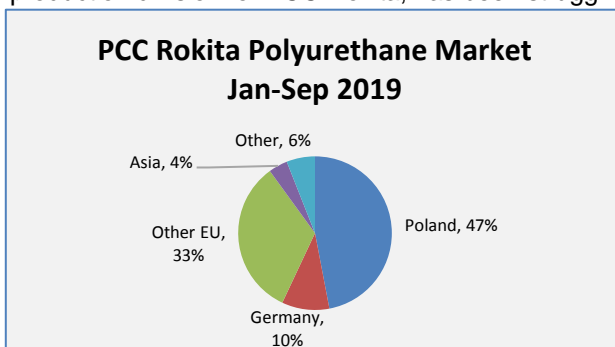


Polish Caustic Soda Production (unit-kilo tons)		
Product	Jan-Oct 19	Jan-Oct 18
Caustic Soda Liquid	275.7	241.8
Caustic Soda Solid	50.6	86.8

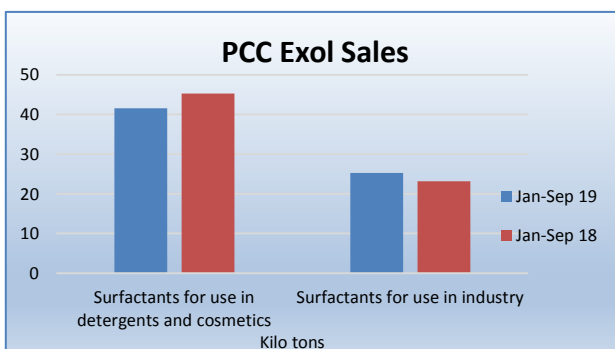
the impact on costs on performance. After a period of falling TDI prices the trend reversed in the third quarter whilst prices of propylene oxide dropped slightly whilst remaining high.

PCC Rokita Product Revenues (zł million)		
Product	Jan-Sep 19	Jan-Sep 18
Alkali	318 606	322 672
Polyols	450 743	464 921
Naphthalene derivatives	13 943	12 416
Phosphorus	63 834	61 634
Organochlorine	18 818	29 996
Chlorine	21 537	14 726

production division for PCC Rokita, has been struggling since the start of 2019 with both high prices of raw



technologies. Polyols were also affected by sales in the automotive industry and competition from Sadara



varnish market and extinguishing products.

Chimcomplex Product Group Revenues (€ million)		
Product	Jan-Sep 19	Jan-Sep 18
Polyols	113.5	0.0
Chlor-alkali	74.0	42.9
Oxo alcohols	24.8	0.0
Other chemicals	4.8	2.0
Total	217	45

Credit Suisse and Russian bank VTB to pay for Oltchim's core assets.

### PCC Rokita, Jan-Sep 2019

In the first nine months last year, PCC Rokita's net profit fell by 51% from zł 161.27 million in 2018 to zł 79.37 million. This drop occurred despite the company's revenues rising 2% to zł 1.123 billion in the first three quarters. The operating profit also dropped to zł 139 million from zł 184 million reflecting

In the chlorine division, which occupies the largest share of PCC Rokita's results, the volume of products sold increased by about 4% in January to September 2019. Increases were helped by higher capacity, having risen to 209,000 tpa in 2019, although the chlorine segment's EBITDA profit fell by over 19% compared to 2018. Chlorine is used by PCC Rokita for the production of propylene oxide, hydrochloric acid and chlorobenzene.

The polyurethanes segment, the second major production division for PCC Rokita, has been struggling since the start of 2019 with both high prices of raw materials and high supply of products on the market. Notwithstanding, the segment's EBITDA profit increased by nearly 4% compared to the nine months of 2018. The flexible foam market, which is the largest consumer of polyether polyols in the furniture and automotive industries, has been stagnant whilst the rigid foam segment (used in building materials) continued to grow.

Falls recorded in TDI prices in 2019 helped polyurethane mattresses to compete effectively with mattresses produced using alternative technologies. Polyols were also affected by sales in the automotive industry and competition from Sadara complex in Saudi Arabia to markets traditionally served by European producers. High global availability of polyether polyols has been helped by increased availability from the Sadara complex in Saudi Arabia.

Subsidiary PCC Exol's net profit rose in the first three quarters in 2019 to €5.536 million against €3.854 million in 2018, whilst the gross margin on surfactant sales attained 17.6% against 14.6%. PCC Exol is expanding its product range intended for industrial applications, including the paint and

### Chimcomplex Jan-Sep 2019

Chimcomplex Borzești recorded a turnover of €213 million in the first nine months in 2019 against €45 million in the same period in 2018. The acquisition of assets from Oltchim has enabled Chimcomplex to significantly increase turnover not only in its chlorine division but also new divisions such as polyols and oxo alcohols. Chimcomplex took over toward the end of 2018 the viable assets of the Oltchim chemical plant and has started to integrate them with its existing capabilities under a broad investment plan. Chimcomplex borrowed €164 million from

## RUSSIA

Russian Chemical Production (unit-kilo tons)		
Product	Jan-Oct 19	Jan Oct 18
Caustic Soda	1,071.9	1,055.5
Soda Ash	2,692.0	2,868.0
Ethylene	2,465.8	2,430.0
Propylene	1,996.1	1,707.1
Benzene	1,194.4	1,158.4
Xylenes	393.6	487.9
Styrene	603.6	606.8
Phenol	185.2	163.0
Ammonia	15,100.0	14,700.0
Nitrogen Fertilisers	9,317.0	8,508.0
Phosphate Fertilisers	3,465.0	3,289.0
Potash Fertilisers	6,913.0	6,963.0
Plastics in Bulk	7,042.0	6,781.0
Polyethylene	1,797.0	1,799.0
Polystyrene	450.8	456.1
PVC	862.3	832.4
Polypropylene	1,318.1	1,242.0
Polyamide	136.5	141.0
Synthetic Rubber	1,257.0	1,363.0
Synthetic Fibres	142.0	140.8

### Russian chemical production Jan-Oct 2019

Russian chemical production in the period January to October 2019 rose 3.9% over the same period in 2018, with the largest increase in production volumes recorded from mineral fertilisers and bulk polymers. In January-October, 2.466 million tons of ethylene was produced which is only 0.9% more than in 2018, although propylene jumped much higher from 1.816 million tons to 1.996 million tons. Benzene production totalled 1.194 million tons in the first ten months last year, which is 2.9% up on 2018.

Caustic soda production amounted to 1.072 million tons in the first ten months in 2019 against 1.056 million tons. In general, between January and October, Russian enterprises produced 20.091 million tons of fertilisers, which is 4.8% more than in 2018. The total primary production of polymers amounted to 7.042 million tons, which is 4.1% more than in January to October 2018.

Regarding chemical trade patterns, Russia's deficit jumped from \$16.309 billion in the first ten months in 2018 to \$19.298 billion in the same period in 2019. The main cause of this rise is driven from higher prices in the pharmaceutical sector. For export activity, Russian methanol shipments totalled 1.778 million tons in the first

ten months against 1.508 million tons in the same period in 2018 whilst synthetic rubber exports dropped from 840,000 tons to 834,000 tons.

### Russian petrochemical projects

#### Power of Siberia starts shipping gas to China

At the start of December Russia officially opened the Power of Siberia gas pipeline to China and started the transshipment of gas. The gas pipeline is important for Russia also in the fact that gas will go not only for export, but also for the Amur Gas Processing Plant under construction. The plant, located 14 km from the city of Svobodny in the Amur Region, began in October 2015 and should be completed in 2023. China's gas needs are estimated to be greater than the capacity of the Power of Siberia although there is the potential of shale gas which might affect demand in the future.

#### Amur Gas Processing Plant-progress update

Around 60% of the project schedule for the Amur Gas Processing Plant (GPP) had been achieved by the end of 2019, with Gazprom completing the installation in December of a cold block for crude gas. The cold block for crude gas is designed to cool the natural gas entering the plant before being fed to the gas separation columns. The fifth and sixth gas-compressor units were to be completed by the end of December. Also, at the site of the Amur GPP, spherical tanks for the storage of LPG and the pentane-hexane fraction are being assembled and work should be completed in the spring of 2020.

The first stage of the Amur GPP (involving two production lines) will be commissioned in April 2021, with full capacity utilisation set for the start of 2025. The launch of the plant will allow production of up to 2.6 million tpa of ethane and 1.6 million tpa of liquefied petroleum gases. Helium capacity at the Amur GPP will allow up to 60 million cubic metres per annum and marketable gas 38 billion cubic metres.

Delivering equipment for the Amur GPP has provided one of the most difficult challenges in the construction period. The lack of infrastructure at the site near Svobodny has meant that Gazprom has had to invest in river and rail terminals, in addition to building road links. Deliveries of equipment have used several routes, mainly reaching the site through the terminal established on the Zeya River.



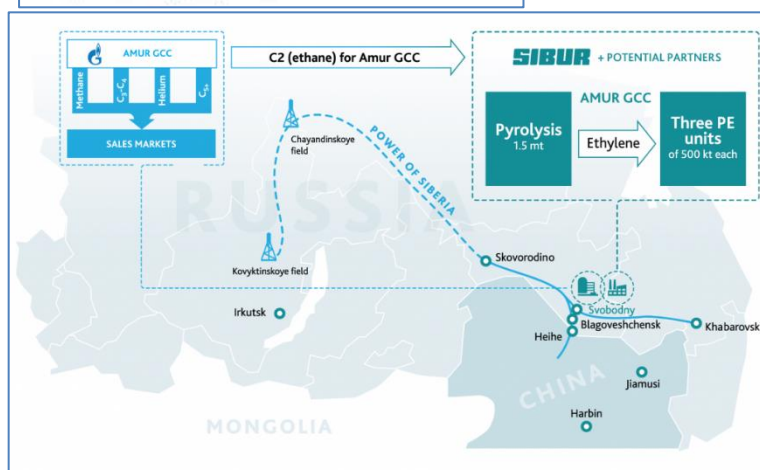
Recent deliveries that started from the Tianjin port in China have been shipped to the Russian port of De-Kastri on the Pacific coast, from where the equipment will be delivered via Blagoveshchensk to Svobodny along the river route. The first propane recovery column has been mounted at the Amur GPP site, to be followed by three others which will operate as part of a gas fractionation unit. This will separate wide fraction of light hydrocarbons into propane, butane, and

pentane-hexane fractions.

Due to the extreme climate in the Russian Far East river deliveries of huge equipment is limited by a short navigation period lasting from May to October. In 2019 navigation, 120 units of equipment were delivered to the Amur Gas Processing Plant. For the navigation period in 2019, the Amur Gas Processing Plant accepted equipment with a total weight of 14,663 tons. The vehicles were delivered along the Amur and Zeya rivers. To ensure shipping last year, work was carried out in 15 difficult sections, 11 dredging slots were developed. The total amount of extracted soil exceeded 665,000 cubic metres.



Regarding feedstocks Gazprom connected the Chayanda oil and gas condensate field to the Power of Siberia gas pipeline, which supplies the for the Amur GPP, meaning that a system for connecting production to the gas transportation infrastructure is completely ready. Gazprom expects to start delivering gas from the Kovykta field in the Irkutsk region closer to 2023. The Power of Siberia pipeline comprises around 4,000 km in length, including eight compressor stations.



#### Amur Gas Chemical Complex, LPG feedstocks in addition to ethane?

SIBUR is still waiting for a government decision on the introduction of a negative excise tax on LPG before deciding on the final outline of the Amur Gas Chemical Complex at Svobodny.

This could impact significantly on cost assessments, but at the same time Gazprom needs a decision from SIBUR as it will affect investment plans for the gas processing plant. As a result, SIBUR has to decide soon on whether to proceed, on

either one of two optional projects. One involves launching pyrolysis on ethane followed by production of polyethylene, the second includes additional opportunities for processing LPGs from the Amur Gas Processing Plant. If LPG processing appears in the project besides ethane, SIBUR could have the opportunity to launch polypropylene production on additional volumes of raw materials and increasing olefin capacity from LPG usage.

#### Baltic Chemical Complex-Univation Technologies

Baltic Chemical Complex LLC (BHC, a 100% subsidiary of RusGasDobycha) selected Univation Technologies as the licensor for the production of polyethylene. The UNIPOL licensing process will be implemented on six polyethylene production lines, the total capacity of which will reach 3 million tpa.

BHC will gain access to Univation technology platforms, including ACCLAIM for the production of unimodal low-pressure polyethylene, PRODIGY for bimodal grades of polyethylene, XCAT for advanced metallocene linear polyethylene. It is noted that these technological solutions will allow BHC to get a wide branded assortment of low-pressure polyethylene and linear polyethylene, including for the production of films, production of pipes, injection moulded and blown products.

#### Ethane taxes for petrochemical production

The Russian government has indicated that petrochemical producers using ethane on production capacities in excess of 500,000 tpa of ethylene will receive a tax deduction (reverse excise tax) of 9,000 roubles per ton. Projects at Svobodny, Ust-Kut and Ust Luga could all fall into this category, all of which exceed 500,00 tpa and all of which are based on ethane. Existing producers can also receive preferences or tax benefits after the conclusion of agreements with the Ministry of Energy on modernisation of production before 1 July 2022.

To do this, companies must invest at least 65 billion roubles in 2021–2024, while in 2020 ethane processing at its own facilities should be exceed 100,000 tpa. Kazanorgsintez may comply with these conditions at present, whilst Stavrolen may increase ethane processing due to supplies from Lukoil's Caspian projects. In future, the Novokuibyshevsk petrochemical and Gazprom neftekhim Salavat could theoretically also qualify for benefits.

The government is introducing ethane tax benefits partly to help SIBUR justify investment in the Amur Gas-Chemical Complex. SIBUR also states that it is necessary to introduce as soon as possible a reverse excise tax on the processing of liquefied petroleum gases in order to eliminate in a non-marketable manner the inequality of expenses incurred for the production of the same petrochemical products from various types of raw materials.

In November, a licensing agreement was signed with Lummus Technology for the production and separation of olefins. This agreement provides for the acquisition by BHC LLC of licensing rights for ethylene production technology with a total volume (first and second stage) of up to 3 million tpa. At the same time, agreements were reached with Univation.

In October last year, Rusgazdobysha and China National Chemical Engineering Group (CNCEC) signed an agreement worth \$13.25 billion. Then it was noted that the contract concluded by the parties involves the construction of two phases of the pyrolysis complex with a capacity of 1.4 million tpa of olefins, six phases of polyethylene production with a capacity of 480,000 tpa, two phases for the production of alpha-olefins with a capacity of 137,000 tpa, as well as plant facilities.

The commissioning of the gas-chemical complex as part of the ethane-containing gas processing complex at Ust-Luga is planned in two stages for the fourth quarter of 2023 and the beginning of 2024 and for the fourth quarter of 2024 and the first quarter of 2025.

Russian Ethylene Production (unit-kilo tons)		
Producer	Jan-Oct 19	Jan-Oct 18
Angarsk Polymer Plant	165.6	154.0
Kazanorgsintez	505.7	472.2
Stavrolen	241.1	261.9
Nizhnekamskneftekhim	508.6	501.7
Novokuibyshevsk Petrochemical	50.5	49.0
Gazprom n Salavat	274.3	318.3
SIBUR-Kstovo	341.5	317.3
SIBUR-Khimprom	45.3	47.0
Tomskneftekhim	227.4	215.4
Ufaorgsintez	104.0	89.6
Total	2463.8	2426.3

#### Russian petrochemical production & sales

##### Russian ethylene production, Jan-Oct 2019

Russian ethylene production totalled 2.464 million tons in the first ten months in 2019 against 2.426 million tons in the same period in 2018. The major changes took place at Kazan where production rose from 472,200 tons to 505,700 tons, and Nizhnekamskneftekhim where production rose from 501,700 tons to 508,600 tons.

Nizhnekamskneftekhim shut the cracker on 26 November for an unplanned maintenance check. The company also experienced a fire at the cracker in September. Stavrolen stopped olefin production

on 10 December due to malfunction. Stavrolen was expected to resume production of olefins and benzene within 7-10 days.

For the whole of 2019, Russian ethylene production was forecast to be close to 3.0 million tons, even without the start-up of SIBUR's ZapSibNeftekhim complex at Tobolsk. 2020 should prove a significant year for Russian ethylene production volumes based on ZapSibNeftekhim's 1.5 million tpa cracker. Ethane and LPG usage for petrochemical production in Russia has been incentivised by a government reverse excise duty whereby producers are rewarded for each ton produced. The new excise duty will become active in 2022



and is relevant to existing producers and new producers or new plants. The subsidy may only apply however to producers that invest a certain amount.

<b>Russian Reverse Excise Duties for Petrochemical Feedstocks</b>		
<b>Year</b>	<b>LPG (roubles/ton)</b>	<b>Ethane (roubles/ton)</b>
2022	4,500	9,000
2024	6,500	9,000
2026	7,500	9,000

same period in 2018. In the period January to October 2019 Russian LPG production totalled 11.980 million tons which was down on 2018 by 61,620 tons.

<b>Russian Propylene Production (unit-kilo tons)</b>		
<b>Producer</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
Angarsk Polymer Plant	91.2	90.4
Kazanorgsintez	37.3	30.9
Lukoil-NNOS	249.9	207.4
Stavrolen	97.6	103.8
Nizhnekamskneftekhim	253.2	253.3
Novokuibyshevsk	38.3	35.4
Omsk Kaucuk	38.0	33.4
Polyom	149.9	159.0
Gazprom n Salavat	119.5	131.1
SIBUR Kstovo	147.1	140.4
SIBUR-Khimprom	50.0	54.2
Tomskneftekhim	122.4	115.3
SIBUR Tobolsk	404.3	330.6
Ufaorgsintez	157.2	130.9
<b>Total</b>	<b>1955.8</b>	<b>1816.2</b>

2018 to 404,300 tons in the same period in 2018, whilst SIBUR-Kstovo increased production from 140,400 tons to 147,100 tons. In September, the first propylene was produced at the ZapSibNeftekhim pyrolysis unit at Tobolsk.

<b>Russian Propylene Exports (unit-kilo tons)</b>		
<b>Producer</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
Lukoil-NNOS	37.3	59.7
SIBUR-Kstovo	6.1	19.8
Stavrolen	11.8	12.6
<b>Total</b>	<b>55.2</b>	<b>92.0</b>

<b>Russian Propylene Domestic Sales (unit-kilo tons)</b>		
<b>Producer</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
Angarsk Polymer Plant	63.2	55.7
Omsk Kaucuk	0.0	1.3
SIBUR-Kstovo	126.9	100.0
Akrilat	5.5	5.0
LUKOil-NNOS	198.6	161.4
Tomskneftekhim	0.0	0.2
Gazprom neftekhim Salavat	4.6	4.9
SIBUR-Khimprom	0.0	0.2
SIBUR Tobolsk	0.1	0.3
<b>Total</b>	<b>399.0</b>	<b>332.0</b>

Whilst the incentive to use ethane is greater than LPG, the logistics of purchasing the former are more complicated and depend on pipeline connections. LPG is more accessible through rail shipments. In the first ten months in 2019 sales to petrochemical plants totalled 2.87 million tons which amounted to around a quarter of total production. Shipments of LPG to petrochemical plants rose by 256,000 tons on the same period in 2018. In the period January to October 2019 Russian LPG production totalled 11.980 million tons which was down on 2018 by 61,620 tons.

Gazprom neftekhim Salavat is developing a new technology for the oxidative dehydrogenation of ethane, aimed at the monetisation of natural gas through olefin production. At present, olefins production at Salavat is obtained through an endothermic process which requires the supply of a large amount of heat. The disadvantages of this method of producing ethylene are primarily high energy costs. The new process of oxidative dehydrogenation of ethane at Salavat is exothermic, which will allow the company to achieve a higher yield of ethylene in one cycle at a much lower temperature. This should potentially reduce energy consumption during the process and increases the energy efficiency of ethylene production.

#### **Russian propylene production, Jan-Oct 2019**

Russian plants produced 1.956 million tons of propylene in the first ten months in 2019 versus 1.816 million tons in the same period in 2018. SIBUR Tobolsk increased production from 330,600 tons in January to October 2018 to 404,300 tons in the same period in 2018, whilst SIBUR-Kstovo increased production from 140,400 tons to 147,100 tons. In September, the first propylene was produced at the ZapSibNeftekhim pyrolysis unit at Tobolsk.

#### **Russian propylene sales & exports Jan-Oct 2019**

Russian propylene exports amounted to 55,200 tons in the first ten months in 2019 against 92,000 tons in the same period in 2018. Lukoil-NNOS reduced exports from 59,700 tons in January to October 2018 to 37,300 tons this year, whilst SIBUR-Kstovo reduced exports from 19,800 tons to 6,100 tons. Stavrolen at Budyennovsk exported 11,800 tons against 12,600 tons.

Propylene sales on the Russian domestic market totalled 399,000 tons in the first ten months in 2019 versus 332,000 tons in the same period in 2018. Lukoil-NNOS at Kstovo shipped 198,600 tons against 161,400 tons whilst SIBUR-Kstovo increased sales from 100,000 tons to 126,900 tons. The third largest supplier to the merchant market is Angarsk Polymer Plant which shipped 63,200 tons in the first ten months versus 55,700 tons. Lukoil-NNOS spends most of its propylene to Saratovorgsintez, SIBUR-Kstovo ships of all its

monomer to SIBUR subsidiaries and Angarsk Polymer ships to consumers such as Omsk Kaucuk and SIBUR-Khimprom.

Prices of propylene on the domestic market have been affected by low demand and also lower European prices. Over November and December, propylene prices in the Volga region stabilised at 53,500-56,400 roubles per ton. In the Siberian Federal District, monomer was sold at 50,500-51,000 roubles per ton.

Saratovorgsintez purchased 153,200 tons of propylene in the first ten months in 2019 against 138,900 tons in January to October 2018. SIBUR Tobolsk increased merchant purchases to 81,900 tons from 38,800 tons in the first ten months in 2018 which was the main factor behind the increase in domestic sales. SIBUR-Khimprom at Perm reduced inward shipments to 39,400 tons from 39,900 tons.

Russian Styrene Production (unit-kilo tons)		
Producer	Jan-Oct 19	Jan-Oct 18
Nizhnekamskneftekhim	253.6	251.9
Angarsk Polymer Plant	30.0	28.7
SIBUR-Khimprom	115.3	117.9
Gazprom n Salavat	162.5	167.0
Plastik, Uzlovaya	42.2	46.7
Total	603.6	606.6

#### Russian styrene production Jan-Oct 2019

Russia produced 603,600 tons of styrene in the first ten months in 2019, against 606,600 tons in 2018. Gazprom neftekhim Salavat reduced styrene production to 162,500 tons against 167,000 tons, followed by SIBUR-Khimprom at Perm where production decreased from 117,900 tons to 115,300 tons.

Styrene sales on the Russian domestic merchant market totalled 95,300 tons in January to October 2019 against 91,800 tons in the same period in 2018, with Gazprom neftekhim from 37,800 tons to 33,300 tons. SIBUR-Khimprom uses styrene for the production of expandable polystyrene.

Russian Styrene Domestic Sales		
Producer	Jan-Oct 19	Jan-Oct 18
Angarsk Polymer Plant	16.8	14.5
Plastik	0.7	9.0
Gazprom n Salavat	42.5	26.7
SIBUR-Khimprom	33.3	37.8
Nizhnekamskneftekhim	2.1	3.8
Total	95.3	91.8

SIBUR Holding and the styrene producer Plastik have renewed contracts for processing of ethylbenzene. Up to 50,000 tpa could be supplied from SIBUR-Khimprom at Perm to Plastik at Uzlovaya.

Russian Styrene Exports (unit-kilo tons)		
Producer	Jan-Oct 19	Jan-Oct 18
Angarsk Polymer Plant	6.8	6.5
Plastik Uzlovaya	0.2	3.9
Gazprom neftekhim Salavat	79.5	70.1
Nizhnekamskneftekhim	4.6	0.0
SIBUR-Khimprom	1.3	7.6
Total	92.5	88.1

Until December 2013, Plastik was part of SIBUR and after becoming an independent company has maintained contact with the group in order to produce styrene. Plastik specialises in the production of ABS plastics and suspension polystyrene. The capacities include 60,000 tpa of styrene, 11,300 tpa of expandable polystyrene and 23,000 tpa of ABS plastics.

#### Russian styrene exports, Jan-Sep 2019

Styrene exports from Russia increased to 92,500 tons in the first ten months in 2019 against 88,100 tons in the same period in 2018. Gazprom neftekhim Salavat shipped 79,500 tons in the first ten months against 70,100 tons, whilst Angarsk Polymer Plant shipped 6,800 tons this year against 6,500 tons. The main destination for styrene exported from Salavat is Finland, followed by Norway and Turkey.

Russian HDPE Production (unit-kilo tons)		
Producer	Jan-Oct 19	Jan-Oct 18
Kazanorgsintez	418.2	412.4
Stavrolen	221.3	244.1
Nizhnekamskneftekhim	0.0	41.6
Gazprom n Salavat	87.5	100.9
Total	727.0	799.0

production by 3.3% to 418,200 tons in the first ten months last year. Stavrolen at Budyennovsk increased polyethylene production 8% in the to 221,300 tons, whilst Gazprom neftekhim Salavat reduced production by 13% to 87,500 tons. In 2019 Nizhnekamskneftekhim produced exclusively linear polyethylene grades and has not produced HDPE accounting for the drop in total production.

### Bulk Polymers

#### Russian HDPE production and PE trade, Jan-Oct 2019

Russian producers reduced the production of HDPE significantly in January-October 2019 to 727,000 tons against the same period last year. Kazanorgsintez increased

Imports of polyethylene into Russia totalled 292,000 tons in January-October 2019 against 273,000 tons in the same period in 2018. The rise in imports were partially caused by the outages at domestic plants. The import of pipe polyethylene into Russia amounted to 45,800 tons of which the main suppliers came from Saudi Arabia and South Korea. Imports of HDPE film to the Russian market rose 61.4% in January to October over the same period in 2018 where Uzbekistan remains the main importer. Shipments of injection moulded polyethylene in amounted to 53,000 tons in January to October 2019 against 46,800 tons. The main suppliers are manufacturers from Uzbekistan, the UAE and Thailand.

### Russian polypropylene production, Jan-Oct 2019

Russia's production of polypropylene rose in the first ten months of 2019 by 1.3% to 1.163 million tons compared to 1.143 million tons in the same period in 2018. Four producers out of seven raised their capacity utilisation, with SIBUR Tobolsk and NPP Neftekhimiya at the Moscow refinery accounting for the main increase in production.

Russian Polypropylene Production (unit-kilo tons)		
Producer	Jan-Oct 19	Jan-Oct 18
Ufaorgsintez	106.9	98.2
Stavrolen	85.7	95.0
Neftekhimiya	121.3	111.0
Nizhnekamskneftekhim	174.9	179.7
Polyom	174.4	177.2
Tomskneftekhim	121.8	116.5
SIBUR Tobolsk	378.7	365.2
Total	1163.7	1142.8

SIBUR Tobolsk increased production by 1% to 378,100 tons whilst Polyom reduced production by 2% to 174,700 tons. Nizhnekamskneftekhim produced 174,900 tons in the first ten months in 2019 against 179,500 tons, Tomskneftekhim dropped 5% to 121,800 tons and Ufaorgsintez rose 9% to 106,700 tons. NPP Neftekhimiya (Kapotnya) produced 121,300 tons, which is 9% more than the same indicator in 2018 and Stavrolen reduced from 92,300 tons against 85,700 tons.

Polypropylene imports into Russia dropped by 4% to 189,000 tons in the first ten months of 2019 compared to 193,000 tons. Imports of homopolymer polypropylene to Russia totalled 48,200 tons in the ten months of

Russian Polypropylene Imports (unit-kilo tons)		
Category	Jan-Oct 19	Jan-Oct 18
Homopolymers	48.2	55.2
Block	46.8	39.0
Random	26.9	29.6
Other	30.0	33.9

2019, compared to 55,200 tons, whilst imports of block copolymers amounted to 46,900 tons in January-October 2019, compared to 39,900 tons a year earlier. imports of PP random copolymers in Russia were 26,900 tons in January-October 2019, compared with 29,600 tons and Russia's imports of other polymers of propylene were 30,000 tons in the first ten months of the year, compared with 33,900 tons.

Regarding export activity, Russian shipments of polypropylene totalled 238,000 tons in the first ten months in 2019 against 297,000 tons in January to October 2018. SIBUR accounted for around 40% of Russian exports from its SIBUR-Tobolsk plant. The majority of Russian polypropylene exports comprise homopolymer grades.

Russian PVC Production (unit-kilo tons)		
Producer	Jan-Oct 19	Jan-Oct 18
Bashkir Soda	216.1	207.3
Kaustik	65.3	77.3
RusVinyl	287.8	275.5
Sayanskkhimplast	241.0	224.8
Total	810.2	784.9

### Russian PVC, Jan-Oct 2019

Russia's production of PVC amounted to 810,200 tons in the first ten months of 2019, up by 3%. RusVinyl increased production by 4% to 286,600 tons in January-October 2019. Sayanskkhimplast produced 241,000 tons of resin in January-October, compared to 224,800 tons, whilst Baskhir Soda Company increased production to 216,100 tons versus 207,300

tons in 2018. Kaustik produced 65,300 tons in the first ten months of 2019 versus 77,300 tons.

### Russian polycarbonate production and imports, Jan-Oct 2019

Production of polycarbonate at Kazanorgsintez decreased by 10% in the first ten months in 2019 and amounted to 58,620 tons from 64,890 tons in the January to October 2018. The most popular brand on the market is PC-007 accounting for 75% of production and amounting to 44,140 tons versus 70% (45,430 tons) in January-October 2018.

Polycarbonate granulate import deliveries to Russia almost doubled in the first ten months in 2019 and amounted to 16,200 tons rising from 8,900 tons. The share of polycarbonate granulates extrusion

grades in the total volume of deliveries amounted to 60% (9,700 tons). The main import suppliers of granulate include Covestro (58%) and SABIC Innovative Plastics (31%). Both producers significantly increased their supply in 2019. Covestro doubled its shipments from 4,200 tons (47% of imports) in January-October 2018 to 9,400 tons (58% of imports) whilst SABIC increased supplies to 5,000 tons against 2,140 tons.

#### Russian polystyrene, Jan-Oct 2019

Ineos Styrolution's general purpose polystyrene (GPPS) imports into Russia increased in the first ten months of 2019 by to 10,600 tons from 4,900 tons in 2018. European material accounted for 45% of the total GPPS shipments into Russia over the stated period versus 30% in the first ten months of 2018.

Imports of ABS to the Russian market fell in the first ten months of 2019 by 2% to 28,000 tons. This figure was 28,600 tons in January-October 2018. LG Chem accounted for 39% of the total ABS imports. Styrolution and Trinseo shipped the bulk of European ABS. They accounted for 12% each in the total shipments. October ABS imports to Russia dropped by 4% to 3,500 tons from 3,600 tons in October 2018. Imports of material into the country comprised 2,600 tons in September 2019.

Kazanorgsintez plans to expand the capacity of the existing site for the production of polycarbonate (PC) granules from 75,000 tpa to 100,000 tpa in 2020. The main focus this year will remain on polycarbonate extrusion brands on the Russian market, which are consumed by producers of cellular and monolithic PC sheets, although the company's portfolio also includes injection brands. The Russian polycarbonate market distinguishes itself from mainstream European markets in that injection moulds make up the bulk of the production.

### PX-PTA chain

#### Russian Paraxylene Domestic Sales (unit-kilo tons)

Producer	Jan-Oct 19	Jan-Oct 18
Gazprom Neft	0.0	49.4
Ufaneftkhim	79.7	99.6
<b>Total</b>	<b>79.7</b>	<b>149.1</b>

#### Russian paraxylene sales Jan-Oct 2019

Paraxylene sales on the Russian domestic market amounted to 79,700 tons in the first ten months in 2019 versus 149,100 tons in the same period in 2018. Ufaneftkhim reduced sales from 99,600 tons to 79,700 tons, whilst Gazprom Neft at Omsk reduced from 49,400 tons to zero. Reduced consumption was due to the extended downtime at Russia's main PTA consumer Polief where expansion was taking place in the first half of 2019.

#### Russian Paraxylene Exports (unit-kilo tons)

Producer	Jan-Oct 19	Jan-Oct 18
Gazprom Neft	94.7	72.7
Kinef, Kirishi	39.0	38.5
Ufaneftkhim	13.6	7.4
<b>Total</b>	<b>147.2</b>	<b>118.5</b>

Paraxylene exports from Russia totalled 147,200 tons in the first ten months in 2019 against 118,500 tons in the same period last year. The largest rise was seen in deliveries to the Kotka port in Finland at the Oiltanking terminal.

#### Polief-investment in accident prevention

Polief resumed production of PTA on one of two lines at the Blagoveshchensk plant at the end of November, whilst resuming PET production at the end of December. Production was affected by the leak of industrial effluent into the nearby river Izyak in early October and one of the PTA lines was forced to suspend production. In September, Polief relaunched the production of PTA after modernisation and expansion undertaken in the first half of the year. The plant was gradually being restored to full utilisation when the incident of the leak took place in October.

Since the incident, Polief has begun to develop design and detailed documentation for the reconstruction of a reserve wastewater tank. On 9 October 2019, partial discharge of industrial wastewater into the territory adjacent to the enterprise occurred due to the collapse of a fragment of the wall of the reserve tank. Reconstruction of a reserve tank, involving the dismantling of a previously constructed structure and the construction of a new tank, is designed to ensure that situations similar to the accident in October are prevented. The new reconstruction will use a new protective coating on the walls of the tank based on modern polymeric materials, which will ensure the service life of the tank at least 25 years.

#### Russian zero-rated PTA tariffs extended to end of 2022

The Sub-Commission on Customs and Tariff Regulation extended the duty-free import of PTA until 2022. The rate was reduced from 5 to 0% for the period from 1 January 2016 to 31 December 2017 inclusive, then the duty-free import was extended until the end of 2019.



Russian PTA Imports by Weight (unit-kilo tons)		
Country	Jan-Oct 19	Jan-Oct 18
Belgium	21.9	1.6
India	1.0	5.7
China	219.7	120.7
South Korea	58.1	64.5
Poland	3.8	0.0
Turkey	2.0	0.0
Thailand	3.0	15.0
Total	309.4	207.5

main importers Alko-Naphtha at Kaliningrad and the Senezh PET plant near Moscow purchased 210,000 tons and 45,800 tons respectively in the first ten months in 2019.

Russian PTA Imports by Value Jan-Oct 2019		
Country	Kilo tons	\$ million
Belgium	21.9	17.9
India	1.0	0.8
China	219.7	187.1
South Korea	58.1	47.8
Poland	3.8	3.0
Turkey	2.0	0.5
Thailand	3.0	2.6
Total	309.4	259.6

Benzene production in Russia totalled 1.095 million tons in the first ten months in 2019 against 1.115 million tons in the same period in 2018. Rosneft's three plants at Angarsk, Ryazan and Novokuibyshevsk reduced production from 123,000 tons to 114,600 tons, whilst Nizhnekamskneftekhim increased production from 183,000 tons in the first ten months in 2018 to 224,200 tons. Gazprom neftekhim Salavat produced 152,100 tons versus 143,700 tons, whilst Uralorgsintez produced 72,800 tons versus 76,200 tons.

Russian Benzene Production (unit-kilo tons)		
Producer	Jan-Oct 19	Jan-Oct 18
Rosneft	114.6	123.0
Gazprom Neft	59.5	87.6
Lukoil	80.0	91.6
Magnitogorsk MK	43.8	46.4
Nizhnekamskneftekhim	224.2	183.0
Novolipetsk MK	5.7	7.2
Gazprom n Salavat	152.1	143.7
Kirishinefteorgsintez	60.3	55.7
Slavneft	50.0	60.5
Severstal	33.4	30.5
Bashneft	62.3	78.8
Ural Steel	9.1	7.4
Uralorgsintez	72.8	76.2
Zapsib	59.4	60.2
SIBUR	67.2	63.4
Total	1094.5	1115.2

Kuibyshevazot continues to import product to supplement purchases from domestic producers and continues to import from Karpatneftekhim in Ukraine. Omsk Kaucuk is starting to import benzene from Kazakhstan in order to support the production of phenol which restarted in November. In 2020, Omsk Kaucuk expects to import benzene from Kazakhstan to cover shortages in the domestic market caused by outages. In particular, a long overhaul is planned in 2020 for the aromatics production at the Kirishi oil refinery, which is owned by Surgutneftegaz and which will affect the market balance.

### Russian PTA imports, Jan-Oct 2019

Russian PTA imports totalled 309,400 tons in the first ten months in 2019 against 207,500 tons in the same period in 2018. China supplied 219,700 tons in January to October 2019 against 120,700 tons in the same period in 2018, whilst South Korea reduced shipments from 64,500 tons to 58,100 tons. Thailand reduced exports to 3,000 tons from 15,000 tons.

Import costs for PTA into the Russian market increased to \$259.6 million in the first ten months in 2019 against \$169.0 million in the same period in 2018. Russian

Alko Naphtha purchased 66.62% of imports in the first ten months this year from China at a cost of \$113 million. South Korea provided 23.5% at a cost of \$40.2 million and Belgium 9.7% at a cost of \$16.7 million. Senezh purchased 13.7% of Russian PTA imports in the first ten months in 2019 at a total cost of \$35.7 million.

### Aromatics

### Russian benzene production, Jan-Oct 2019

Novolipetsk Metallurgical Plant reduced production, based on coke, from 7,200 tons to 5,700 tons due to an extended stoppage. SIBUR-Kstovo is the sole SIBUR plant where benzene is produced, increasing to 67,200 tons in the first ten months this year against 63,400 tons in the same period in 2018.

### Russian benzene market, Jan-Oct 2019

Sales of benzene on the Russian domestic market dropped in the first ten months in 2019 to 630,600 tons from 642,600 tons in the same period last year, the fall due partly to lower caprolactam production. Producers reducing deliveries included Stavrolen, falling from to 29,700 tons from 46,500 tons, whilst Gazprom Neft reduced from 75,900 tons to 60,600 tons and Angarsk Polymer Plant reduced from 37,300 tons to 37,900 tons.

As Russia's largest merchant consumer of benzene

Russian Benzene Domestic Purchases (unit-kilo tons)		
Consumer	Jan-Oct 19	Jan-Oct 18
Kuibyshevazot	118.5	155.2
Azot Kemerovo	107.4	107.7
Shchekinoazot	60.1	61.8
Kazanorgsintez	59.3	52.4
Nizhnekamskneftekhim	3.8	29.8
Uralorgsintez	56.1	64.4
Omsk Kaucuk	13.9	14.2
Chelyabinsk MK	0.0	2.3
Samaraorgsintez	45.7	37.6
West Siberian MK	55.2	48.7
SIBUR-Khimprom	79.4	81.4
Promsintez	3.9	6.6
Zavod im Ya M Sverdlova	0.8	8.5
Novolipetsk MK	0.6	1.0
Tyumaz Carbon	2.5	0.3
Ufaorgsintez	22.7	5.9
Others	0.7	24.0
Total	630.6	642.6

In line with lower caprolactam production, Kuibyshevazot reduced total purchases of benzene in the first ten months in 2019 to 118,100 tons from 155,200 tons in the same period in 2018. Other Russian caprolactam producers also reduced benzene shipments, whilst for other important developments included Nizhnekamskneftekhim which was idle on the market mostly due its own increased production. The largest rise in purchases came from SIBUR-Khimprom at Perm increased purchases from 81,400 tons to 79,400 tons.

#### Russian caprolactam, Jan-Oct 2019

Russian caprolactam production totalled 317,200 tons in the first ten months in 2019 against 330,500 tons in the same period in 2018. Kuibyshevazot reduced caprolactam production from 178,300 tons in January to October 2018 to 172,900 tons in January to October 2019, whilst a fall was also recorded for Azot at Kemerovo. Of the three producers Azot at Kemerovo exports nearly all of its caprolactam, Shchekinoazot around 84% and

Russian Caprolactam Production (unit-kilo tons)		
Producer	Jan-Oct 19	Jan-Oct 18
Kuibyshevazot	172.9	178.3
Shchekinoazot	50.6	45.8
SDS Azot	93.7	106.4
Total	317.2	330.5

Kuibyshevazot the smallest at less than 17%. Kuibyshevazot processes caprolactam into polyamide where production is rising and thus exports may fall further in 2020.

#### Russian phenol, Jan-Oct 2019

Russian phenol production increased in the first ten months in 2019 at all three operational plants. Ufaorgsintez recorded the largest rise in production, rising from 50,200 tons in the first ten months last year to 63,700 tons. Production for all three plants totalled 185,200 tons in the first ten months in 2019 against 162,900 tons in the same period last year.

Russian Phenol Production (unit-kilo tons)		
Producer	Jan-Oct 19	Jan-Oct 18
Ufaorgsintez	63.7	50.2
Kazanorgsintez	58.6	57.7
Novokuibyshevsk Petrochemical	62.9	55.0
Total	185.2	162.9

although this was compensated by domestic shipments from the Novokuibyshevsk Petrochemical Plant and Ufaorgsintez.

Russian Market Phenol Sales by Supplier (unit-kilo tons)		
Producer	Jan-Oct 19	Jan-Oct 18
Novokuibyshevsk Petrochemical	47.8	40.6
Kazanorgsintez	3.1	4.8
Ufaorgsintez	56.2	42.6
Borealis	1.3	7.0
Total	108.4	96.7

Phenol sales on the Russian merchant market totalled 108,400 tons in the first ten months in 2019 against 96,700 tons in the same period in 2018. Kazanorgsintez reduced merchant sales in 2019 order to increase production of bisphenol A, according to railway statistics, for the whole of November Omsk Kaucuk delivered 100 tons of acetone and 52 tons of phenol to its customers. In early December, 399 tons of phenol were shipped.

GC Titan began the sale of phenol and acetone from Omsk in the domestic market in November. The first shipments of phenol were made to a consumer called Khimsintez (44 tons). According to railway statistics, for the whole of November Omsk Kaucuk delivered 100 tons of acetone and 52 tons of phenol to its customers. In early December, 399 tons of phenol were shipped.

The capacities of the modernised facilities at Omsk include 90,000 tpa of phenol and 56,000 tpa of acetone. Production is being gradually ramped up with a view towards exports of both phenol and acetone, whilst it's not clear yet if cumene will be available. For contact details regarding shipments out of Omsk Kaucuk please write to support@cirec.net.

## Synthetic Rubber

Russian Rubber Market (inc Synthetic & Natural) (unit-kilo tons)		
	Jan-Oct 19	Jan-Oct 18
Production	1,257.0	1,363.0
Exports	834.0	840.0
Imports	188.7	177.4
Supply/Demand Balance	611.7	700.4

industry.

Synthetic rubber production in Russia fell 6-7% in the first ten months in 2019, dropping from 1.363 million tons to 1.257 million tons. Exports of synthetic rubber totalled 834,000 tons in the first ten months in 2019 against 840,000 tons in the same period in 2018. Although producers looked towards exports as means of

Russian Tyre Production (unit-kilo tons)		
Product	Jan-Oct 19	Jan Oct 18
Car Tyres	292.5	307.9
Lorry tyres	42.6	51.5
Agricultural tyres	9.6	10.4
Total	344.8	369.8

agricultural recorded falls in output volume in the first ten months in 2019. At the same time non-tyre sectors of consumption are rising, although not sufficiently to compensate for the decline in demand from the most important sector tyres.

Russian Synthetic Rubber Exports (unit-kilo tons)		
Product	Jan-Oct 19	Jan-Oct 18
E-SBR	34.2	24.6
Block	32.1	25.6
SSBR	11.0	7.7
SBR	60.2	75.3
Polybutadiene	198.3	199.2
Butyl Rubber	109.6	106.9
Halogenated Butyl Rubber	116.3	111.6
Nitrile Butadiene Rubber	29.4	26.5
Isoprene	223.5	232.6
Others	19.2	30.0
Total	834.0	840.0

2019 and for halogenated butyl rubber at \$2333

### SIBUR-Reliance halogenated rubber project

SIBUR and Reliance Industries expect to complete the construction of halogenated butyl rubber production at Jamnagar in India by the end of 2019. Commercial grade butyl rubber is already being produced at the Jamnagar complex and HBR is scheduled for 2020. There will first be only butyl rubber production (120,000 tpa) and then we will make a nozzle of halobutyl rubber (60,000 tpa) on it, which will reduce the capacity for the production of butyl rubber by an appropriate amount.

supplemented by imports of both synthetic and natural rubber. Almost all of the plants operating in Russia were built during the Soviet era although have been modernised and expanded in the past two decades.

### Russian rubber market Jan-Oct 2019

The consumption of synthetic and natural rubber in the Russian domestic market declined in 2019, dropping from around 611,700 tons in the first ten months against 700,400 tons in the same period in 2018. The slowdown in the Russian rubber market last year is primarily attributed to the fall in Russian tyre production and the wider global automotive

compensating for lower domestic demand possibilities have been restricted by weaknesses in the automotive industry in the main markets of China, USA, and the EU economic area.

Tyre production in Russia dropped in the first ten months from 369,800 tons in January to October 2018 to 344,300 tons. All sectors of tyre manufacture, including car, lorry and

### Russian synthetic rubber exports, Jan-Oct 2019

Export volumes for Russian synthetic rubber in the first ten months in 2019 totalled 834,000 tons against 840,000 tons in the same period in 2018. Average product prices for synthetic rubber dropped in the first ten months from \$1698 per ton to \$1605 per ton. By product category, isoprene rubber exports totalled 158,800 tons in January to October 2019 against 170,400 tons. Isoprene rubber prices fell to \$1366 per ton in the first ten months in 2019 from \$1441 in January to October 2018.

Export sales of butyl rubber from Russia rose slightly from 106,900 tons to 109,600 tons in January to October 2019, whilst exports of halogenated butyl rubber (HBR) rose to 116,300 tons against 111,600 tons. Export prices of butyl rubber averaged \$1474 per ton in January to October 2019 and for halogenated butyl rubber at \$2333

Regarding export destinations, China was the largest recipient of Russian rubber shipments in the first ten months in 2019, accounting for 10.2%, followed by Poland with 10.1% and India with 9.9%. Other leading markets included India, Hungary, Poland, and Mexico.

Nizhnekamskneftekhim exports about 80% of its rubber production, SIBUR Holding exports up to 57%, and TAU Neftekhim at Sterlitamak ships around 63% for export. Russia produces around 1.4 million tpa of various types of synthetic rubber, and only 0.4 million tons are consumed domestic producers which are

SIBUR Togliatti Rubber Exports (unit-kilo tons)		
Product	Jan-Oct 19	Jan-Oct 18
Isoprene Rubber	27.9	18.0
Butyl Rubber	53.9	46.7
SBR	37.7	33.8
Others	0.5	0.0
Total	120.1	98.4

related products. The purchase of a 100% stake in two plants will reduce the purchase price of raw materials. The infrastructure of the Togliatti industrial park was transferred to the company's management, on the territory of which a number of chemical and other technology companies operate. After the acquisition, Tatneft intends to integrate the acquired assets into its production processes and product supply chains and to continue the development of production within the framework of the implementation of the petrochemical strategy.

#### Tatneft-Q3 2019

Tatneft increased revenue from the sale of petrochemical products by 11.3% in the third quarter of 2019. Over nine months, the figure increased by 4.1%, it follows from the financial statements of the company. For nine months, the group's enterprises produced 7.4 million tyres, which is 31.5% lower than in the same period in 2018. The fall was mainly due to a decrease in tyre product sales volumes due to a temporary suspension of production due to interruptions in the supply of raw materials from the outside. In the third quarter, by contrast, output was up 24% to 3.1 million tyres.

Nizhnekamskneftekhim Rubber Exports (unit-kilo tons)		
Product	Jan-Oct 19	Jan-Oct 18
Isoprene Rubber	166.5	177.1
Butyl Rubber	56.6	60.9
HBR	116.4	112.6
Polybutadiene	143.6	142.5
Total	483.1	493.1

#### Tatneft-SIBUR Togliatti renamed to former name Togliattikaucuk

Tatneft paid 10.8 billion roubles for the SIBUR petrochemical complex in Togliatti, which is being returned to its former name Togliattikaucuk. Tatneft acquired a petrochemical complex for the production of various types of synthetic rubber used in the

manufacture of tyres, as well as butadiene and other

SIBUR Togliatti was the only SIBUR site where isoprene monomer is produced as raw materials for isoprene and butyl rubber, used in the tyre and rubber industry. In 2018, the company produced a total of 182,500 tons of rubber. In the first ten months in 2019 SIBUR-Togliatti exported 53,900 tons of butyl rubber against 46,700 tons in the same period in 2018, whilst isoprene rubber exports rose from 18,900 tons to 27,900 tons.

#### Nizhnekamskneftekhim rubber exports, Jan-Oct 2019

In the first ten months in 2019 Nizhnekamskneftekhim exported 166,500 tons of isoprene rubber against 177,100 tons in the same period in 2018. Polybutadiene exports amounted to 143,600 tons versus 142,500 tons, whilst halogenated butyl rubber exports rose slightly from 112,600 tons to 116,400 tons. In total Nizhnekamskneftekhim exported 483,100 tons in the first ten months against 493,100 tons in the same period in 2018. Nizhnekamskneftekhim underwent a maintenance shutdown at the isoprene-monomer plant between 4 to 15 December. Repairs were made on the second reactor unit at the isoprene-monomer plant.

### Methanol & related products

Russian Methanol Production (unit-kilo tons)		
Producer	Jan-Oct 19	Jan-Oct 18
Shchekinoazot	796.9	451.0
Sibmetakhim	714.6	705.2
Metafrax	891.5	964.5
Akron	87.8	89.2
Azot, Novomoskovsk	210.5	244.1
Angarsk Petrochemical	37.2	3.3
Azot, Nevinnomyssk	106.6	96.8
Tomet	669.3	714.4
Ammoni	134.3	182.0
Totals	3648.6	3450.6

#### Russian methanol production, Jan-Oct 2019

Methanol production in Russia totalled 3.649 million tons in the first ten months in 2019 against 3.451 million tons in same period in 2018. The largest proportional rise was recorded by Angarsk Petrochemical Company which increased production from 3,300 tons to 37,200 tons. The largest volume rise was recorded by Shchekinoazot which increased production from 451,000 tons to 796,900 tons, whilst Tomet at Togliatti reduced production from 714,400 tons to 669,300 tons.

Metafrax at Gubakha reduced production to 891,500 tons in the first ten months in 2019 against 964,500 tons last year, due to downtime, whilst Sibmetakhim at Tomsk increased production from 705,200 tons to 714,600 tons. Metafrax is seen as the most market developed of the Russian methanol producers, in terms of undertaking export activity in addition to internal processing.



Formalin and urea-formaldehyde concentrate are major products for the company, which is currently undergoing a major brand change.

Ammoni at Mendelevsk, which is in the process of being sold, reduced methanol production from 182,000 tons in January to October 2018 to 134,300 tons in the same period in 2019. In early December, the company Shchekinoazot stopped part of its methanol production capacity for unscheduled repairs. In November, the company experienced problems at one of the methanol production units as a result of which the unit's operation was stopped, and plant utilization was reduced.

<b>Russian Methanol Exports (unit-kilo tons)</b>		
<b>Producer</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
Azot Nevinnomyssk	0.0	2.5
Azot Novomoskovsk	70.1	127.8
Akron	6.8	11.9
Metafrax	368.6	401.9
Sibmetakhim	358.6	366.9
Tomet	315.3	216.9
Shchekinoazot	611.9	317.1
Ammoni	13.5	1.6
<b>Total</b>	<b>1744.7</b>	<b>1446.8</b>

#### **Russian methanol exports, Jan-Oct 2019**

Russian methanol exports totalled 1.745 million tons in the first ten months in 2019 against 1.447 million tons in the same period in 2018. Shchekinoazot recorded the largest rise in export activity in the first ten months in 2019, shipping 611,900 tons against 317,100 tons in the same period in 2018. Azot at Novomoskovsk reduced exports from 127,800 tons to 70,100 tons in the same period in 2018. Metafrax exported 358,600 tons in the first ten months in 2019 versus 366,900 tons in January to October 2018.

#### **Russian methanol domestic sales, Jan-Oct 2019**

Sales of methanol on the Russian domestic merchant market dropped in the first ten months in 2019, with domestic sales totalling 1.234 million tons versus 1.296 million tons in the same period in 2018. Ammoni at Mendelevsk reduced domestic sales from 122,400 tons to 85,300 tons in line with lower production, whilst Azot at Novomoskovsk increased from 110,700 tons to 128,000 tons. Tomet at Togliatti dropped from 339,500 tons to 444,200 tons. Metafrax reduced shipments from 244,100 tons to 199,300 tons.

<b>Russian Methanol Domestic Sales (unit-kilo tons)</b>		
<b>Producer</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
Azot Nevinnomyssk	28.0	17.0
Azot Novomoskovsk	128.0	110.7
Metafrax	199.3	244.1
Sibmetakhim	310.2	300.0
Tomet	339.5	444.2
Shchekinoazot	143.6	53.9
Ammoni (Mendelevsk)	85.3	122.4
Others	0.0	3.5
<b>Total</b>	<b>1233.8</b>	<b>1295.8</b>

102,700 tons to 130,400 tons, whilst Uralorgsintez increased inward shipments from 65,600 tons to 57,500 tons. In the resin sector the largest buyer of methanol in the first ten months was Kronospan which purchased 90,942 tons followed by Metadynea taking 66,174 tons and Uralkhimplast taking 32,200 tons.

<b>Russian Methanol Exports by Destination (unit-kilo tons)</b>		
<b>Country</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
Finland	754.8	718.0
Poland	309.8	249.1
Slovakia	132.6	97.8
Romania	84.5	72.9
Belarus	54.0	77.8
Lithuania	91.4	70.3
Turkey	30.3	13.0
Netherlands	170.8	50.1
Others	116.1	137.5
<b>Total</b>	<b>1744</b>	<b>1486</b>

#### **Russian methanol export destinations Jan-Oct 2019**

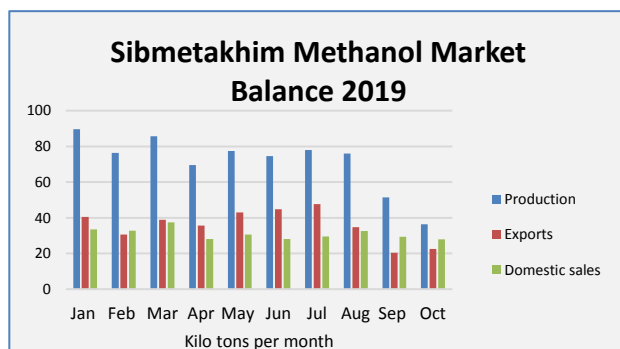
Exports of methanol from Russia to Finland amounted to 754,800 tons in the first ten months in 2019 against 718,000 tons in the same period in 2018. Finland is the main destination for Russian methanol exports, before further distribution, and consequently Finland's infrastructure for transshipping petrochemicals is important for considering future methanol projects in Russia. Nearly 50% of the external deliveries of Russian methanol are carried out through terminals in Finland.

Poland represents the second largest destination, rising to 309,800 tons in the first ten months in 2019 against 249,100 tons in the same period in 2018. Most of the methanol shipped to Poland is delivered through the Vilaris terminal on the Belarussian border. The Vilaris terminal has the capacity to ship between 25-27,000 tons per month. Vilaris loads methanol from Russian railway tanks for 1,520 mm gauge into European cars for 1,435 mm

gauge by direct overflow using six pumps. Other important markets in Central Europe include Slovakia, where shipments rose from 97,800 tons in 2018 to 132,600 tons and Romania, jumping from 72,900 tons to 84,500 tons.

### Sibmetakhim methanol expansion to 1 million tpa

Sibmetakhim is striving to increase methanol capacity to produce 1 million tpa of methanol following the modernisation programme implemented by the owning group Vostokgazprom. The plant is being expanded from 750,000 tpa where current natural gas consumption is estimated at around 1.0 billion cubic metres per annum. Gas is supplied by Tomskgazprom allowing Sibmetakhim to produce methanol, formalin, urea-formaldehyde concentrate. Following the renewal of production capacities in 2018, Sibmetakhim produced 15,480 tons of formalin and 60,800 tons of urea-formaldehyde concentrate.



### Nakhodka methanol contractor selected

The general designer of methanol capacity at the Nakhodka Mineral Fertilisers Plant (NZMU) has eventually been decided as Chinese company GIAP. In November 2019, an EPC project contractor for China Chengda Engineering concluded an agreement with Russian companies. Under the agreement, GIAP will adapt the basic project, develop design and detailed documentation, and will also provide engineering services during the construction and launch of the production.



The start of construction on the project, comprising a methanol plant with a capacity of 5,400 tons per day, was scheduled for December 2019 or early 2020. The complex is expected to be commissioned in 2023. In September 2019, the State Development Bank of China and Russian bank VEB agreed on a strategic partnership in financing the construction of a natural gas processing plant at Nakhodka. Natural gas for production will

be supplied from fields in Sakhalin, whilst Haldor Topsoe has been selected as licensor for methanol production. In September 2015, NZMU entered into a 20-year contract for the supply of 3.15 billion cubic metres of gas with Gazprom Mezhregiongaz. In 2019, NZMU became a resident of the special petrochemical cluster in the Primorsky region.

### Shchekinoazot-methanol M500 project update

Shchekinoazot has begun the active phase of construction work on the site of its third new methanol M-500 plant. The general contractor for the construction from Volgograd has already completed work on soil replacement at the site, whilst 100% of equipment contracts have been signed and 40% of the equipment has been delivered to the construction site. The launch of the third phase of methanol production is planned in 2022, which will increase capacity at Shchekinoazot to 1.4 million tpa. Regarding investments into logistics, Shchekinoazot is expanding will double the length of intra-plant railway communications to help transshipment following the launch of the M-500 methanol plant and other projects.

## Organic chemicals

### Russian butanol production, Jan-Oct 2019

Russian normal butanol production amounted to 118,500 tons in the first ten months in 2019, versus 125,500 tons in the same period in 2018 whilst isobutanol production rose from 84,600 tons to 86,300 tons. SIBUR-Khimprom at Perm increased the production of isobutanol from 44,200 tons in January to October 2018 to 45,300 tons in 2019 whilst Gazprom neftekhim Salavat reduced production from 31,900 tons to 27,600 tons, primarily to meet demand from the acrylates' division.

Russian N-Butanol Production (unit-kilo tons)		
Producer	Jan-Oct 19	Jan-Oct 18
Angarsk Petrochemical	21.9	24.5
Azot, Nevinnomyssk	13.6	13.1
Gazprom n Salavat	49.4	53.6
SIBUR-Khimprom	33.6	34.3
Total	118.5	125.5
Russian Isobutanols Production (unit-kilo tons)		
Producer	Jan-Oct 19	Jan-Oct 18
Angarsk Petrochemical	13.4	13.0
Gazprom n Salavat	27.6	31.9
SIBUR-Khimprom	45.3	44.2
Total	86.3	84.6

Russian Butanol Domestic Sales (unit-kilo tons)		
Producer	Jan-Oct 19	Jan-Oct 18
Gazprom n Salavat	4.3	7.8
SIBUR-Khimprom	21.4	23.0
Angarsk Polymer Plant	12.4	14.6
Azot Nevinnomyssk	1.4	2.3
Others	0.0	0.0
Totals	39.6	46.5

**2019**

Russian production of phthalic anhydride amounted to 81,400 tons in the period January to October 2019 against 79,100 tons in the same period in 2018. Kamteks-Khimprom produced 68,900 tons against 70,900 tons whilst Gazprom neftekhim Salavat reduced production from 10,500 tons to 10,200 tons. The Russian market for phthalic anhydride is undergoing changes regarding both import competition and future consumption patterns, which should affect Kamteks-Khimprom directly. Domestic consumption of phthalic anhydride started to fall in 2019 following the launch of the new SIBUR DOTP plant, which is phthalate based rather than phthalic.

Both Russian phthalic anhydride producers have been affected by the start-up of the DOTP plant at Perm which is based on PTA. Around 65% of phthalic anhydride consumption in Russia stems from plasticizers and up to 30% is used in the paint and varnish industry. The paint and varnish industry in recent years has been developing due to water-soluble materials. At the same time, the alkyd paint and varnish segment are

SIBUR-Khimprom's DOTP Exports (unit-kilo tons)			
Importer	Oct 19	Sep 19	Jan-Oct 19
Moldova	0	2	68.3
Poland	0	241	654.3
Serbia	44	—	204.1
Uzbekistan	152	375	1,790.9
Ukraine	262	130	966.2
Netherlands	1,610	2,479	10,308.1
Czech Republic	44	136	154.8
Lithuania	65	44	109.4
Other	20	175	194.4
Total	2,197	3,583	14,450.5

months this year to 51,300 tons from 65,400 tons in the same period in 2018. Normal butanol export

**Russian butanol sales, Jan-Oct 2019**

Russian sales of butanols on the domestic merchant market amounted to 39,600 tons in the first ten months in 2019 against 46,500 tons in the same period in 2018. The share of n-butanol in the total supply was 86%, and isobutanol 14%.

Gazprom neftekhim Salavat sells very little on the domestic market these days due to internal demand, leaving SIBUR-Khimprom as the largest supplier shipping 21,400 tons in the first ten months in 2019. As sales from Salavat have fallen so have deliveries increased from Angarsk which previously would have gone all to the Chinese market.

Akrilat at Dzerzhinsk remained the largest consumer of butanols on the domestic market, taking 12,000 versus 12,500 tons in January to August 2018, whilst Dmitrievsky Chemical increased inward shipments from 9,400 tons to 11,300 tons. Akrilat purchases most of its butanols from SIBUR-Khimprom, whilst Dmitrievsky Chemical Plant buys largely from Angarsk and Salavat. The problem facing consumers for 2019 and 2020 may possibly be one of supply on the domestic market as domestic producers focus more on captive consumption and internal processing.

**Russian phthalic anhydride production Jan-Oct****Russian DOTP exports**

Having started production of dioctyl terephthalate (DOTP) in April 2019 at Perm, SIBUR-Khimprom exported 14,451 tons up until October last year of which the largest volume went to the Netherlands (10,308 tons). The second largest destination was Uzbekistan which took 1,791 tons.

**Russian organic chemical trade, Jan-Oct 2019**

shipments dropped from 36,800 tons to 20,800 tons and isobutanol shipments rose from 28,600 tons to 31,500 tons. 2-EH exports dropped from 21,300 tons to 4,800 tons due mostly to the increase in domestic demand from SIBUR-Khimprom's new DOTP plant at Perm. Exports of 2-EH have almost ceased in the past few months. Propylene exports from Russia rose from 59,400 tons to 68,200 tons.

<b>Russian Organic Chemical Exports (unit-kilo tons)</b>		
<b>Product</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
Propylene	55.2	92.0
Orthoxylene	62.7	91.3
Paraxylene	147.4	108.7
Styrene	92.5	88.1
Methanol	1743.2	1423.5
N-Butanol	20.8	36.8
Iso-butanol	31.5	28.6
2-EH	4.8	21.3
Pentaerythritol	10.3	9.4
Phenol	17.4	14.0
Ethylene Oxide	12.2	11.2
Formaldehyde	13.1	16.0
DEG	9.1	11.4
MEG	40.5	27.7
Acetone	37.7	20.5
Acetic Acid	41.3	26.2
VAM	26.1	26.0
Butyl Acetate	24.5	18.8
Acrylic Acid	13.2	17.4
Butyl Acrylate	58.3	57.0
Phthalic Anhydride	54.2	56.5
Acrylonitrile	140.8	159.7
Melamine	16.5	9.6
Caprolactam	192.9	197.1

Methanol comprises by far the largest volume of organic chemicals exported from Russia, totalling 1.743 million tons in the period January to October 2019 against 1.424 million tons in 2018.

By far the largest organic chemical to be imported into Russia in 2019, at least in terms of volume, is PTA where inward shipments rose from 207,500 tons to 309,400 tons. However, this trend is starting to slow down in the fourth quarter this year as the expanded Polief plant increases utilisation rates.

Other imports in the organic chemical sector cover a range of products such as ethylene and propylene glycol, isopropanol and methionine. Lysine imports into Russia have declined this year, from 77,900 tons in January to October 2018 to 47,500 tons whilst TDI imports rose from 40,100 tons to 43,700 tons and methionine from 23,000 tons to 30,900 tons. In the changing plasticizer market DOP imports dropped from 6,700 tons to 2,200 tons whilst DINP imports rose from 20,800 tons to 25,100 tons.

#### **Titan-TechnipFMC agreement on organic chemicals**

Titan and Technip FMC signed a memorandum of understanding in December for the development of production of organic synthesis products at the Omsk Kaucuk. The memorandum does not

<b>Russian TDI Imports (unit-kilo tons)</b>		
<b>Country</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
Hungary	8.0	6.8
Germany	8.9	16.3
Italy	0.0	0.1
China	2.6	0.3
South Korea	3.3	1.8
Lithuania	0.0	0.0
Saudi Arabia	7.7	7.2
UK	0.0	0.1
US	9.0	4.6
Turkey	0.2	0.0
Japan	1.3	1.7
Belgium	1.0	0.7
Netherlands	1.2	0.1
France	0.5	0.2
Poland	0.0	0.1
Iran	0.0	0.1
Total	43.7	40.1

indicate exactly which areas of production the parties want to develop, but Titan has previously identified projects at Omsk Kaucuk for isopropanol, bisphenol A epichlorohydrin and epoxy resins. These projects are aimed for the period 2023-2024.

#### **Other products**

#### **Volzhskiy Orgsintez-carbamate reconstruction**

Volzhsky Orgsintez is investing 1.2 billion roubles into the reconstruction of a new carbamate plant, using advanced technologies supplied by the German company EPC Engineering & Technologies GmbH. The total investment in the project amounted to about 1.2 billion roubles. Obsolete equipment was replaced with a modern industrial line, increasing capacity from 5,000 tpa to 15,000 tpa. Carbamate is imported to support domestic production in mining and processing plants and as a reagent for the extraction of non-ferrous metals from depleted ores.

#### **Kazan Synthetic Rubber Plant-new owners**

Kazan Synthetic Rubber Plant (KZSK), having been declared bankrupt in mid-2019, is being revived under new owners Industrial Technologies which could facilitate completion of the methyl



chlorosilane project at Kazan. The first batch of products from KZSK under the state defence order was planned to be completed before the end of November.

In July, the Tatarstan Arbitration Court declared KZSK bankrupt and opened bankruptcy proceedings against its property. The company's debts to creditors exceeded 5 billion roubles. In September, it became known that the republic's government, the Ministry of Industry and Trade and VEB had found a partner for the enterprise, the Industrial Technologies holding, with the participation of which there were options to resume production at the plant.

<b>Russian Imports of MDI (unit-kilo tons)</b>		
<b>Country</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
Hungary	6.4	3.7
Germany	13.4	11.5
China	25.7	18.5
South Korea	2.0	1.6
Saudi Arabia	33.2	30.5
Japan	1.8	1.9
Belgium	12.9	12.8
Netherlands	28.9	30.0
Others	1.9	1.9
<b>Total</b>	<b>126.2</b>	<b>112.3</b>

KZSK is the only producer of polysulphide oligomers in the country, as well as producing special brands of rubbers for the needs of the state defence order. The holding Industrial Technologies includes 19 enterprises, including OKB Aerospace Systems, which produces on-board power supply systems for the Sukhoi SuperJet-100 and MS-21. Total revenue exceeds 7 billion roubles per annum.

Kazan Synthetic Rubber Plant may now resume construction of the KZSK-Silicon plant at Kazan, which was prevented from completion by a circle of debts and corruption. Industrial Technologies Holding (a consumer of products of KZSK) reached agreement on 20 September with one of the holding's companies, providing for the restoration of the activities of KZSK. This may lead to attracting the necessary resources for completing the 50,000 tpa plant. Russian imports of methyl chlorosilanes, which are used in the defence

industry, amount to around 40,000 tpa.

## Ukraine

### Ukrainian polymer imports, Jan-Oct 2019

Imports of PVC into Ukraine decreased by 28% in the first ten months of 2019 to 41,300 tons against 57,100 tons. The key suppliers of PVC to the Ukrainian market comprised producers from Europe, accounting for 65% of total imports. The growth in demand for Ukrainian PVC from the domestic market helped impact on exports from Karpatneftekhim, dropping from 139,900 tons to 136,400 tons. The key importers of Ukrainian PVC comprised buyers from India and Turkey, their share in total exports was 58% and 20%.

<b>Ukrainian Polymer Imports (unit-kilo tons)</b>		
<b>Product</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
PVC	41.3	57.1
LDPE	66.2	63.0
LLDPE	68.0	61.7
HDPE	79.4	63.0
EVA	10.5	12.9
PP	112.3	111.2

HDPE imports reached 79,400 tons in January to October against 63,000 tons whilst LDPE imports rose 6%

<b>Ukrainian Polypropylene Imports (unit-kilo tons)</b>		
<b>Category</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
Homo	85.5	84.3
Block	12.1	11.1
Random	13.2	13.9
Propylene copolymers	1.2	1.7
Other	0.3	0.2
<b>Total</b>	<b>112.3</b>	<b>111.2</b>

attributable to propylene homopolymers (PP-homo). Over the first ten months in 2019, the total supply of PP-homo amounted to 85,500 tons against 84,300 tons in the same period last year. Imports of propylene block copolymers amounted to 12,100 tons of PP-block were imported against 11,100 tons, whilst random copolymer imports dropped to 13,200 tons from 13,900 tons. Other propylene copolymer imports amounted to 2,100 tons versus 2,000 tons.

Imports of polyethylene into Ukraine increased to 224,200 tons in the first ten months of 2019, up 12% compared to the same period of 2018 when they totalled 200,200 tons. LLDPE imports into Ukraine increased to 68,000 tons compared with 61,700 tons. Imports of other PE grades, including ethylene-vinyl-acetate (EVA), totalled 10,500 tons, compared to 12,900 tons in 2018.

Imports of polypropylene on the Ukrainian market amounted to 112,300 tons in the first ten months in 2019 against 111,200 tons in January to October 2018. The increase in supplies was mainly

**Ukrainian polycarbonate & polystyrene imports**

Imports of polycarbonate to the Ukrainian market rose in the first ten months of 2019 by 13% to 3,300 tons against 2,900 tons in January-October 2018. Covestro and SABIC accounted for about 84% of the total imports were the key suppliers of resin to the Ukrainian market in the first ten months of 2019. Imports of Covestro's polycarbonate to the Ukrainian market increased over the ten months of 2019 by 48% 8 to 2,300 tons. SABIC's deliveries material fell in January-October 2019 by 37% from 690 tons to 440 tons. SABIC's polycarbonate accounted for 13% of the total imports to Ukraine versus 24% in 2018.

**Ukrainian PET imports, Jan-Oct 2019**

Import deliveries of PET to Ukraine amounted to 102,200 tons in January-October 2019, 2% down. PET imports from China to Ukraine decreased by 11% in the first ten months to 81,500 tons compared to 91,700 tons for the same period in 2018. The key suppliers of Chinese PET granulate to the Ukrainian market included producers Dragon, Wankai, and Yisheng Petrochemical.

Imports of expandable polystyrene (EPS) into Ukraine amounted to 30,100 tons in the first ten months of 2019, down from 30,500 tons. Russian EPS from SIBUR-Khimprom accounted for 49% (15,000 tons) of the total shipments in the first ten months of 2019, compared to 58% (17,800 tons) in 2018. Chinese EPS shipments accounted for 38% (11,300 tons) of total imports compared to 28% (8,700 tons) in January-October 2018.

Imports of Nizhnekamskneftekhim's high impact polystyrene (HIPS) and general-purpose polystyrene (GPPS) to Ukraine decreased in January-October 2019 by 25% to 10,400 tons against 13,900 tons. Nizhnekamskneftekhim's polystyrene accounted for 51% of imports to the Ukrainian market for the first ten months of 2019, compared to 67% in January-October 2018. In total imports of HIPS and GPPS amounted to 20,500 tons against 20,800 tons.

<b>Belarussian Petrochemical Production (unit-kilo tons)</b>		
<b>Product</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
Ethylene	70.9	60.2
Propylene	43.0	38.6
Benzene	82.4	96.6

**Belarus****Belarussian petrochemicals production Jan-Oct 2019**

Ethylene production totalled 70,900 tons in the first ten months in 2019 against 60,200 tons in the previous year, whilst propylene rose from 38,600 tons to 43,000 tons. Propylene production is supplemented by imports in order to support acrylonitrile production

by Polymir. Belarus imported 29,643 tons of propylene in the first ten months in 2019 against 29,200 tons in the same period in 2018. Propylene prices dropped from €983 per ton in 2018 to €875 per ton in January to October 2019.

The petrochemical producer Polimir is continuing with repair work on the cracker developing a new furnace supplied by Technip which is able to replace four old pyrolysis furnaces. Repair work at the facility began in July 2019, the dismantling of equipment continued for two months. The furnace required repair and replacement of physically worn out equipment.

**Grodno Azot, Jan-Oct 2019**

In the first ten months in 2019 Azot at Grodno increased methanol production to 68,900 tons from 67,200 tons in the same period in 2018, whilst caprolactam production dropped slightly from 101,000 tons to 96,500 tons.

<b>Azot Grodno Production (unit-kilo tons)</b>		
<b>Product</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
Methanol	68.9	67.4
Caprolactam	96.1	101.0
Polyamide primary	87.7	92.7
Polyamide filled	10.8	10.8
Ammonia	889.3	892.4
Urea	713.2	857.1
Fertilisers	682.1	643.1
Fibres	35.6	35.5

Around 80% of polyamide and caprolactam produced by Grodno Azot is exported. Regarding investment into other products, a new plant for nitric acid and liquid nitrogen fertilisers was launched at Grodno in May 2019. Thyssenkrupp Industrial Solutions acted as a contractor for the design, supply of equipment, field supervision and commissioning.

**Belarussian xylene and benzene trade, Jan-Oct 2019**

Belarussian benzene exports amounted to 3,956 tons in January to October 2019 against no activity in 2018. After a three-year break, the Novopolotsk refinery (resumed shipments in November of benzene to Russia, shipping 2,900 tons to Kuibyshevazot. Earlier in

2019 the Mozyr refinery delivered a spot delivery of 1,900 tons to Shchekinoazot Russia. Partly due to reduced domestic demand by Azot at Grodno benzene has become available for export.

About 2,000-3,000 tons of benzene were loaded in the Finnish port of Kotka between 25-30 November and delivered to Amsterdam-Rotterdam-Antwerp, whilst Naftan sold a batch of petroleum benzene at a trading platform for further transshipment in the port of Liepaja (Latvia). Despite a resumed surplus, imports of benzene into Belarus still held up at 3,047 tons in the first ten months against 3,033 tons in January to October 2019.

<b>Belarussian Xylene Imports (unit-kilo tons)</b>		
<b>Product</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
Orthoxylene	12.0	20.5
Paraxylene	12.8	9.1

Orthoxylene imports into Belarus dropped from 20,500 tons in the first ten months in 2019 against 12,000 tons in the same period in 2019, whilst paraxylene imports rose from 9,100 tons to 12,800 tons. Prices for paraxylene imports into Belarus increased in the first ten months this year to \$1010 per ton against \$958 per ton in the same period in 2018. Russia remains the sole supplier of orthoxylene and paraxylene into Belarus.

### **Belarussian organic chemical trade, Jan-Oct 2019**

Acrylonitrile exports from Belarus in the first ten months in 2019 were targeted mainly on Turkey and the Netherlands. Exports totalled 37,300 tons in the first ten months in 2019 against 37,700 tons in the same period in 2018. Methanol imports dropped from 79,900 tons to 46,900 tons whilst exports rose from dropped

<b>Belarussian Acrylonitrile Exports (unit-kilo tons)</b>		
<b>Product</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
Russia	1.8	2.2
Hungary	0.0	4.6
Iran	0.0	3.7
Netherlands	0.0	3.1
Turkey	10.2	2.1
UAE	23.1	22.1
Others	2.2	0.0
Total	0.0	0.0

from 19,100 tons to 23,800 tons. Methanol consumption dropped slightly in the first ten months from 128,300 tons to 92,000 tons.

### **Belarussian polymer trade, Jan-Oct 2019**

Imports of polyethylene into Belarus were unchanged for the first ten months at 117,000 tons whilst exports of polyethylene jumped from 81,000 tons to 105,000 tons. Polypropylene imports into Belarus totalled 93,553 tons for the first ten months in 2019 versus 85,718 tons in the same period in 2018. The main exporters to Belarus in January to October 2019

included Russia with 72,928 tons and Azerbaijan with 1,805 tons from the new SOCAR-Polymer plant. Homopolymer imports rose 8.3% in the first ten months in 2019 to 60,312 tons, whilst imports of propylene copolymers rose 15.6% to 29,648 tons.

<b>Belarussian MDI Imports (unit-kilo tons)</b>		
<b>Country</b>	<b>Jan-Oct 19</b>	<b>Jan-Oct 18</b>
Russia	1.7	2.0
Belgium	3.9	3.4
Hungary	0.7	1.8
Germany	6.7	4.5
China	1.7	1.8
Saudi Arabia	1.0	3.5
Others	0.6	0.9
Total	17.5	17.8

Belarussian exports of polyamide amounted to 50,925 tons in the first ten months in 2019 at a price of \$1,745 per ton against 59,325 tons in the same period last year at a price of \$2,113 per ton. Due to the fall in prices, total revenues dropped from \$125.375 million in January to October 2018 to \$88.188 million in 2019. Destination sales for Belarussian polyamide exports are focused largely on the CIS and European markets.

### **Belarussian MDI imports, Jan-Oct 2019**

MDI imports into Belarus totalled 17,350 tons in the first ten months in 2019 against 17,800 tons in the same period in 2018. Germany was the largest supplier, increasing

shipments in January to October 2018 from 4,500 tons at \$2669 per ton up to 7,585 tons at a much-reduced price of \$1593 per ton. Hungary reduced shipments into Belarus from 1,800 tons to 885 tons. Overall, MDI prices for Belarus dropped from \$2585 per ton in January to October 2018 to \$1610 per ton in the same period this year.

### **Belarussian PTA imports & PET trade, Jan-Oct 2019**

PTA imports into Belarus totalled 45,600 tons in the first ten months in 2019, versus 22,900 tons in the same period in 2018. Imports from South Korea increased to 9,800 tons in January to October 2019 from 5,324 tons in the same period in 2018, at a price of \$933 per ton in 2019 against \$769 per ton.

Belarussian PTA Imports (kilo tons)		
Country	Jan-Oct 19	Jan-Oct 18
Russia	0.0	1.2
Belgium	0.0	0.5
Turkey	1.0	1.0
China	0.0	0.0
South Korea	9.8	5.3
Portugal	5.0	2.0
Poland	29.5	12.7
Thailand	0.2	0.2
Total	45.6	22.9

Poland increased shipments of PTA to Belarus from 12,700 tons to 29,500 tons, with prices rising from \$873 per ton in January to October 2018 to \$839 per ton in the same period in 2019. The other main supplier in 2019 comprised Portugal which shipped 5,021 tons in the first ten months.

#### Belarussian amino acid project

The Belarusian National Technological Corporation (BNBK) aims to launch the first feed and amino acid plants near Rudensk in 2020-2021. BNBK, created by the authorities of Belarus, Chinese partners and former leaders of Kyrgyzstan, has been building a large complex for the production of animal feed and amino acids near Rudensk since 2018.

Amino acid project capacities-Belarus	
Product	Capacity (kilo tpa)
Lysine 98.5%	33,000
Lysine 65%	32,000
Tryptophan	1,300
Threonine	5,900

The project is estimated at over \$733 million and is funded by the Chinese soft loan, as well as its participants. BNBK's shareholders comprise the government of Belarus (25%), CITIC International Investments as a general contractor (20%), COFCO Corporation as a general designer (9%), as well as a number of emirate and Scottish companies. The amino acid part of the project exceeds the country's needs by about six times and is

primarily focused on export. To provide the Rudensk complex with raw materials, around 250,000 tpa of wheat will be needed which equates to 10-15% of the annual harvest.

### Central Asia/Caucasus

#### SOCAR Polymer-HDPE capacity-100% utilisation by 2023

Turkish company Tekfen has acquired 5% of shares in SOCAR Polymer. Tekfen Construction and Installation is engaged in construction activities including power generation, airports, petroleum, and roadways. SOCAR Polymer commissioned its polypropylene plant in Azerbaijan in 2018 with a capacity of 184,000 tpa. In February 2019, the company put a plant for the production of high-density polyethylene into operation with a capacity of 120,000 tpa. SOCAR Polymer's revenues from these plants are expected to reach \$6.6 billion, with net profit will being \$1.98 billion.

#### Uzbek GTL project

The GTL plant under construction at the Shurtan Gas-Chemical Complex in Uzbekistan had achieved around 60% of its project schedule by the end of 2019. Haldor Topsoe is the licensor of the synthesis gas technology. Under a contract with OLTIN YO'L GTL (a subsidiary of Uzbekneftegaz), HTAS will also supply equipment for two production lines, including autothermal reforming reactors, recovery boilers, steam drums, CTS burners, refractory materials and HTZR tiles. Total investment in the project is estimated at \$3.6 billion. The new complex includes capacities of 311,000 tpa of jet fuel, 743,000 tpa of fifth-class diesel fuel, 431,000 tpa of naphtha and 53,000 tpa of liquefied gas. The Shurtan Gas-Chemical Complex was put into operation in 2001 and can process up to 4 billion cubic metres of gas per annum and produce up to 3.5 billion cubic metres of methane. Polyethylene capacity stands currently at 125,000 tpa.

In 2019, SOCAR Polymer produced an estimated 48,200 tons of HDPE and 110,000 tons of polypropylene which could rise in 2020 to 97,400 tons and 140,000 tons respectively. By 2023, SOCAR Polymer expects to be able to reach its design targets and produce 120,000 tons of polyethylene and 170,000 tons of polypropylene.

#### Navoiyazot-Air Products CO<sub>2</sub> project

Air Products has agreed to create the production of pure carbon dioxide (CO<sub>2</sub>) at Navoiyazot in Uzbekistan. The new highly efficient production is designed to produce 120,000 tpa of pure carbon dioxide. The construction of a new facility is scheduled for 2020-2021; the preliminary project cost is \$15.4 million. Products will be used for domestic needs; some will be exported. Navoiyazot is currently in the process of completing a new methanol plant comprising 300,000 tpa in capacity. When fully loaded, the installation is

expected to produce around 290,000 tpa.

The main volume of methanol produced will be used for the production of urea-formaldehyde resins and formaldehyde. Any surplus could be exported to countries such as Kazakhstan, where it will compete with Russian producers.



Kazakh Polymer Imports (unit-kilo tons)		
Product	Jan-Oct 19	Jan-Oct 18
PVC	51.5	37.5
LDPE	15.7	13.7
LLDPE	8.3	7.2
HDPE	86.0	78.1
Polystyrene	7.6	0.0
EPS	6.2	8.3
PET	46.9	31.4

#### Kazakh polymer imports, Jan-Oct 2019

Imports of PVC into Kazakhstan rose in the first ten months of 2019 by 38% to 51,800 tons compared to 37,500 tons a year earlier. It is also worth adding that such a significant increase in imports this year was caused by the further resale of resin to Russia. Chinese producers accounted for around 94% of imports into Kazakhstan.

Imports of polyethylene into Kazakhstan increased to 130,500 tons in January-October 2019, up 3% from 107,100 tons. Overall HDPE imports exceeded 86,000 tons, down by 2%, and LDPE imports into Kazakhstan totalled 15,800 tons up by 29%. Purchasing of LLDPE by local companies was 8,300 tons in the first ten months of 2019, compared to 6,900 tons in the same period in 2018.

The supply of imported PET into Kazakhstan increased by 49% in the ten months of 2019 and amounted to 46,900 tons against 31,400 tons in January-October 2018. The key supplier of PET to Kazakhstan is China, with a 98% share in total imports.

Imports of expandable polystyrene (EPS) into Kazakhstan dropped in the first ten months of 2019 by 10% to 6,200 tons. The share of EPS imports from Russia in the total shipments to the country decreased significantly in the first ten months of 2019 to 67% from 92% a year earlier. At the same time, imports of Chinese material increased by four and a half times in January-October 2019: from 400 tons to 2,000 tons. The share of Chinese companies in the overall EPS imports to the country grew sharply in the first ten months of 2019 to 32% from 8%.

#### Mangistau methanol to olefins project

Construction of a plant for the production of methanol and olefins in the Mangistau region in western Kazakhstan, estimated in the range of \$1.8 billion, is reported to have been started towards the end of 2019. The project is being implemented by Singapore-based Westgasoil, involving capacity of 300,000 tpa for methanol and of 600,000 tpa for olefins. This project outline was first published in 2014, based on an agreement with Malaysian partners, but failed to progress.



#### Atyrau polypropylene project update

Construction work at Atyrau regarding the propane dehydrogenation, propylene polymerization and plant-wide facilities is expected to accelerate in 2020 in accordance with equipment deliveries using water transport. Dredging is underway on the Ural-Caspian shipping channel so that in May 2020 barges with large cargo for the construction site can pass. Chinese company CNCEC is responsible for the construction of the Integrated Gas Chemical Complex near Atyrau and is looking to supply around 5,000 tons of equipment to the site in 2020 using the Ural-Caspian shipping channel.

**Relevant Currencies**

Czech crown. Kc. \$1= 22.4. €1 = 25.4; Hungarian Forint. Ft. \$1 = 279.2 €1 = 322.2; Polish zloty. zł. \$1=3.70. €1 =4.28; Ukrainian hryvnia. \$1 = 31. 4€1 = 26.9; Rus rouble. \$1 = 66.3 €1= 76.6

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