Chemical Information Resources for East Europe and CIS

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MONTHLY NEWS

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

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Key points from this month issue

Central European petrochemical markets

- Petrochemical margins in Central Europe dropped in the fourth quarter for both the Orlen and MOL groups, following a weak third quarter
- Hyundai Engineering was instructed by Grupa Azoty to start the construction site of Polymer Police in January, based on the permit issued on 20 December 2019
- Unipetrol's delayed flagship Polyethylene 3 (PE3) plant is to start up in the first half of 2019
- Czech ethylene exports amounted to 70,300 tons in the first eleven months in 2019 against 67,400 tons in the same period in 2018

Russian chemical production overall and selected products

- Russia's output of chemical products increased by 3.6% in the first eleven months of 2019, with mineral fertilisers and polymers contributing the largest rise
- Russia produced 668,700 tons of styrene in the first eleven months in 2019 versus 667,400 tons in the same period in 2018
- Russian HDPE production amounted to 795,800 tons in the first eleven months in 2019, against 877,600 tons in the same period in 2018
- Russian normal butanol production totalled 133,300 tons in January to November 2019, against 141,000 tons in the same period in 2018

Russian chemical trade

- Russian companies increased their methanol shipments for export by 230,000 tons in the first eleven months in 2019 to 1.851 million tons. Shipments to foreign markets, in particular, were increased by Shchekinoazot.
- Russian exports of synthetic rubber amounted to 754,000 tons in the first eleven months in 2019 versus 759,000 tons in the same period in 2018
- PTA imports into Russia totalled 291,100 tons in the first eleven months in 2019 against 189,600 tons in the same period in 2018
- Russian TDI imports amounted to 37,900 tons in the first eleven months in 2019 against 35,200 tons in the same period last year

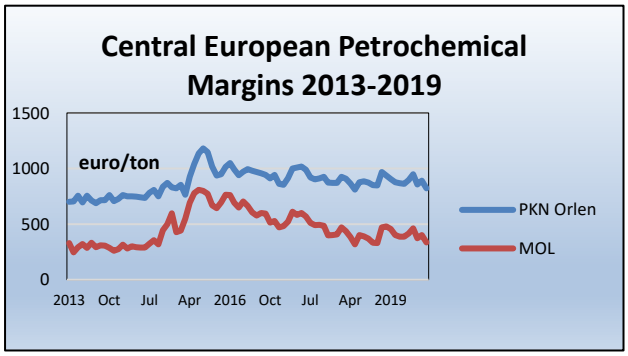
Russian & regional chemical projects

- Gazprom is preparing a project for the construction of a gas chemical complex on the Yamal Peninsula, comprising the production of polymers based on the Bovanenkovo cluster of deposits
- SIBUR is already considering the expansion of the ZapSibNeftekhim complex at Tobolsk in which the first phase was completed at the end of 2019
- Baltic Chemical Complex has selected Lummus technology for the cracker operations at Ust Luga, and Univation Technologies for the supply of polyethylene production technology

CENTRAL & SOUTH EAST EUROPE

Central European petrochemical margins

Petrochemical margins in Central Europe dropped in the fourth quarter for both the Orlen and MOL groups, following a weak third quarter, whilst refining margins experienced a substantial decline. The MOL Group's petrochemical margin for the fourth quarter dropped to €280 per ton against €370 per ton in the third quarter whilst the Orlen Group margin for petrochemicals fell from €906 to €859 per ton.



The MOL Group's refining margin overall amounted to $4.2 per barrel in the fourth quarter versus $5.7 in the third whilst Slovnaft's margin dropped to $5.6 from $6.7 per barrel. Orlen's refining margin for the fourth quarter dropped from $8.2 per barrel from $4.7.

Orlen Group projects, delayed Czech polyethylene plant to start mid-2020 and Axens

Unipetrol's delayed Polyethylene 3 (PE3) plant is set to start up in the first half of 2019, after construction has now entered the final phase. The PE facility is expected to have a capacity of 270,000 tpa. When announced in 2015, PE3 was given the target completion date of the first quarter of 2018 but has been delayed by largely technical matters.

Czech Polyethylene Trade (unit-kilo tons)							
Exports	***Q1 18***	***Q2 18***	***Q3 18***	**Q4 18**	**Q1 19**	***Q2 19***	***Q3 19***
LDPE	17.8	19.6	15.7	17.4	17.1	15.9	13.0
HDPE	67.5	64.3	59.9	50.7	58.2	57.6	48.8
EVA	0.4	0.4	0.3	0.2	0.2	0.3	0.5
Other	3.2	3.3	2.6	2.3	3.4	4.0	2.8
Total	88.9	87.7	78.4	70.5	79.0	77.8	65.1
Imports	***Q1 18***	***Q2 18***	***Q3 18***	**Q4 18**	**Q1 19**	***Q2 19***	***Q3 19***
LDPE	38.3	41.1	38.4	36.5	45.1	37.7	37.1
HDPE	32.4	32.7	29.9	28.8	31.9	29.1	28.6
EVA	2.5	2.9	2.3	2.9	2.2	2.2	2.3
Other	7.4	7.4	7.5	7.7	26.9	12.1	9.7
Total	80.6	84.1	78.0	75.9	106.1	81.0	77.7

Axens has signed an agreement with PKN Orlen for Vegan Technology License and Process Book Supply for the production of renewable diesel and jet fuel, through hydrotreating of vegetable oils in its Płock Refinery. Based on a flexibility to operate either on diesel mode or kerosene mode, the new unit would be capable of producing hydrotreated vegetable oils (HVO) for true drop-in high-quality biofuels for diesel or jet fuel. The scope of Axens' work includes the supply of process books, catalysts & adsorbents, proprietary equipment, training and technical services.

HIP Petrohemija-polyethylene exports drop in 2019

HIP Petrohemija reduced polyethylene exports from Pancevo to 80,400 tons in the first ten months in 2019 against 99,700 tons in the same period in 2018. Petrohemija plans to invest around €15.4 million in 2020 aimed at increasing naphtha processing capacity from the current 1,370 tons per day to 1,550 tons per day. The company was affected by tight margins in 2019 which meant that losses were recorded in the first ten months. The company generated a gross profit of €917 million in 2018 and no longer uses state subsidies. Previously privatisation was considered important for investment into other products such as polypropylene, but the outlook is much improved.

Serbian Chemical Exports (unit-kilo tons)		
Product	**Jan-Oct 19**	***Jan-Oct 19***
Polyethylene	80.4	99.7
Styrene Butadiene Rubber	11.9	16.0

Polymery Police-construction starts in January

Hyundai Engineering was instructed by Grupa Azoty to start the construction site of Polymery Police in January, based on the permit issued on 20 December 2019. The decision to issue the building permit applies to works in the area of the transhipment and storage terminal (gas terminal). At the start of January

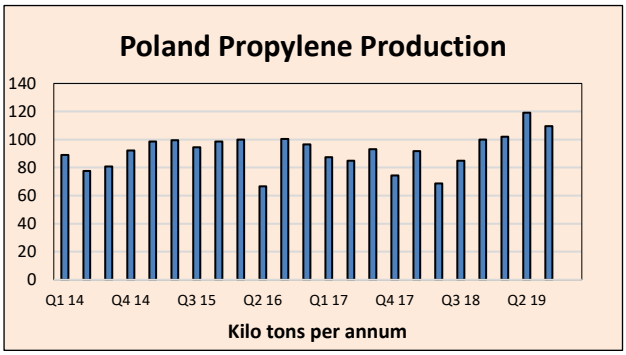
Hyundai Engineering has ordered the first compressors from Burckhardt Compression for Polymery Police. The compressors will be used for propane dehydrogenation in the production of propylene.

Polymery Police-Main Investment Goals

- Propane Dehydrogenation (PDH) Unit;
- Polypropylene (PP) Production Unit;
- Polypropylene (PP) Logistics Infrastructure;
- Handling and Storage Terminal (gas terminal)
- Auxiliary Systems

The integrated chemical complex Polimery Police will include installations for the production of propylene and polypropylene, a transhipment and storage terminal as well as logistics and infrastructure. The total estimated budget of the project is over €1.5 billion; thus it represents the largest investment to date in the Polish chemical industry. The construction is scheduled to be completed in 2022, and the first deliveries for commercial customers are planned in Q4 2022.

At the end of December Grupa Azoty submitted an application to the Polish Office of Competition and Consumer Protection for permission to establish a jv for the polypropylene project with the Lotos Group, Hyundai Engineering and Korea Overseas Infrastructure & Urban Development Corporation (KIND).



In turn, Grupa Azoty and its subsidiary Zakłady Chemiczne Police committed to invest a total amount of zl 1.4 billion in the project and funds obtained from the secondary public offering of Police shares by making cash contributions to cover the increased share capital of PDH. The parties agreed that Hyundai and KIND will be entitled to appoint jointly one member of the Supervisory Board of PDH, as long as they have a total of at least 5% of PDH shares.

MOL-recycling and polyolefin grades

The MOL Group completed acquisition of Aurora Group in January, strengthening its position in recycled and the sustainable plastics compounding segment. The MOL Group is looking for opportunities to extend its petrochemical value chain towards higher added-value products. To reach this goal, MOL aims to widen the synergies with its current polymer product portfolio via both organic and inorganic developments, and to gain expertise and high-end capabilities in both virgin-based and recycled plastic compounding. With the acquisition of Aurora, MOL is further expanding its product portfolio in engineering plastics and polypropylene recycled compounds.

Regarding its own virgin polymer production, the MOL Group has recently made available new types of polyolefins including TIPPLEN R 665 X which offers cost-saving options due to reduced processing temperatures, whilst being easy to recycle (as bottles and caps can be made from the same base polymer, PP). Another product is TATREN IM 45 54 which is using a non-phthalate catalytic system and provides substantial properties to improve sustainability and to reduce costs.

Polimery Police's installation, along with polypropylene, is to generate 17,000 tpa of hydrogen that will be sold to the chemical plant at Police for the production of ammonia. This supply of hydrogen will reduce natural gas consumption for Grupa Azoty Zakłady Chemiczne Police. An element of the installation will be a gas terminal, capable of receiving ships transporting up to 22,000 tons of propylene and ethylene, whilst the terminal will also be used to import LPG.

Central European methanol market

MSK in Serbia reduced exports of methanol in the first ten months in 2019 to 83,500 tons against 102,400 tons in the same period in 2018, whilst acetic acid exports from the Kikinda plant dropped from 72,700 tons to 59,600 tons.

MSK Kikinda Exports (unit-kilo tons)

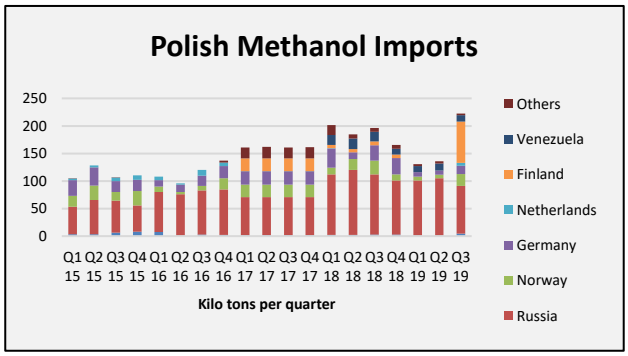
Product	Jan-Oct 19	*Jan-Oct 19*
Methanol	83.5	102.4
Acetic Acid	59.6	72.7

Czech imports of methanol amounted to 74,500 tons in January to November 2019 versus 77,400 tons in the same period in 2018. Russia provided 41,900 tons; other important European markets for Russian methanol exports include Poland, Slovakia, Hungary and Romania. Exports from Russia to Romania have now been supplemented by revived production at the Viromet plant which was bought out by new owners last year. Specialized in the production of methanol,

formaldehyde, synthetic resins, plastic products, the Viromet plant at Victoria can produce up to 825 tons of methanol per day, although it is not producing anywhere near those volumes at present.

Czech Methanol Imports (unit-kilo tons)		
Country	***Jan-Nov 19***	***Jan-Nov 18***
Germany	14.3	25.7
Norway	11.9	10.9
Russia	41.9	37.7
Slovakia	0.0	1.1
Poland	4.0	1.5
Others	2.3	0.5
Total	74.5	77.4

PKN Orlen is currently assessing prospects for constructing its own methanol plant the outcome of which should be known in the first quarter in 2020. Although Poland imports large volumes of methanol it is not clear if future projected capacity additions would make it more viable to continue importing. It is probably unlikely that Orlen would construct the plant if it was dependent on one main source of gas, namely Russia, but diversified purchases are now much easier to undertake,



US gas supplies are expected to become available on a significant scale through PGNiG by 2022-2023. Terminals are under construction in the Gulf of Louisiana which will facilitate export activity to Poland and if not completely eliminate at least reduce the need to import gas from Russia.

Aside the potential for US supplies, about 20% of the annual demand for gas in Poland (totalling 20 billion cubic metres) is met through domestic production, which in 2019 amounted to 3.8-4.0 billion cubic metres. Norway is the main foreign area of PGNiG's operations where 27 licenses are held. In 2018, PGNiG produced approximately 540 million cubic metres in Norway which is expected to grow by around five times more in three years. This will happen after the launch of the Baltic Pipe gas pipeline planned for autumn 2022.

Polish Phenol Imports (Jan-Sep 19)		
Country	***Tons***	***€ million***
Finland	9,584	9,627
Germany	63,382	60.393
Russia	2,740	2.507
Saudi Arabia	1,205	1.262
Others	349	0.589
Total	77,562	74.491

Polish phenol project and trade, Jan-Sep 2019

PKN Orlen's phenol project plans should be updated in the first quarter this year, designed to meet some of the growing domestic demand. Poland imported 77,562 tons of phenol in the first nine months in 2019 at a total cost of €74.491 million.

The major supplier was Germany providing 63,382 tons at a cost of €60.393 million, followed in second place with Finland with 9,584 tons at cost of €9.627 million. Other suppliers included Russia with 2,740 tons at €2.507 million and Saudi Arabia with 1,205 tons at a cost of €1.262 million. Poland exports only small volumes of phenol from its production plant at Plock.

Czech Petrochemical Exports (unit-kilo tons)		
Product	***Jan-Nov 19***	***Jan-Nov 18***
Ethylene	70.3	67.4
Propylene	7.1	20.4
Butadiene	3.9	0.6
Benzene	35.7	33.4
Toluene	9.9	13.2
Ethylbenzene	139.4	114.7

Czech petrochemical exports, Jan-Nov 2019

Czech ethylene exports amounted to 70,300 tons in the first eleven months in 2019 against 67,400 tons in the same period in 2018. Most of the ethylene is shipped from Litvinov to Germany by pipeline. Exports of ethylbenzene, produced at Kralupy, amounted to 139,400 tons in January to November versus 114,700 tons. Propylene exports amounted to 7,100 tons in January to November 2019 against 20,400 tons in 2018.

Czech chemical trade, Jan-Nov 2019

TDI imports into the Czech Republic amounted to 8,043 tons in the first eleven months in 2019 at a cost of €23.197 million, down from 12.340 tons in the same period in 2018 at a total cost of €35.069 million. The largest source of supply of TDI in the first eleven months in 2019 was Germany with 3,384 tons at a cost of €7.726 million. MDI imports amounted to 28,400 tons in the first eleven months in 2019 against 28,600 tons in the same period in 2018.

Czech MDI Imports (unit-kilo tons)		
Country	*Jan-Nov 19*	*Jan-Nov 18*
China	2.0	2.8
Belgium	7.8	6.4
Germany	12.5	8.3
Italy	0.2	0.2
Hungary	3.7	6.8
Netherlands	1.4	1.0
Others	0.9	3.1
Total	28.4	28.6

Regarding DINP plasticizers, imports into the Czech Republic totalled 11.548 tons in January to November 2019 at a total cost of €13.723 million against 10,734 tons in January to November 2018 for a total cost of €12.824 million. DINP plasticizer exports from the Czech Republic totalled 36.532 tons in the first eleven months in 2019 at a total cost of €42.518 million against 35.528 tons in the same period in 2018 for €41.667 million.

Grupa Azoty-KBR nitric acid technology

KBR has been awarded a contract to utilize its proprietary PLINKE MAGNAC® technology to produce high concentration nitric acid at Grupa Azoty's Tarnow site in Poland. KBR will provide basic and detailed engineering design, equipment, and related advisory services for the plant, which will be built adjacent to an existing plant that was also supplied by KBR and has been in operation since 1998. MAGNAC is used to produce 98.5% high-concentration nitric acid from fresh, weak nitric acid.

Grupa Azoty, plastics compounding plant opened at Tarnow

Grupa Azoty has launched a new manufacturing/compounding plant at Tarnow for modified plastics as part of the Plastics Business Segment. The capacity of the new plant is 50,000 tpa which has been constructed by German company Akro Plastic GmbH. By modifying the polyamide produced in Tarnow and other materials at the plant, specialized modified materials will be produced for use in the automotive, machinery, construction, electronics and household goods industries. The Plastics Business Segment currently has production facilities in three locations, including Puławy producing caprolactam: the German plant at Guben producing polyamide and the Tarnow plant for the production of caprolactam, polyamide and modified plastics.

Polish Chemical Production (unit-kilo tons)		
Product	*Jan-Nov 19*	*Jan-Nov 18*
Caustic Soda Liquid	331.5	260.3
Caustic Soda Solid	61.5	90.3
Ethylene	448.2	419.9
Propylene	400.3	271.2
Butadiene	58.1	43.2
Toluene	18.6	12.1
Phenol	41.6	38.7
Caprolactam	153.0	152.6
Acetic Acid	5.6	11.9
Polyethylene	331.3	309.5
Polystyrene	58.9	55.1
EPS	101.8	81.3
PVC	224.3	222.2
Polypropylene	319.0	246.3
Synthetic Rubber	258.4	243.1
Ammonia (Gaseous)	2207.0	2311.0
Ammonia (Liquid)	93.9	113.7
Pesticides	45.9	49.0
Nitric Acid	2123.0	2127.0
Nitrogen Fertilisers	1812.0	1823.0
Phosphate Fertilisers	426.3	399.4
Potassium Fertilisers	384.0	379.8

Last year, Grupa Azoty completed an investment project at Tarnow, which allowed for full balancing of production capacities of caprolactam and polyamide-6 at a level of around 170,000 tpa. In the near future polyamide from Tarnow will be sold to EU markets from the Guben logistics centre in Germany.

Prochem-fluorine compounds Poland

Prochem is acting as the general contractor for Foosung Poland for the construction of a plant at Kędzierzyn-Koźle for the production of inorganic fluorine compounds used as a component in the production of storage batteries. The anticipated investment implementation period is from 2020 to 2021. This is the first project in Europe to manufacture LIPF6, i.e. lithium hexafluorophosphate which is a key component of electrolyte in lithium-ion batteries for electric cars. Foosung Poland is currently building a plant at Kędzierzyn-Koźle producing components used in the construction of lithium-ion batteries for electric cars.

Ciech-soda ash plant in Romania still waiting for steam supply

The soda ash plant of Ciech in at Govora is still in temporary production suspension mode as Ciech is still negotiating with the government over steam supply. Government changes in Romania mean that the conditions for restoring production must be conducted from the beginning. The mode of temporary suspension of production also means that it can be restored at any time, which is why the production lines of the plant are kept ready for the resumption. This is not possible at the current price of a steam offered by its only supplier. Ciech went into stand-by mode on 18 September 2019 a consequence of termination by the CET Govora CHP plant, the only available supplier of process steam.

RUSSIA

Russian Chemical Production (unit-kilo tons)		
Product	***Jan-Nov 19***	***Jan-Nov 18***
Caustic Soda	1,180.9	1,164.5
Soda Ash	2,985.0	3,138.0
Ethylene	2,720.8	2,700.0
Propylene	2,205.1	1,707.1
Benzene	1,328.4	1,270.4
Xylenes	435.8	487.9
Styrene	668.7	606.8
Phenol	203.7	163.0
Ammonia	15,250.0	16,200.0
Nitrogen Fertilisers	10,232.0	9,373.0
Phosphate Fertilisers	3,782.0	3,605.0
Potash Fertilisers	7,633.0	7,668.0
Plastics in Bulk	7,795.0	7,455.0
Polyethylene	2,013.0	1,988.0
Polystyrene	497.3	502.6
PVC	952.9	923.3
Polypropylene	1,318.1	1,340.4
Polyamide	149.7	154.8
Synthetic Rubber	1,387.0	1,500.0

Russian chemical production, Jan-Nov 2019

Russia's output of chemical products increased by 3.6% in the first eleven months of 2019, with mineral fertilisers and polymers contributing the largest rise in quantity. Russian ethylene production rose only 0.3% in January to November to a total of 2.721 million tons, whilst benzene rose by 4% to 1.328 million tons. Caustic soda production in Russia totalled 1.181 million tons in January to November 2019 compared to 1.165 million tons in the same period in 2018. Methanol production benefited in 2019 from the start-up of the second methanol plant at Shchekinoazot, which helped increase Russian export activity.

Russian chemical & polymer imports, Jan-Nov 2019

Regarding trade of chemical industry products, Russian imports in the first eleven months in 2019 rose in value from $36.112 billion to $39.720 billion. Pharmaceutical products saw the largest rise, jumping from $9.374 billion to $12.653 billion.

Inorganic chemicals accounted for 37% of inward trade by weight but this only accounted for 8% of value. Imports of plastics comprised 23% of shipments and 21% of value whilst the largest value category came from pharmaceuticals which accounted for 24% of the sector although only accounting for 1% in weight.

Russian Chemical Imports by value ($ million)		
Product Group	***Jan-Nov 19***	***Jan-Nov 18***
Organic & inorganic chemicals	5,903.0	5,542.8
Pharmaceuticals	12,653.0	9,373.8
Cosmetics	3,049.7	2,939.1
Soap and detergents	1,342.1	1,316.6
Polymers and Rubber	11,327.2	11,244.3
Others	5,444.8	5,695.1
Total	39,719.8	36,111.7

Russian petrochemical projects

Gazprom wants to build a giant gas chemical complex in Yamal

Gazprom is in the early and very provisional stages of preparing a project for the construction of a gas chemical complex on the Yamal Peninsula. This largely consists of the production of polymers based on the Bovanenkovo cluster of deposits. The estimated capacity of the proposed plant is 3 million tpa of polyethylene and polypropylene. For such a huge project to go ahead in the Yamal region, or to be taken seriously, it would need partners, which could possibly include a consortium of the Russian Direct Investment Fund (RDIF) and SABIC. SOCAR from Azerbaijan has also been mentioned.

A preliminary estimate of the cost of the project is about $15 billion (about 1 trillion roubles). The Bovanenkovo cluster includes three deposits of Bovanenkovskoye, Kharasaveyskoye and Kruzenshternskoye. They form the basis of the new gas production centre, in the development of which Gazprom has been actively investing in Yamal for the past ten years.

The company's reserves on the Yamal Peninsula make it possible to produce much more gas than is required to fill new export pipelines. The Gazprom project differs from the conventional gas-chemical complex with gas processing at the GPP and the separation of ethane for the production of polymers. Gazprom is evaluating the possibility of building a plant with a capacity of 3 million tpa based on MTO technology. This technology allows the production of ethylene and propylene from dry gas through the preliminary production of methanol.

The reason for interest in MTO is that ethane content in the Cenomanian deposits of Bovanenkovo and Kruzenshternskoye is minimal and will not be enough for typical petrochemicals. To obtain 3 million tpa of polymers, Gazprom will need to produce about 4-4.2 million tpa of methanol at an intermediate stage. Around 5 billion cubic metres of dry gas will be enough to produce such methanol volumes of which Gazprom has in abundance on the Yamal Peninsula.

Ust Luga petrochemical complex, Russian-Chinese contract

Having all made progress on preparing licences for the Ust Luga project on the Baltic coast, it seems fairly evident that Gazprom will have to choose between this project and Yamal concept as described above.

Chinese and Russian companies signed a contract in October last year for the construction of a large gas chemical complex at Ust Luga in the Leningrad Region. The China National Chemical Engineering Corporation (CNCEC) and Rusgazdobycha signed an EPC contract for the construction of a plant as part of the Baltic Chemical Complex project. The new plant is to be engaged in the processing of ethane-containing gas resulting in capacity of which will reach 2.8 million tpa of ethylene and 2.88 million tpa of polyethylene. The total investment is estimated at about $13.2 billion.

Gazprom-Baltic Project Outline	
Gas processing	45 billion cubic metres per annum
Methane	19 billion cubic metres per annum
LNG	13 million tpa
LPG	2 million tpa
Ethane	4 million tpa
Ethylene	2.80 million tpa
Polymers	2.88 million tpa

Baltic Chemical Complex-technology licenses agreed with Univation and Lummus

Baltic Chemical Complex has selected Lummus technology for the cracker operations at Ust Luga. The agreement with Lummus Technology provides for the acquisition of licensing rights for ethylene production with a total volume of (1 and 2 stages) up to 3 million tpa (licensed capacity 2.8 million tpa). Furthermore, a licensing agreement was signed with Univation Technologies for the supply of polyethylene production. In addition to UNIPOL technology Baltic Chemical Complex has agreed on the supply of catalysts and advanced catalyst systems for the production of HDPE, LLDPE and metallocene LLDPE. It is planned that the production volume will be up to 3 million tpa using 6 reactor units, on which UNIPOL PE technology will be applied to units each of 500,000 tpa capacity.

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, and six phases of polyethylene production with a capacity of 480,000 tpa. Other projects include for the production of alpha-olefins with a capacity of 137,000 tpa.

The project worth about 750 billion roubles consists of the construction of a gas processing plant, an LNG plant and a gas chemical complex. The aim is to process ethane-containing gas from the Achimov and Valanginian deposits of the Nadym-Pur-Tazav region with the subsequent production of 13 million tpa of LNG. It also involves up to 4 million tpa of ethane and more than 2.2 million tpa of LPGs. The launch of the first stage of the Baltic project is scheduled for 2023 and the second by the end of 2024. The project operator is a special-purpose company RusHimAlliance, created on a parity basis by Gazprom and RusGasDobycha.

Power of Siberia and SIBUR

In late 2019 Gazprom opened the Power of Siberia gas pipeline, linking the gas deposits of East Siberia with China, whilst at the same time creating the gas supply system for the Amur Gas Processing Plant under construction which may also be supplemented by SIBUR's Amur Gas-Chemical Complex. The export capacity of the pipeline is 38 billion cubic metres per annum which is expected to reach full capacity by 2025. The main partner of Russia from the Chinese side is the state-owned company CNPC. After the launch of the gas pipeline, the next important milestone is 2022, when the Kovytka field in the Irkutsk region will be

connected to the pipeline. With the connection of Kovykta, the Power of Siberia will begin to reach its design capacity.

ZapSibNeftekhim-expansion already being considered

SIBUR is already considering the expansion of the ZapSibNeftekhim complex at Tobolsk in which the first phase was completed at the end of 2019. SIBUR completed the construction of ZapSibNeftekhim in 2019 and the complex is being gradually started. It includes pyrolysis of 1.5 million tpa of ethylene, 500,000 tpa of propylene and 100,000 tpa of C4s, as well as the production of 1.5 million tpa of polyethylene and 500,000 tpa of polypropylene. At full capacity, ZapSibNeftekhim will consume 2.7 million tpa of LPG and about 300,000 tpa of ethane.

The driver behind SIBUR's interest in expanding ZapSibNeftekhim is from government plans to provide petrochemical companies with benefits in the form of a reverse excise tax on both ethane and LPG. The subsidy for ethane comprises 9,000 roubles per ton and for LPG 4,500 roubles per ton, followed by growth to 7,500 roubles. SIBUR was already preparing a project to expand the complex, and thus the new measures may help to sway a decision on additional investments.

The reverse excise tax which could amount to up to 20 billion roubles for each producer based on investments of at least 65 billion roubles. Potentially SIBUR could increase the capacity of the Tobolsk ethylene capacity to 2.2 million tpa.

According to the contract, the Chinese side is obliged to take 85% of the supplied gas. According to Gazprom's plans, the first domestic facility to receive gas from the Power of Siberia will be Vostochny Cosmodrome. In the Amur region the length of the pipeline comprises 2,200 km including Svobodny and the location for the Amur GPP. Aside providing gas for the Amur region the main hope is associated with the creation of a petrochemical cluster as a consequence of SIBUR's Amur Gas-Chemical Complex.

According to the plan for the development of gas and petrochemicals in Russia, the cluster in the Far East will become one of the six in the country. The Amur gas-chemical complex (the project is being implemented by SIBUR) could have a capacity of up to 1.5 million tpa of ethylene and polyethylene.

Russian petrochemical markets

Russian ethylene production, Jan-Nov 2019

Russian ethylene production amounted to 2.719 million tons in the first eleven months in 2019 versus 2.697 million tons in the same period in 2018. Kazanorgsintez produced 553,000 tons in January to November 2019 against 528,400 tons year on year whilst Nizhnekamskneftekhim produced 562,500 tons against 555,300 tons.

Other important producers included SIBUR-Kstovo which produced 375,500 tons versus 353,100 tons and Gazprom neftekhim Salavat which produced 306,700 tons against 350,300 tons. Regarding feedstocks, naphtha still provides the main source of olefin production in Russia which is supplied mostly from refineries either adjacent or close to petrochemical plants. Tomskneftekhim and Stavrolen both lack refineries and need to purchase merchant naphtha by rail and pipeline.

Russian Ethylene Production (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Angarsk Polymer Plant	185.1	173.6
Kazanorgsintez	553.0	528.4
Stavrolen	262.5	290.2
Nizhnekamskneftekhim	562.5	555.3
Novokuibyshevsk Petrochemical	56.3	55.2
Gazprom n Salavat	306.7	350.3
SIBUR-Kstovo	375.5	353.1
SIBUR-Khimprom	50.0	52.2
Tomskneftekhim	251.7	238.7
Ufaorgsintez	115.2	99.9
Total	2718.6	2696.8

Russian propylene production & sales Jan-Nov 2019

Russian propylene production amounted to 2.165 million tons in the first eleven months in 2019 against 1.990 million tons in the same period last year. SIBUR-Tobolsk increased production to 448,100 tons against 341,200 tons in the first eleven months in 2018. Nizhnekamskneftekhim produced 279,900 tons against 279,600 tons whilst Lukoil-NNOS produced 275,600 tons versus 225,500 tons.

Russian sales of propylene on the domestic merchant market amounted to 442,600 tons in the first eleven months in 2019 against 340.300 tons in the same period in 2018. Lukoil-NNOS at Kstovo shipped 222,400 tons to the domestic market in the first eleven months against 165.600 tons in 2018, whilst SIBUR-Kstovo shipped 139,200 tons to the

merchant market against 102,100 tons and Angarsk Polymer Plant increased shipments from 57,800 tons to 69,500 tons.

Russian Propylene Domestic Sales (unit-kilo tons)		
Company	***Jan-Nov 19***	***Jan-Nov 18***
Angarsk Polymer Plant	69.5	57.8
SIBUR-Kstovo	139.2	102.1
Akrilat	5.5	5.0
LUKoil-NNOS	222.4	165.6
Gazprom neftekhim Salavat	4.6	7.9
SIBUR Tobolsk	0.1	0.3
Others	1.2	1.6
Total	442.6	340.3

The largest merchant consumer of propylene in Russia is acrylonitrile producer Saratovorgsintez at Saratov which purchased 153,200 tons in the first eleven months against 145,000 tons in the same period in 2018. The second largest merchant consumer is SIBUR Tobolsk which purchased 107,000 tons in January to November 2019 versus 57,000 tons year on year.

Russian propylene exports, Jan-Nov 2019

Russian propylene exports amounted to 57,100 tons in the first eleven months versus 95,000 tons in the same period in 2018. Exports were divided between the plants in the Nizhny Novgorod region including Lukoil-NNOS and SIBUR-Kstovo, in addition to Stavrolen in the Stavropol Kray in southern Russia.

Russian Propylene Exports (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Lukoil-NNOS	39.2	59.7
SIBUR-Kstovo	6.1	19.8
Stavrolen	11.8	15.5
Total	57.1	95.0

The main destinations for Russian propylene exports included Belarus and Poland, although in recent months volumes to Poland have declined due to competition from Karpatneftekhim in Ukraine.

Russian Styrene Production (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Nizhnekamskneftekhim	280.0	275.0
Angarsk Polymer Plant	34.0	32.6
SIBUR-Khimprom	128.2	130.5
Gazprom n Salavat	180.4	182.9
Plastik, Uzlovaya	46.1	52.0
Total	668.7	667.4

Russian styrene production & sales, Jan-Nov 2019

Russia produced 668,700 tons of styrene in the first eleven months in 2019 versus 667,400 tons in the same period in 2018. Gazprom neftekhim Salavat produced 180,400 tons against 182,900 tons, followed by SIBUR-Khimprom at Perm where production produced 128,200 tons against 130,500 tons.

Styrene exports from Russia totalled 98,500 tons in the first eleven months in 2019 against 105,600 tons in the same period in 2018. Gazprom neftekhim Salavat shipped 83,900 tons in the first eleven months against 85,100 tons, whilst Angarsk Polymer Plant shipped 6,800 tons against 7,700 tons.

Russian Styrene Exports (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Angarsk Polymer Plant	6.8	7.7
Plastik Uzlovaya	0.7	4.4
Gazprom neftekhim Salavat	83.9	85.1
Nizhnekamskneftekhim	4.6	0.0
SIBUR-Khimprom	2.4	8.3
Total	98.5	105.6

The main destination for styrene exported from Salavat is Finland taking 75% of shipments in the first eleven months in 2019, followed by Norway and Turkey. Revenues from the export of styrene from Russia totalled $92.5 million.

Russian Styrene Domestic Sales (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Angarsk Polymer Plant	19.2	14.8
Plastik	0.7	9.0
Gazprom n Salavat	46.1	36.0
SIBUR-Khimprom	37.5	38.5
Nizhnekamskneftekhim	2.1	3.8
Total	105.6	102.2

Styrene sales on the Russian domestic merchant market totalled 105,600 tons in January to November 2019 against 102,200 tons in the same period in 2018, with Gazprom neftekhim Salavat increasing shipments from 36,000 tons to 46,100 tons and SIBUR-Khimprom shipping 37,500 tons against 38,500 tons.

SIBUR-Khimprom uses styrene for the production of expandable polystyrene. Main Russian consumers for merchant styrene include rubber producers such as Voronezhsintezkaucuk.

Bulk Polymers

Russian HDPE Production (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Kazanorgsintez	454.9	465.5
Stavrolen	242.4	266.6
Nizhnekamskneftekhim	0.0	43.8
Gazprom n Salavat	96.6	100.9
Total	793.9	876.8

Russian HDPE production Jan-Nov 2019

Russian HDPE production amounted to 795,800 tons in the first eleven months in 2019, against 877,600 tons in the same period in 2018. Kazanorgsintez produced 454,900 tons in January-November 2019, up by 1% on 2018, whilst Stavrolen reduced production by 9% to 241,400 tons and Gazprom neftekhim Salavat fell by 12% to 95,600 tons.

Russian polyethylene trade, Jan-Nov 2019

Imports of polyethylene into Russia grew in January-November 2019 by 17% to 667,000 tons compared to 567,700 tons. HDPE imports rose 42% to 325,200 tons in the first eleven months of 2019, whilst LLDPE rose 6% to 156,900 tons. The total volume of LDPE imports exceeded 99,600 tons in the eleven months of this year, up 22% on the previous year. Imports of other ethylene polymers exceeded 85,200 tons versus 90,400 tons.

Russian Polypropylene Production (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Ufaorgsintez	117.1	107.9
Stavrolen	90.7	102.3
Moscow NPZ	133.8	121.2
Nizhnekamskneftekhim	190.1	197.1
Polyom	192.4	195.2
Tomskneftekhim	134.3	128.8
SIBUR Tobolsk	412.7	389.4
Total	1271.1	1241.9

Russian polypropylene production & trade, Jan-Nov 2019

Polypropylene production at Russian plants rose to 1.271 million tons in the first eleven months in 2019 against 1.242 million tons in the same period in 2018. Russian exports of polypropylene totalled 282,000 tons of polypropylene in January to November 2019 against 248,000 tons in the same period in 2018. Polypropylene imports to the Russian market decreased by 4% over the eleven months of 2019 to 167,400 tons. The total import of propylene homopolymers amounted to 51,200 tons, which is 16.5% down whilst imports of propylene block copolymers increased by 17% and amounted to 50,600 tons. Imports of propylene stat copolymers amounted to 30,100 tons against 32,400 tons. External supplies of other propylene polymers amounted to 32,500 tons against 36,800 tons.

Russian PVC production & trade, Jan-Nov 2019

Russia's production of PVC totalled 893,600 tons in the first eleven months of 2019, up by 3%. RusVinyl produced 316,700 tons in January-November 2019, up by 4%, whilst Sayanskkhimplast produced 266,600 tons in January-November, compared to 251,600 tons in the same period in 2018. Baskhir Soda Company produced 239,100 tons in the first eleven months of this year, compared to 229,700 tons whilst Kaustik (Volgograd) reduced production to 71,100 tons versus 84,500 tons.

Russian PVC Production (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Bashkir Soda	239.1	229.7
Kaustik	71.1	84.5
RusVinyl	316.7	305.2
Sayanskkhimplast	266.6	251.6
Total	893.5	871.0

Exports of PVC from Russia totalled 175,600 tons in the first eleven months of 2019, up by 22% from 144,000 tons in January to November 2018. Indian buyers were the main foreign importers of Russian resin in 2019, taking 96,200 tons over January to November. Imports of PVC increased last year to 48,500 tons from 14,700 tons.

Russian polycarbonate, Jan-Nov 2019

Kazanorgsintez reduced polycarbonate production by 8% in January to November 2019 to 71,500 tons. PC-007 grade was the most popular among consumers by share, accounting for 74% (48,990 tons) in January-November 2019 versus the share of 70% (50,300 tons) in 2018.

Russian polystyrene imports, Jan-Nov 2019

Ineos Styrolution general purpose polystyrene (GPPS) imports into Russia increased in the first eleven months of 2019 by 64% to 12,000 tons against 7,300 tons in January-November 2018. European material accounted for 47% of the total GPPS shipments versus 36% in the first eleven months of 2018. Imports of acrylonitrile-butadiene-styrene (ABS) to the Russian market decreased in the first eleven months of 2019 by 4% to 31,300 tons from 32,700 tons.

Paraxylene-PTA-PET

Russian Paraxylene Domestic Sales (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Gazprom Neft	0.0	49.4
Ufaneftekhim	79.7	99.6
Kinef, Kirishi	0.0	0.0
Total	79.7	149.1

Russian paraxylene domestic sales, Jan-Nov 2019

Paraxylene sales on the Russian market dropped to 79,700 tons in the first eleven months in 2019 against 149,100 tons in the same period in 2018. Ufaneftekhim reduced sales from 99,600 tons to 79,700 tons whilst Gazprom Neft did not ship any paraxylene in the 2019 against 49,400 tons in the first eleven months in 2018. SIBUR's paraxylene purchases from Russian refineries amounted to 176,386 tons in 2018 against 177,061 tons in 2017.

Russian Paraxylene Exports (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Gazprom Neft	95.5	75.4
Kinef, Kirishi	39.0	42.6
Ufaneftekhim	13.6	7.4
Total	148.1	125.4

Russian paraxylene exports, Jan-Nov 2019

Russian oil refineries increased the export of paraxylene in the first eleven months in 2019 to 148,100 tons against 125,400 tons in the same period in 2018. Gazprom Neft, the largest exporter of paraxylene, increased shipments to foreign markets to 95,500 tons. The Kirishi refinery exported 39,000 tons against 42,600 tons whilst Ufaneftekhim exported 13,600 tons versus 7,400 tons. The bulk of exports went to the Finnish port of Kotka, where paraxylene was loaded onto the Oiltanking terminal.

Russian PTA Imports (unit-kilo tons)		
Country	***Jan-Nov 19***	***Jan-Nov 18***
Belgium	23.9	3.6
India	1.0	5.7
China	234.7	136.4
South Korea	63.1	73.6
Poland	12.2	0.0
Turkey	2.0	0.0
Thailand	3.0	18.9
Total	339.9	238.2

Following the process of modernisation Polief is increasing the consumption of Russian paraxylene by roughly 4,200 tons per month in the fourth quarter, to around 19,500 tons per month or in total to 230-235,000 tpa. PTA capacity has been increased by 78,000 tpa to a total of 350,000 tpa.

The modernisation and expansion at Blagoveshchensk started in February 2019 and the process was completed in June 2019. During the third quarter, the installation was gradually revived and is soon expected to reach its design capacity.

Russian PTA imports, Jan-Nov 2019

PTA imports into Russia totalled 339,900 tons in the first eleven months in 2019 against 238,200 tons in the same period in 2018. China increased shipments to Russia to 234,700 tons in January to November 2019 against 136,400 tons whilst South Korea reduced deliveries from 73,600 tons to 63,100 tons.

Russian PTA Imports (unit-kilo tons)		
Location	***Jan-Nov 19***	***Jan-Nov 18***
Kaliningrad	223.1	153.4
Moscow	61.2	72.3
Others	27.8	0.0
Total	339.9	238.2
Russian PTA Imports ($ million)		
Location	***Jan-Nov 19***	***Jan-Nov 18***
Kaliningrad	183.2	130.1
Moscow	50.7	62.1
Others	53.2	0.0
Total	264.2	151.9

Thailand supplied 2,970 tons of PTA to Russia in January to November 2019 versus 18,900 tons in the same period in 2018. Most of the shipments from Thailand this year were delivered in the first quarter in 2019.

The cost of imported PTA in the first eleven months in 2019 into Russia amounted to $284 million against $201 million in the same period last year. Ekopet at Kaliningrad accounted for 64% of imports ($183 million in value) in January to November 2019 against 69.2% in 2018.

Ekopet at Kaliningrad (formerly Alko-Naphtha)

Ekopet at Kaliningrad (formerly Alko-Naphtha) stopped PET production for extended maintenance in January 2020 as planned several months before. In August 2019 the plant started supplying PET to North America. Alka-Naphtha was officially renamed Ekopet in 2017 although the former name is still used

occasionally. The capacity of the PET plant at Kaliningrad is 220,000 tpa, starting production in 2011, and the plant is the major buyer of imported PTA into Russia.

Russian PET trade, Jan-Nov 2019
Imports of PET into Russia increased by 15% in the first eleven months in 2019 to 143,000 tons against 118,000 tons in the same period in 2018. The share of bottle grade PET imports from China amounted to 79% compared to 86% in 2018. The main suppliers of PET from China in the first eleven months comprised Jiangsu Sanfangxiang (37,200 tons), Yisheng (21,900 tons), Wankai (13,800 tons), Sinopec (15,800 tons), and Indorama (9,500 tons).

In the first eleven months in 2019 Ekopet imported 223,100 tons of PTA against 135,000 tons year ion year. The other major importer Senezh imported 45,000 tons against 55,000 tons in January to November 2018. Senezh is located in the Moscow area and stopped the production of PET for scheduled repairs in October. Senezh is part of the Europlast group and has a capacity of 100,000 tpa.

Aromatics

Russian benzene production-sales, Jan-Nov 2019
Russian benzene production totalled 1.218 million tons in January to November 2019, of which the largest producer was Nizhnekamskneftekhim producing 249,100 tons versus 200,900 tons in the same period in 2018. At the end of 2018, Nizhnekamskneftekhim increased the production capacity of benzene to 265,000 tpa.

Rosneft's three plants at Angarsk, Novokuibyshevsk and Ryazan produced a combined total of 128,600 tons in the first eleven months against 135,900 tons. Gazprom Neft at Omsk reduced benzene production from 94,200 tons to 66,700 tons, whilst Gazprom neftekhim Salavat increased from 159,100 tons to 169,400 tons.

Russian benzene sales, Jan-Nov 2019
Benzene sales on the Russian domestic merchant market amounted to 692,800 tons in the first eleven months in 2019 against 671,300 tons in January to November 2018. Kuibyshevazot remains the largest merchant buyer, purchasing 160,000 tons in the first eleven months in 2019 against 163,600 tons. Azot at Kemerovo bought 109,700 tons in the first eleven months versus 108,100 tons in 2018, whilst Shchekinoazot purchased 57,100 tons against 61,300 tons. For the production of cumene Kazanorgsintez purchased 57,800 tons of benzene in January to November 2019.

In December, an increase in demand was noted in the Russian benzene market. At the end of November, Omsk Kaucuk began producing commercial grade phenol and increased volumes of purchases of aromatic raw materials.

The main supplier of benzene for Omsk Kaucuk is the Omsk refinery, although in December Omsk Kaucuk purchased from the Angarsk Polymer Plant and the Atyrau Refinery in Kazakhstan. Other phenol producers Novokuibyshevsk Petrochemical Plant and Ufaorgsintez both increased purchases of benzene in 2019, rising in January to November to 48,700 tons versus 30,400 tons for Novokuibyshevsk and to 2,700 tons against 2,800 tons for Ufaorgsintez.

Russian Benzene Production (unit-kilo tons)

Producer	*Jan-Nov 19*	*Jan-Nov 18*
Rosneft	128.6	135.9
Gazprom Neft	66.7	94.2
Lukoil	90.3	97.0
Magnitogorsk MK	47.4	51.0
Nizhnekamskneftekhim	249.1	200.9
Novolipetsk MK	6.9	8.3
Gazprom Neftekhim Salavat	169.4	159.1
Kirishinefteorgsintez	64.2	63.4
Slavneft	56.4	66.1
Severstal	37.1	33.6
Bashneft	71.3	86.1
Ural Steel	10.4	8.3
Uralorgsintez	79.1	84.3
Zapsib	66.0	66.1
SIBUR	75.2	66.9
Total	1218.2	1221.1

Russian Benzene Consumers (unit-kilo tons)

Consumer	*Jan-Nov 19*	*Jan-Nov 18*
Kuibyshevazot	160.0	163.6
Azot Kemerovo	109.7	108.1
Shchekinoazot	57.1	61.3
Kazanorgsintez	57.8	56.0
Omsk Kaucuk	16.2	15.2
Chelyabinsk MK	0.0	2.6
Nizhnekamskneftekhim	1.5	31.8
Novolipetssk	1.7	16.8
Novokuibyshevsk PC	48.7	30.4
Zapsib	54.3	40.3
SIBUR-Khimprom	88.7	58.6
Ufaorgsintez	22.7	2.8
Uralorgsintez	68.5	56.6
Zavod im Ya M Sverdlova	1.8	6.7
Total	692.8	671.3

Russian Benzene Exports (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Altay-Koks	2.2	4.7
Chelyabinsk MK	1.4	1.2
Gazprom Neft	0.0	1.6
Gazprom neftekhim Salavat	0.7	3.7
Koks	5.9	4.3
Magnitogorsk MK	9.9	13.5
Moskoks	7.8	5.5
Nizhniy Tagil	3.8	0.0
Novolipetsk MK	12.4	1.3
Kirishinefteorgsintez	25.5	15.3
SIBUR-Kstovo	2.0	1.4
Severstal	2.4	0.0
Ufaneftekhim	1.1	0.0
Uralorgsintez	0.6	0.0
Ural Steel	6.8	6.3
Total	82.6	58.9

The Titan Group at Omsk is considering the possibility of monthly supply of around 1,000 tons of benzene from Atyrau to Omsk if production can be increased at the Kazakh plant to 6-7,000 tons per month. Shortages on the Russian market has encouraged consumers other than the traditional customer Kuibyshevazot to consider imports.

Russian benzene trade, Jan-Nov 2019

Russian exports of benzene from all different production routes totalled 82,300 tons in January to November 2019 against 58,300 tons in the same period in 2018. Kirishinefteorgsintez increased exports to 25,500 tons against 15,300 tons, whilst the Magnitogorsk Metallurgical Plant reduced shipments from 13,500 tons to 9,900 tons.

In the first eleven months in 2019 Russian imports of benzene increased to 58,200 tons. The product was shipped from Karpatneftekhim in Ukraine (32,200 tons), Atyrau refinery in Kazakhstan (19,200 tons) and Kremenchug oil refinery in Ukraine (2,000 tons). The number of suppliers also increased in 2019 to include the Belarusian refineries Mozyr and Naftan.

The largest recipient of imported benzene in Russia has been Kuibyshevazot for numerous years. The company purchased benzene from the Atyrau refinery although deliveries over August and September were affected by technical difficulties at the Kazakh plant.

Russian caprolactam production, Jan-Nov 2019

The three Russian caprolactam producers remain the largest domestic merchant consumers of benzene, followed by styrene and phenol producers. Russian caprolactam production amounted to 354,400 tons in January to November 2019 against 356,300 tons in January to November 2018. Kuibyshevazot has closed the gap on 2018 volumes to just 200 tons less than the 192,800 tons. SDS Azot at Kemerovo dropped to 106,300 tons from 112,800 tons.

Russian Caprolactam Production (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Kuibyshevazot	192.6	192.8
Shchekinoazot	55.6	50.7
SDS Azot	106.3	112.8
Total	354.4	356.3

Russian orthoxylene market, Jan-Nov 2019

Orthoxylene sales on the Russian domestic market amounted to 129,000 tons in January to November 2019 against 130,500 tons in same period in 2018. Kamteks-Khimprom remains the largest buyer in Russia, purchasing 70,072 tons in the period January to November 2019 against 63,600 tons in the same period in 2018. Gazprom neftekhim Salavat increased purchases from 8,500 tons to 11,906 tons whilst other buyers were much smaller, taking volumes of several hundred tons.

Russian Orthoxylene Domestic Sales (unit-kilo tons)		
Company	***Jan-Nov 19***	***Jan-Nov 18***
Gazprom Neft	88.5	71.3
Ufaneftekhim	27.8	27.2
Kinef, Kirishi	12.7	32.0
Total	129.0	130.5

Some of the applications for orthoxylene are fairly wide-ranging, including fuel and paints. The main outlet for orthoxylene thus remains phthalic anhydride where production in Russia totalled 75,700 tons in the first eleven months in 2019 versus 70,300 tons in the same period in 2018.

in January-November 2019, export deliveries of orthoxylene from Russia more than halved to 45,600 tons. The bulk of the orthoxylene was sent to the Finnish port of Kotka for further transhipment at the Oiltanking complex. Shipments in this direction decreased by 36,400 tons to 33,700 tons. The product was exported by the Kirishi oil refinery in the amount of 21,000 tons, Ufaneftekhim (7,400 tons) and the Omsk oil refinery (5,300 tons).

Russian Phenol Production (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Ufaorgsintez	69.5	58.6
Kazanorgsintez	64.9	63.3
Novokuibyshevsk Petrochemical	69.1	62.4
Omsk Kaucuk	0.1	0.0
Total	203.6	184.2

Russian phenol market, Jan-Nov 2019

Russian phenol production rose from the volume in in the first eleven months in 2018 from 184,200 tons to 203,600 tons in the same period in 2019. Novokuibyshevsk Petrochemical increased production from 62,400 tons to 69,100 tons whilst Ufaorgsintez increased production from 58,600 tons to 69,500 tons. Kazanorgsintez produced 69,100 tons versus 63,300 tons.

Russian Market Phenol Sales by Supplier (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Omsk Kaucuk	0.1	0
Novokuibyshevsk Petrochemical	51.9	40.8
Kazanorgsintez	3.4	4.9
Ufaorgsintez	62.5	42.6
Borealis	1.3	0.0
Total	119.1	88.4

Sales of phenol on the Russian domestic market rose in the first eleven months from 88,400 tons to 119,100 tons. The two largest suppliers were Novokuibyshevsk Petrochemical Company and Ufaorgsintez, both of which are owned by Rosneft. The largest phenol consumers in the domestic market are focused on the production of resins.

The launch of phenol production at Omsk Kaucuk will intensify competition in the domestic market and lead to an increase in export supplies. Growth in supplies from local producers has already led to a drop in product imports. In January-November 2019 Russia received 2,700 tons of phenol imports, which is 12,500 tons less than in the same period in 2018. The entire volume of imports was shipped from Finland by the Borealis Polymers Oy plant. Increased production of phenol last year not only impacted on imports but also facilitate an increase in the export of phenol from Russia by 2,400 tons up to 21,000 tons in January to November 2019.

Titan Group-Omsk, phenol and acetone exports starting in 2020

The Titan Group aims to soon start export deliveries of phenol of brand A and acetone of the highest grade after the modernisation of production at the Omsk Kaucuk. From the beginning of 2020, Titan has been allowed to look at export opportunities of brand A phenol and premium grade acetone. At the end of 2019 Omsk Kaucuk supplied the first shipments from the phenol and acetone plant to the domestic market, including recipients Uralkhimplast and Nizhnekamskneftekhim. Sales of products to foreign markets is carried out by Titan-Inter-Trade.

Synthetic rubber

Russian C4 Purchases (unit-kilo tons)		
Consumer	***Jan-Nov 19***	***Jan-Nov 18***
Omsk Kaucuk	45.8	45.5
Nizhnekamskneftekhim	165.9	132.5
Togliattikaucuk	171.8	158.1
Total	383.3	336.1

Russian C4s, Jan-Nov 2019

C4 sales on the domestic market in Russia totalled 383,300 tons in the first eleven months in 2019 against 336,100 tons in the same period in 2018. Togliattikaucuk increased merchant purchases of C4s from 158,100 tons to 171,800 tons, whilst Nizhnekamskneftekhim increased purchases from 132,500 tons to 165,900 tons and Omsk Kaucuk rose from 45,500 tons to 45,800 tons.

The largest supplier in the first eleven months consisted of SIBUR-Kstovo which shipped 88,100 tons against 88,100 tons in the same period in 2018. Tomskneftekhim shipped 73,500 tons in January to November 2019 versus 56,300 tons, whilst Stavrolen dropped from 56,300 tons to 50,600 tons. Gazprom neftekhim Salavat supplied a total of 33,600 tons of C4s to Nizhnekamskneftekhim and SIBUR Togliatti, against only 3,600 tons in the previous year.

Russian synthetic rubber exports, Jan-Nov 2019

Russian exports of synthetic rubber amounted to 912,000 tons in the first eleven months in 2019 versus 923,000 tons in the same period in 2018. Revenues from synthetic rubber exports amounted to $1.455 billion against $1.571 billion in January to November 2018. Regarding shipment destinations China

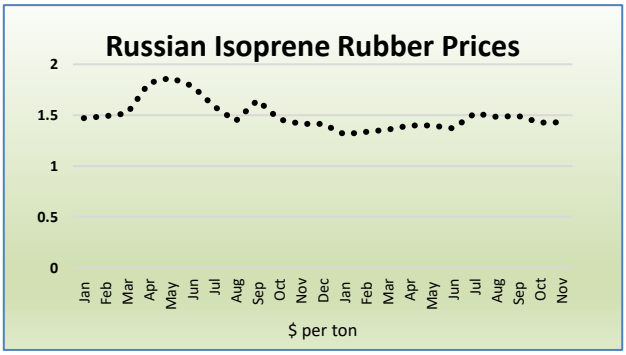
represented the largest market for Russian exporters in the first eleven months in 2019, accounting for 13% of sales. This was followed by Poland with 10.8%, after which came Hungary with 8.9%.

Russian Synthetic Rubber Exports (unit-kilo tons)		
Product	***Jan-Nov 19***	***Jan-Nov 18***
E-SBR	39.8	27.9
Block	37.6	28.2
SSBR	11.0	8.1
SBR	65.6	82.6
Polybutadiene	222.0	219.1
Butyl rubber	117.5	116.6
Halogenated butyl	128.3	123.8
NBR	32.1	29.5
Isoprene	251.0	253.7
Others	7.0	33.6
Total	912.0	923.0

The highest value product category exported from Russia is halogenated butyl rubber (HBR) where exports totalled 128,300 tons in the first eleven months in 2019 at a total value of $302 million. Polybutadiene exports from Russia amounted to 222,000 tons in the first eleven months in 2019 at a value of $338 million and isoprene rubber exports totalled 251,000 tons for $353 million.

Demand for synthetic rubber on the world market is expected to rise in 2020 offering better opportunities for Russian exports. In 2019 world consumption of natural and synthetic rubber dropped 1.5% to 28.7 million tons, although the forecast for 2020 is set at 2.6% and for 2021 at 2.8%. Global synthetic rubber consumption dropped 2.8% in 2019 to 14.980 million tons which is forecast to rise 3.4% in 2020.

Russian Synthetic Exports by Destination Jan-Nov 2019		
Country	***Quantity (kilo tons)***	***Value ($ million)***
China	121.8	182.9
Poland	101.0	164.2
Hungary	69.5	115.7
India	68.4	116.0
US	48.0	79.1
Mexico	47.3	74.7
Turkey	44.3	67.7
Slovakia	40.9	58.8
Romania	43.8	66.9
Brazil	28.1	45.8
Czech	34.0	55.3
Germany	28.7	47.6
Belarus	33.7	50.3
Ukraine	17.3	24.3
Others	185.0	305.2
Total	912.0	1454.5



Russian isoprene rubber exports, Jan-Nov 2019

The largest destination for Russian isoprene rubber exports last year was Poland which took 44,900 tons in the first eleven months against 46,300 tons in the same period in 2018. The next largest recipients of Russian isoprene rubber included Mexico with 18,500 tons against 20,200 tons and US with 17,700 tons down from 27,700 tons in the same period in 2018. Average prices of Russian exports dropped in 2019 to $1411 per ton from $1591 per ton in 2018. The leading exporter of isoprene rubber is Nizhnekamskneftekhim which shipped 183,000 tons in January to November 2019 against 195,600 tons in the same period in 2018.

Chloroprene rubber-possible project Tatarstan

Tatarstan is considering starting the production of chloroprene rubber, which is used in the military-industrial complex. There is currently no production of chloroprene rubber in Russia, although in the Soviet era it was produced by Nairit at Yerevan in Armenia. Chloroprene rubbers are used in the manufacture of adhesives or rubber products, including the manufacture of hoses for aviation fuel refuelling. Russian demand, estimated at around 4-5,000 tpa, is still fully covered by imports, mainly from Germany. According to the forecast of the Ministry of Economic Development, demand is on the rise.

Tatarstan has stated that in order to justify the economies of scale the plant would have to have a capacity of 15-20,000 tpa. However, exports would be necessary as the domestic market is not large enough to account for all of the production. Chloroprene rubber costs about $3,500 and due to the high costs in production the government may be willing to provide financial support as the product is required by the defence sector.

Methanol

Russian Methanol Production (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Shchekinoazot	869.2	508.8
Sibmetakhim	798.2	790.2
Metafrax	984.5	1065.5
Akron	96.8	98.3
Azot Novomoskovsk	232.0	269.2
Angarsk Petrochemical	42.8	3.4
Azot Nevinnomyssk	117.5	108.1
Tomet	751.7	798.0
Ammoni	144.4	201.6
Totals	4037.0	3843.0

Russian methanol production Jan-Nov 2019

Russia produced a total of 4.037 million tons of methanol in January to November 2019 against 3.843 million tons in the same period in 2018. Metafrax reduced production to 984,500 tons against 1.066 million tons whilst Sibmetakhim at Tomsk increased production from 790,200 tons to 798,200 tons. Tomet at Togliatti reduced production to 751,700 tons from 798,000 tons.

Shchekinoazot reported the most significant results last year, increasing production from 508,800 tons to 869,200 tons in the first eleven months following the installation of the new 450,000 tpa plant. The combined complex of methanol and ammonia M-450/A-135 at Shchekinoazot has been operating at a stable load, enabling higher production volumes and export activity from Shchekino in the Tula Oblast. This helped compensate for the reduced production at several plants including Metafrax, Tomet and Ammoni where output was affected by technical maintenance.

Russian methanol export sales, Jan-Nov 2019

Russian companies increased their methanol shipments for export by 230,000 tons in the first eleven months in 2019 to 1.908 million tons. Shipments to foreign markets, in particular, were increased by Shchekinoazot. Exports also increased by Tomet and Ammoni which was due in part to increased competition in the domestic market.

Russian Methanol Exports (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Azot, Nevinnomyssk	0.0	2.5
Azot Novomoskovsk	71.5	142.6
Akron	8.5	13.6
Metafrax	362.4	445.7
Sibmetakhim	398.1	412.7
Tomet	343.8	243.6
Shchekinoazot	653.3	356.1
Ammoni	13.5	5.0
Others	57.9	0.0
Total	1980.8	1612.0

Shchekinoazot exported 653,300 tons of methanol in the first eleven months in 2019 against 356,100 tons in the same period in 2018. Tomet increased shipments from 243,600 tons to 343,800 tons, whilst at the same time Sibmetakhim at Tomsk reduced shipments from 412,700 tons to 398,100 tons.

Russian Methanol Exports by Destination		
Country	***Jan-Nov 19***	***Jan-Nov 18***
Finland	803.1	763.7
Poland	334.9	261.1
Slovakia	144.0	108.5
Romania	90.5	75.7
Belarus	61.0	80.2
Lithuania	103.6	76.6
Turkey	30.3	13.0
Netherlands	181.1	50.1
Others	159.3	183.3
Total	1908	1612.0

The bulk of methanol exports into eastern parts of Europe was shipped to the Polish market, and deliveries were also made to the Czech Republic, Slovakia, eastern parts of Germany and Austria. The main outlet for Russian methanol exports remains Finland where volumes totalled 803,100 tons in the first eleven months in 2019 against 763,700 tons in the same period in 2018.

Metafrax reduced exports of methanol in the first eleven months to 362,400 tons against 445,700 tons in the same period in 2018. This was partly due to lower production whilst at the same time representing a long-term strategy goal to reduce dependency on foreign shipments. Moreover, the company's management sees commercial reasons to reduce methanol exports from Russia.

According to Metafrax, the current situation with world prices for methanol and other chemical products suggests that in the coming years there will be a decrease in trade turnover due to lower prices. Prices for export methanol in the third quarter of 2019 decreased by $70 per ton, compared to the same period in 2018 which affected product margins.

Russian methanol domestic sales, Jan-Nov 2019

Domestic sales of methanol on the Russian market amounted to 1.368 million tons in January to November 2019 versus 1.441 million tons in the same period in 2018. For the first time in three years, the Russian methanol market will show a negative trend in consumption based on 2019 results, dropping by around 2%. Due to lower domestic methanol prices, the market value fell by around 18%. Even despite the negative dynamics in the domestic market. methanol production volumes rose by around 6% in 2019.

Russian Methanol Domestic Sales (unit-kilo tons)		
Producer	***Jan-Nov 19***	***Jan-Nov 18***
Azot Nevinnomyssk	30.9	20.1
Azot Novomoskovsk	140.8	122.3
Metafrax	226.1	270.0
Sibmetakhim	345.6	333.4
Tomet	377.7	494.4
Shchekinoazot	151.7	60.5
Ammoni (Mendeleevsk)	92.9	136.1
Others	2.2	4.1
Total	1367.9	1440.9

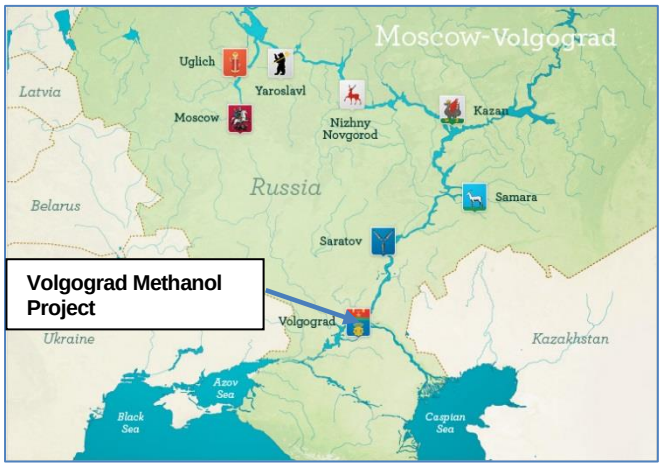
Russian Methanol Consumption (unit-kilo tons)		
Consumer	***Jan-Nov 19***	***Jan-Nov 18***
Nizhnekamskneftekhim	221.7	222.3
SIBUR Togliatti	142.5	114.8
Uralorgsintez	72.1	64.9
SIBUR-Khimprom	19.8	13.9
Tobolsk-Neftekhim	40.2	47.7
Ektos-Volga	54.5	50.3
Omsk Kaucuk	82.3	77.6
Novokuibyshevsk NPZ	44.5	62.7
Uralkhimplast	33.1	20.5
Slavneft-Yanos	13.6	15.7
Others	676.4	694.4
Total	1400.8	1384.8

Tomet at Togliatti reduced sales on the domestic market from 494,400 tons in the first eleven months in 2018 to 377,700 tons this year, partly due to lower production and partly to higher exports. Ammoni at Mendeleevsk reduced domestic shipments to 92,900 tons from 136,100 tons. Sibmetakhim at Tomsk whilst Azot at Novomoskovsk increased sales from 122,300 tons to 140,300 tons.

Of the main domestic consumers, Nizhnekamskneftekhim purchased 221,700 tons in the first eleven months in 2019 against 222,300 tons in the same period in 2018 whilst Togliattikaucuk (SIBUR-Togliatti) increased purchases from 114.800 tons in January to November 2018 to 142,500 tons. Other than the MTBE producers resin manufacturers represent the next main outlet for methanol. These included Uralkhimplast which purchased 33,130 tons in January to November 2019, Metadynea 89,772 tons and Kronospan 98,612 tons.

Volgograd methanol project to start construction in 2021

The construction of a methanol plant at the former Volgograd site of Khimprom is scheduled to begin in 2021. Design and approval is planned during 2020, whilst at the beginning of 2021 AEON will undertake the necessary stages and acquire a building permit. The dismantling of buildings and structures unsuitable at the site for further operation is taking place. The total investment in the project has been estimated at more than $800 million, leading to a plant of at least 1 million tpa of methanol.

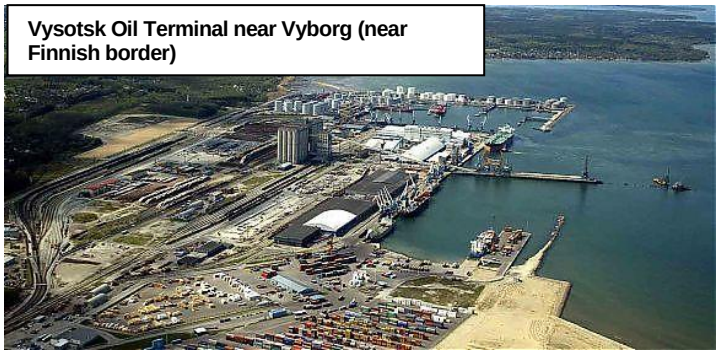


Thus far, Sberbank has concluded an agreement on strategic cooperation with the AEON investment corporation to build a methanol plant, whilst AEON has stated that the methanol plant is the first stage of the company's strategy to create a multi-chemical cluster in the Volgograd region.

The project partners include Russian Direct Investment Fund (RDIF), Marubeni Corporation and AEON Infrastructure Corporation. GTM ONE and Mitsubishi Heavy Industries Engineering have already been contracted to prepare the project engineering, as well as the main technical solutions. Construction of the methanol plant is intended to begin in 2021 and to be completed by 2023.

Vysotsk methanol project-update January 2020

Russian engineering institute NIIK (the Research Institute of Urea from the Nizhny Novgorod Region) has begun analysis of the production site of the Vysotsk site for the methanol project being designed by Gaz Sintez on behalf of Lukoil. The project will depend on natural gas being supplied to the port of Vysotsk in the Vyborg district of the Leningrad Region. The capacity of the complex is estimated at 1.6 million tpa (5,000 tons per day), with investments estimated at $1.5 billion. Methanol brand AA will be shipped at the Lukoil product terminal under long-term contracts.



Vysotsk Oil Terminal near Vyborg (near Finnish border)

The general contractor awarded the tender is the Korean concern Hyundai, with which NIIK has already begun cooperation on the project. At the end of November 2019, the parties signed a contract under which NIIK performs the functions of the general designer for the methanol plant. The new plant is expected to be commissioned in late 2023 with a gradual access to full production capacity, which means that the design work is planned to be completed by the end of 2021. The marine terminal is not included in the NIIK's area of responsibility.

Gaz Sintez was set up in 2018 for the implementation of the Vysotsk methanol plant, its ownership broken down into Cyprus offshore (99%) and Evgeniy Konev (1%). Another Konev company SPK Vysotsk plans to build a coal terminal at the same port of Vysotsk which is being financed by Lukoil.

Organic and other chemicals

Russian N-Butanol Production (unit-kilo tons)		
	Jan-Nov 19	***Jan-Nov 18***
Angarsk Petrochemical Company	25.1	27.8
Azot, Nevinnomyssk	15.4	14.8
Gazprom neftekhim Salavat	54.8	61.4
SIBUR-Khimprom, Perm	38.0	36.9
Total	133.3	141.0
Russian Isobutanols Production (unit-kilo tons)		
	Jan-Nov 19	***Jan-Nov 18***
Angarsk Petrochemical Company	15.3	14.4
Gazprom neftekhim Salavat	30.8	35.6
SIBUR-Khimprom, Perm	50.3	49.2
Total	96.3	94.7

Russian butanol production Jan-Nov 2019

Russian normal butanol production totalled 133,300 tons in January to November 2019, against 141,000 tons in the same period in 2018.

Gazprom neftekhim Salavat was the largest Russian producer, producing 54,800 tons against 61,400 tons in January to November 2018. Isobutanol production in Russia in the first nine months rose from 94,700 tons to 96,300 tons. Gazprom neftekhim Salavat reduced isobutanol production to 30,800 tons from 35,600 tons, whilst SIBUR-Khimprom increased to 49,200 tons from 50,300 tons.

Russian Butanol Consumption (unit-kilo tons)		
Consumer	***Jan-Nov 19***	***Jan-Nov 18***
Akrilat	16.4	16.6
Dimitrievsky Chemical	16.3	12.1
Kazanorgsintez	0.4	0.8
Volzhskiy Orgsintez	8.9	8.2
Roshalsjy Plant of Plasticizers	1.2	2.7
Others	6.8	15.0
Total	49.6	50.9

Russian domestic butanol sales, Jan-Nov 2019

Russian butanol merchant sales in January to November 2019 amounted to 49,600 tons against 50,900 tons in January to November 2018. The main cause of the fall was the limited supply made available from Salavat, where only 5,600 tons were shipped in the first eleven months against 9,100 tons.

The two largest domestic purchasers in January to November 2019 were Dmitrievsky Chemical Plant with 16,300 tons, versus 12,100 tons in 2018, and Akrilat at Dzerzhinsk with 16,400 tons against 16,600 tons.

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

Russian Organic Chemical Exports (unit-kilo tons)		
Product	***Jan-Nov 19***	***Jan-Nov 18***
Propylene	68.7	59.4
Orthoxylene	62.8	97.9
Paraxylene	145.5	138.5
Styrene	98.6	136.3
Methanol	***1873.2***	1521.6
N-Butanol	22.6	39.8
Iso-butanol	34.3	56.8
2-EH	6.6	22.9
Pentaerythritol	11.5	10.4
Phenol	19.1	15.4
Ethylene Oxide	14.0	13.2
Formaldehyde	15.0	18.1
DEG	10.4	12.2
MEG	53.5	27.7
Acetone	40.8	22.1
Acetic Acid	49.0	27.1
VAM	26.2	29.0
Butyl Acetate	26.9	21.4
Acrylic Acid	16.4	18.5
Butyl Acrylate	58.6	65.1
Phthalic Anhydride	58.6	62.3
Acrylonitrile	141.8	165.0
Melamine	18.8	11.0
Caprolactam	209.5	211.5

In the first eleven months in 2019 butanol exports from Russia dropped from 53,200 tons to 51,900 tons. The main destinations for Russian butanol exports remain China, Poland, India and the Netherlands.

The share of normal butanol in all-Russian exports from January to November 2019 narrowed by 34%, although isobutanol increased by 18%. The supply of n-butanol in the free market is declining due in particular to increased production of 2-ethylhexanol at SIBUR-Khimprom in relation to the new 100,000 tpa DOTP plasticizer plant.

Russian oxo alcohol and organic chemical trade, Jan-Nov 2019

Russian exports of 2-ethylhexanol (2-EH) dropped to 6,600 tons in the first eleven months in 2019 against 22,900 tons in the same period in 2018, whilst n-butanol exports dropped to 22,600 tons against 39,800 tons and isobutanol exports dropped to 34,300 tons from 38,600 tons. 2-EH exports from Russia have fallen in the past year as domestic demand increases following the start-up of the SIBUR DOTP plant at Perm.

Exports of caprolactam from Russia dropped to 209,500 tons in January to November 2019 from 211,500 tons in the same period in 2018. Melamine exports rose from 11,000 tons to 18,800 tons, whilst phthalic anhydride exports dropped from 62,300 tons to 58,600 tons. Imports of phthalic anhydride into Russia were up marginally to 14,200 tons in the first eleven months in 2019, whilst PTA imports increased from 238,000 tons to 339,100 tons.

Russian Organic Chemical Imports (unit-kilo tons)		
Product	***Jan-Nov 19***	***Jan-Nov 18***
Ethylene glycol	53.9	49.3
Propylene glycol	23.2	24.6
Isopropanol	23.6	19.8
Maleic anhydride	5.1	5.4
DINP	28.0	24.6
DOP	2.8	6.9
Phthalic anhydride	14.2	14.0
PTA	344.7	242.5
TDI	47.4	45.0
Lysine	53.9	86.7
Other Amino acids	20.0	27.1
Methionine	35.2	25.5
Cyclic amides	4.9	4.3

Modernisation at Polief, the sole producer of PTA in Russia, culminated in a sharp rise in inward shipments of PTA although volumes are softening as the year draws to a close. DINP imports into Russia rose from 24,800 tons to 28,000 tons in the first nine months this year whilst DOP imports dropped from 6,900 tons to only 2,800 tons. Imports of the amino acid lysine dropped from 86,700 tons in the first eleven months in 2018 to 53,900 tons in the same period in 2019 due to rises in domestic production.

Saratovorgsintez-acrylamide project

Production of acrylamide and polyacrylamide based on Saratovorgsintez is scheduled to be launched in 2020. The joint project of Lukoil and the French company SNF was launched in 2012. The construction of the SNF Vostok plant at the Saratovorgsintez site was supposed to begin in 2014, in 2016 it was planned to receive the first

products. However, the laying of the first stone in the foundation of the new production took place only on 28 May 2016. To support the construction and further operation of the plant OOO SNF Flopam was registered. The first phase of construction was subsequently planned to be completed in 2019. The project is designed to produce 60,000 tpa of products with the possibility of expanding to 150,000 tpa. Investments in the first place of production as of 2018 were estimated at 2.5 billion roubles.

Volzhskiy Peroxide-Chematur

Volzhskiy Peroxide signed an agreement at the end of December with Chematur Engineering AB (CEAB) for the supply of equipment and a license under the project for the construction of a plant for hydrogen peroxide production. The new plant uses the anthraquinone method and comprises a capacity of 50,000 tpa of 100% product concentration. Previously, CEAB developed the appropriate engineering documentation for the base and detailed design. The project is being located at Novocheboksarsk (Chuvash Republic) is in close proximity to the existing production facilities belonging to Khimprom. Demand for hydrogen peroxide is rising steadily in Russia justifying the investment.

The total investment in the project will amount to 5.6 billion roubles. ($91 million). Currently, project documentation is being developed and a site is being prepared for the general contractor. The demand for hydrogen peroxide is growing in Russia and Volzhskiy Peroxide expects that product will could occupy more than half of the Russian and CIS markets, satisfying the demands of medical organisations, water utilities, textile and pulp and paper industries.

Isocyanates

Russian TDI Imports (unit-kilo tons)		
Country	***Jan-Nov 19***	***Jan-Nov 18***
Hungary	8.8	7.7
Germany	9.4	18.2
Italy	0.0	0.1
China	3.0	0.4
South Korea	4.6	1.8
Lithuania	0.0	0.0
Saudi Arabia	7.7	7.4
UK	0.0	0.1
US	9.1	5.6
Turkey	0.2	0.0
Japan	1.4	1.8
Belgium	1.0	0.7
Netherlands	1.4	0.2
France	0.5	0.2
Poland	0.0	0.1
Iran	0.0	0.1
Total	47.2	44.5

Russian TDI imports, Jan-Nov 2019

Russian TDI imports amounted to 47,200 tons in the first eleven months in 2019 against 44,500 tons in the same period in 2018. Germany reduced shipments from 18,200 tons in January to November 2018 to 9,400 tons last year whilst Hungary shipped 8,800 tons against 7,700 tons. Saudi Arabia shipped 7,700 tons in January to November 2019, versus 7,400 tons last year.

The main regions inside Russia accounting for TDI purchases, include the Moscow area taking 51.6% of shipments in the first eleven months in 2019, followed by Tatarstan with 18.9%. Germany is the main supplier of TDI to Tatarstan, much more than Moscow region where the main suppliers come from the US and Saudi Arabia.

imports costs of TDI into Russia in the first eleven months in 2019 dropped sharply to $88 million from $158.2 million in the same period in 2018. Over the eleven-month period of January to November 2019 TDI import prices into Russia averaged $1874 per ton against $3605 per ton for the same timeframe in 2018. Notwithstanding the significant difference in prices for the respective eleven-month periods, prices in November 2019 reached the highest level for the year to date ($2052) and were down only marginally against November 2018 ($2336).

Russian MDI imports, Jan-Nov 2019

MDI imports into the Russian market amounted to 135,900 tons in the first eleven months in 2019 against 122,800 tons in the same period in 2018. Import costs for MDI in the first eleven months in 2019 totalled $208 million against $294 million, with average prices dropping this year to $1544 per ton versus $2185 per ton in January to November 2018. The main supplier of MDI imports to the Russian market in the first eleven months was Saudi Arabia, shipping 35,800 tons against 34,000 tons in the same period in the previous year. China supplied 27,000 tons to Russia against 19,800 tons in January to November 2018, whilst the Netherlands dropped from 31,700 tons to 31,400 tons. Regarding regional sales, Moscow and the Moscow

Russian Imports of MDI (unit-kilo tons)		
Country	***Jan-Nov 19***	***Jan-Nov 18***
Hungary	6.9	4.2
Germany	14.6	12.2
China	27.0	19.8
South Korea	2.1	1.8
Saudi Arabia	35.8	34.0
Japan	1.9	2.1
Belgium	14.2	14.9
Netherlands	31.4	31.7
Others	2.0	2.0
Total	135.9	122.8

Russian MDI Imports by Main Region Jan-Nov 2019		
Region	***$ mil Value***	***% share of market***
Moscow region	44.8	21.6%
Moscow	42.5	20.4%
Vladimir region	37.6	18.1%
Kaluga region	30.1	14.5%
Tatarstan	10.6	5.1%
Lipetsk region	9.5	4.6%
Others	27.0	15.7
Total	208.0	100

area accounted for 42.0% of import shipments of MDI in the first eleven months in 2019, followed by the Vladimir Oblast with 18.1% and the Kaluga Oblast with 14.5%. Prices per ton of MDI imports into Russia averaged $1.544 in January to November 2019 against $2300 in the whole of 2018.

Whilst China accounted for 49% of imports to Moscow, the main suppliers of MDI for the Moscow area (which excludes Moscow city) come from Saudi Arabia accounting for 50.8% of sales in the period January to November 2019, followed by Germany 15.8%. Saudi Arabia is also the main supplier to the Vladimir region, accounting for 64% of shipments whilst the Netherlands accounts for 99.3% of shipments to the Kaluga region.

MDI imports into Russia are expected to continue rising in the next two to three years and as the market expands it may lead to reviving interest into investing in production facilities. A number of projects have been floated in the past few years at various sites, but have been shelved due to a range of key factors such as economies of scale, finance, technology, etc.

Ukraine

Ukrainian polymer imports & production, Jan-Nov 2019

Imports of polyethylene into Ukraine increased to 248,400 tons in the first eleven months of 2019, up 12% on the same period in 2018. HDPE imports rose to 87,600 tons in January to November last year, compared to 70,300 tons whilst LDPE rose 7% to 73,900 tons. LLDPE imports into Ukraine increased to 75,500 tons compared with 68,300 tons in January to November 2018 whilst imports of other polyethylene grades, including ethylene-vinyl-acetate (EVA), totalled 11,400 tons compared to 14,500 tons a year earlier.

Ukrainian Polymer Imports (unit-kilo tons)		
Product	***Jan-Nov 19***	***Jan-Nov 18***
PVC	44.7	61.6
PET	136.5	127.2
HIPS/GPPS	22.6	23.1
EPS	31.8	32.7
LDPE	73.5	69.5
LLDPE	75.5	68.3
HDPE	87.6	70.3
Ethylene Vinyl Acetate	11.4	14.5
Other Polyethylene	15.6	7.0
PP	123.4	110.7
Polycarbonate	3.6	3.3

Ukrainian PVC imports dropped from 61,600 tons in January to November 2018 to 44,700 tons, whilst PVC exports from Ukraine rose from 142,500 tons to 150,400 tons.

Ukraine's polypropylene imports totalled 123,400 tons in the eleven months of 2019 against 110,700 tons. Shipments of homopolymer PP amounted to 93,800 tons in the first eleven months of 2019 versus 93,200 tons a year earlier. Imports of block propylene copolymers (PP block copolymers) amounted to 13,100 tons compared with 12,200 tons in Jan-Nov 2018. Imports of PP random copolymers amounted to 14,800 tons in January-November 2018, whereas this figure was 15,300 tons a year earlier. Total imports of other propylene copolymers amounted to 1,700 tons, down from 2,100 tons.

Imports of PET from Lithuania by Neo Group grew by 41% in eleven months in 2019 and amounted to 42,300 tons against 28,400 tons. The total volume of Lithuanian PET imports into Ukraine increased to 31% in January-November 2019 against 22% in January-November 2018. The main buyers of Lithuanian bottled PET were Coca-Cola Beverages Ukraine Limited and Retal.

Imports of polycarbonate into Ukraine grew in the first eleven months of 2019 by 8%, totalling 3,600 tons versus 3,300 tons. Regarding product grades, the share of injection moulding polycarbonate decreased to 54% (1,900 tons) in the first eleven months of 2019 from 64% (2,100 tons) a year earlier. The share of extrusion grade PC grew significantly: from 15% (424 tons) of the total imports to 28% (981 tons), with the

share of blow moulding grades decreasing by 3% to 19% and totalling 661 tons. Covestro and SABIC together accounted for 83% of the total imports in January-November 2019. Covestro's polycarbonate accounted for 69% of the total imports versus 55% in 2018. At the same time, SABIC's deliveries of material fell in January-November 2019 by 34% from 754 tons to 496 tons.

Karpatneftekhim, polyethylene shutdown and monomer exports

Karpatneftekhim stopped production of low-pressure polyethylene (HDPE) in early January. The stoppage of production of polyethylene is due to the high cost of raw materials, which are not covered by the current world prices of polymer. The exact downtime has not yet been determined and to a greater extent will depend on world prices for HDPE and raw materials for its production. However, the current stop will take at least a month.

Karpatneftekhim exported 78,700 tons of propylene in the first eleven months in 2019 against 74,800 tons in the same period in the previous year. Benzene exports fell from 58,300 tons to 55,400 tons. Karpatneftekhim restarted the import of Russian naphtha by rail in November after reaching agreement with Russian Railways supply 50,000 tpa of naphtha from the Volgograd refinery.

Karpatneftekhim Petrochemical Exports (unit-kilo tons)		
Product	***Jan-Nov 19***	***Jan-Nov 18***
Propylene	78.7	74.8
Benzene	55.4	58.3

In the first half of 2019 Karpatneftekhim purchased 172,000 tons from the Volgograd refinery which is 30,000 tons lower than in 2018. After the suspension of naphtha imports from Russia, Karpatneftekhim switched to a refinery product from Bourgas in Bulgaria. In June-October, seven tanker shipments of naphtha with a total volume of about 190,000 tons were delivered to the Odesnefteprodukt complexes (Odessa) and the Black Sea Fuel Terminal (Odessa region) for the Kalush plant.

Belarus

Grodno Azot, Jan-Nov 2019

In the first eleven months in 2019 Azot at Grodno increased methanol production to 76,200 tons from 75,400 tons in the same period in 2018, whilst caprolactam production dropped slightly from 113,200 tons to 95,000 tons.

Azot Grodno Production (unit-kilo tons)		
Product	***Jan-Nov 19***	***Jan-Nov 18***
Methanol	76.2	75.4
Caprolactam	104.0	113.2
Polyamide primary	95.0	102.7
Polyamide filled	11.9	11.9
Fibres	38.9	39.5

Methanol production by Azot rose from 75,400 tons to 76,200 tons. Last year Grodno Azoty's supply of technical methanol for the Mozyr refinery amounted to $232 million. Around 80% of polyamide and caprolactam produced by Grodno Azot is exported.

Belarussian refining and petrochemical plants, Jan-Nov 2019

Since November 2019, the Belarusian government is reported to have been negotiating the sale of shares in two oil refineries at Mozyr and Novopolotsk to the Chinese. The two sides are trying to formulate an agreement at present. In the middle of January Belarus and Russia reached an agreement on approaches and methods of compensation for contaminated Russian oil.

Druzhba repairs in Belarus will not affect the transit of Russian oil to Europe, whilst at the same time Belarus is diversifying its oil purchases after taking 80.000 tons from Norway in January. Regarding gas prices, at the end of December Belarus agreed to buy Russian gas at a price of $127 per 1,000 cubic metres for at least January and February 2020.

Belarussian Petrochemical Production (unit-kilo tons)		
Product	***Jan-Nov 19***	***Jan-Nov 18***
Ethylene	70.9	53.5
Propylene	43.0	34.2
Benzene	82.4	89.9

For petrochemical production Belarus produced 70,900 tons of ethylene in the first eleven months in 2019 against 53,500 tons in the same period in 2018. Propylene production rose from 34,200 tons to 43,000 tons which was partly responsible for a reduction in imported propylene from Russia, dropping from 46,000 tons to 30,000 tons in January to November 2019.

Benzene production dropped from 89,900 tons in January to November 2018 to 82,400 tons in the same period last year, partly due to lower consumption as Azot reduced caprolactam production by 9,200 tons in the first eleven months. Reduced consumption enabled the two Belarussian refineries to export benzene to Russia, amounting to 1,867 tons in January to November, but imports still came into the country amounting to 3,047 tons against 3,033 tons in 2018.

Belarussian Xylene Imports (unit-kilo tons)		
Product	***Jan-Nov 19***	***Jan-Nov 18***
Orthoxylene	12.9	22.2
Paraxylene	12.8	11.1

Orthoxylene imports into Belarus dropped from 22,200 tons in the first eleven months in 2018 against 12,900 tons in the same period in 2019, whilst paraxylene imports rose from 11,073 tons to 12,775 tons. Paraxylene imports did slow down in the second half of 2019 as domestic production increased.

Belarus produced 15,400 tons of paraxylene from September to November last year. Prices for paraxylene imports into Belarus increased in the first eleven months this year to $958 per ton against $1038 per ton recorded twelve months earlier. Russia remains the sole supplier of orthoxylene and paraxylene into Belarus.

Belarussian Acrylonitrile Exports (unit-kilo tons)		
Product	***Jan-Nov 19***	***Jan-Nov 18***
Russia	2.1	2.5
Hungary	0.0	4.6
India	0.0	3.7
Iran	0.0	3.1
Netherlands	11.6	4.2
Turkey	25.6	24.1
UAE	2.9	0.0
Total	42.2	42.1

Belarussian organic chemical trade, Jan-Nov 2019

Acrylonitrile exports from Belarus in the first eleven months in 2019 were targeted mainly on Turkey and the Netherlands. Exports totalled 42,200 tons in the first eleven months in 2019 against 42,100 tons in the same period in 2018. Methanol imports from Belarus dropped from 87,800 tons in January to November 2018 to 48,300 tons in the same period in 2019 whilst exports rose from 20,200 tons to 30,136 tons. As production was only slightly up on 2018 it meant that methanol consumption dropped in the first eleven months to 94,300 tons from 143,000 tons in January to November 2018.

Belarussian Methanol Market (unit-kilo tons)		
	Jan-Nov 19	***Jan-Nov 18***
Production	76.2	75.4
Exports	30.1	20.2
Imports	48.3	87.8
Balance	94.3	143.0

Belarussian maleic project dropped

Belarus has decided against constructing a maleic anhydride plan on the site of the Lida Lakokraska. The project for the production of maleic anhydride was considered in conjunction with the production of phthalic anhydride, the technical re-equipment of which Lakokraska completed in 2017. Plans for the production of maleic anhydride n Belarus were announced at a time when large projects in Russia had not yet been announced.

Belarussian Polymer Imports (unit-kilo tons)		
Product	***Jan-Nov 19***	***Jan-Nov 18***
PVC	63.6	59.3
Polypropylene	104.0	93.6
LDPE	45.0	49.7
HDPE	63.4	50.5
Polystyrene	65.3	61.2

Belarussian Polymer Exports (unit-kilo tons)		
Product	***Jan-Nov 19***	***Jan-Nov 18***
PET	15.1	12.6
LDPE	84.9	60.9
HDPE	18.2	9.5
Polyamide	54.8	64.8

Belarussian polymer trade, Jan-Nov 2019

In the first eleven months this year Belarussian PVC imports amounted to 63,600 tons, of which Russia provided 87% of shipments. imports of polyethylene into Belarus grew by 2.2% in the first eleven months of 2019, totalling 131,600 tons compared to 128,900 tons. LDPE was down slightly at 45,000 tons against 49,700 tons whilst HDPE rose 21.3% to 50,500 tons.

Polypropylene imports into Belarus totalled 104,000 tons for the first eleven months in 2019 versus 93,600 tons in the same period in 2018. Homopolymer imports rose 8.3% in the first eleven months in 2019 to 67,870 tons, whilst imports of propylene copolymers rose 12% to 31,947 tons.

Belarussian exports of polyamide amounted to 54,743 tons in the first eleven months in 2019 at a price of $1,732 per ton against 64,892 tons in the same period in 2018 at a price of $2,107 per ton. Due to the fall

in prices, revenues dropped from $136.710 million to $94.907 million. Destination sales for Belarussian polyamide exports are focused largely on the CIS and European markets.

Belarussian MDI Imports (unit-kilo tons)		
Country	***Jan-Nov 19***	***Jan-Nov 18***
Russia	2.0	2.2
Belgium	4.0	3.9
Hungary	1.1	2.1
Germany	8.8	4.9
China	1.8	1.8
Saudi Arabia	1.1	3.3
Others	0.5	1.6
Total	19.3	19.7

Export deliveries of PET from Belarus in January-November increased by around 25% compared to the same period last year and amounted to 15,100 tons against 12,600 tons.

Belarussian MDI imports, Jan-Nov 2019

MDI imports into Belarus totalled 19,297 tons in the first eleven months in 2019 against 19,659 tons. Germany was the largest supplier, increasing shipments in January to November 2018 from 4,891 tons at $2495 per ton up to 8,780 tons at a much-reduced price of $1563 per ton. Hungary reduced shipments into Belarus from 2,100 tons to 1,100 tons. Overall, MDI prices for Belarussian imports dropped from $2527 per ton in January to November 2018 to $1603 per ton in the same period in 2019.

Belarussian PTA Imports (kilo tons)		
Country	***Jan-Nov 19***	***Jan-Nov 18***
Russia	0.0	1.2
Belgium	0.0	0.5
Turkey	1.0	1.0
Turkey	0.0	0.0
South Korea	10.5	5.3
Portugal	5.8	4.0
Poland	33.2	13.9
Thailand	0.2	0.4
Total	50.7	26.4

Belarussian PTA imports & PET trade, Jan-Nov 2019

PTA imports into Belarus totalled 50,669 tons in the first eleven months in 2019, versus 26,343 tons in the same period in 2018. Imports from South Korea increased to 10,500 tons in January to November 2019 from 5,324 tons in 2018, at a price of €921 per ton in 2019 against €769 per ton.

Poland significantly increased shipments of PTA to Belarus from 13,886 tons to 33,178 tons, with average prices dropping from €885 per ton in 2018 to €827 per ton in 2019. The other main supplier in 2019 comprised Portugal which shipped 5,847 tons in the first eleven months. Overall Belarussian PTA import prices dropped from €880 to €855 per ton year on year.

Central Asia/Caucasus

Navoiazot-New Plant Facilities (start-up Dec 2019)

- PVC- 100,000 tpa
- Caustic soda-71,800 tpa
- Methanol-300,000 tpa

Navoiazot petrochemical launch; ammonia and urea start-up 2020

At the end of 2019 Navoiazot launched a complex for the production of PVC, caustic soda and methanol. On 28 December Navoiazot hosted the launch of a complex which was implemented in conjunction with a consortium of Chinese companies China CAMC Engineering, and HQC Shanghai Company.

SOCAR methanol and increased gas consumption

In January-November 2019, Azerbaijan achieved revenues of $63.5 million from methanol exports, up by $27.4 million on 2018. SOCAR increased methanol production by 98.5% in 2019 to 331,000 tons s share of methanol in the total volume of oil products exported by the company over eleven months in 2019 amounted to around 21%. Last year domestic consumption of natural gas in Azerbaijan increased by about 918 million cubic metres, or 8.7% higher than 2018 (10.6 billion cubic metres). The increase is mainly associated with an increase in production of urea and methanol.

The project cost is estimated at more than $500 million. Of these, $60.3 million are own funds of Navoiazot, $66 million are loans from the Fund for Reconstruction and Development of Uzbekistan and $373.8 million are loans from Chinese Eximbank. Construction work was carried out by a consortium of Chinese companies, China CAMC Engineering and HQC (Shanghai).

Navoiazot continues to implement a project to build ammonia plant with a capacity of 660,000 tpa and urea with a capacity of 577,500 tpa. The total project cost is $985 million. Agreements were concluded with a consortium of Japanese companies including Mitsubishi Heavy Industries and Mitsubishi Corporation on a turnkey basis. Enter Engineering Ltd, a company specializing in the construction of industrial facilities in Uzbekistan, has been awarded the tender for the general contractor for construction.

Kazakh methanol imports from Russia

Kazakh consumers are currently importing from Russia about 35,000-40,000 tpa of methanol by rail. In 2018 imports totalled 36,200 tons and for the first eleven months in 2019 imports amounted to 34,900 tons. Purchases of methanol by the Atyrau refinery increased in 2019 for the first eleven months by 7,100 tons up to 9,100 tons. The refinery began acquiring methanol in Russia in July 2018 after the commissioning of the plant for tert-amyl methyl ether (TAME). In addition to the Atyrau refinery, methanol for the production of high-octane components is used by the only producer of MTBE in Kazakhstan Neftekhim at Pavlodar. Other than TAME and MTBE, Kazakh oil and gas companies use methanol to prevent hydrate formation in wells. For this purpose, purchases fell in January to November 2019 by 1,800 tons to a total of 17,200 tons. IN other applications reagent manufacturer Rauan Nalko reduced Russian methanol imports in the first eleven months in 2019 to 2,200 tons from 3,400 tons.

Uzbek hydrogen peroxide and chlorine projects

The construction of a new plant for the production of hydrogen peroxide began in the Navoi Free Economic Zone in Uzbekistan on 11 January. The construction is part of the implementation aimed at developing the chemical and energy industries. The plant will be owned by Uzbekistan Hydrogen Peroxide, which was created to undertake projects for deep gas processing and will be have a capacity to produce about 50,000 tpa.

Investments in the construction of the plant will amount to about $40 million. At the first stage, a hydrogen peroxide plant will be built and the second involves the addition of a sodium percarbonate plant. Completion of these projects is scheduled for the first half of 2021. Production from the plant will be enough to meet the needs of Uzbekistan in hydrogen peroxide, which will allow the country to abandon imports.

Kazakh oil output and refining 2019

Oil production in Kazakhstan in 2019 amounted to 78.4 million tons which was 1.4% up on 2018. Gas condensate production decreased by 7.4% to 11.9 million tons, whilst natural gas production dropped 2.2% to 22.2 billion cubic metres and associated gas rose 4.5% to 34.3 billion cubic metres. Production rises last year were limited due the overhaul of major projects (Tengiz, Karachaganak and the first overhaul on Kashagan).

In 2016, projects on the Karachaganak field were launched in order to maintain the oil production shelf at the level of 11-12 million tpa. The project implementation period was planned for the period 2016-2020 with an investment volume of about $1.4 billion. Also, in 2017, the start of preparatory engineering and design work was launched to further expand production at Stage 1 of Kashagan development.

Total refining volumes in Kazakhstan rose 4.8% in 2019 to 16.079 million tons. Kazakh gasoline production increased by 15.5% to 4.551 million tons, diesel fuel rose by 7.8% to 4.81 million tons, and liquefied natural gas by 2.6%, to 3.196 million tons.

Regarding oil exports, the China-Kazakhstan oil pipeline supplied 10.88 million tons of crude oil to China in 2019. With a total length of 2,800 kilometres, China's first overland cross-border crude oil pipeline (created 2006) runs from Atyrau to Atasu in Kazakhstan, passes through the Alataw Pass and links up with PetroChina Dushanzi Petrochemical Company in Xinjiang Uygur Autonomous Region.

A new chlorine plant is planned for construction in Uzbekistan in the free economic zone Khazarasp, with a capacity of 90 tons of chlorine per day. Thyssenkrupp Industrial Solutions is responsible for the design and delivery of the modular chlorine and caustic production plant. Thyssenkrupp Industrial Solutions has entered into an agreement with Serba Dinamik International to strengthen the partnership between the parties. The new plant in Uzbekistan plans to produce flaked caustic soda, liquid chlorine and sodium hypochlorite, which will be delivered mainly for export. Commissioning is scheduled for the second quarter of 2022.

Kawasaki Heavy Industries-Turkmengaz GTL natural gasoline plant

Kawasaki Heavy Industries will become a consultant to Turkmengaz in managing a GTL natural gas gasoline plant at Ovadandepe in Turkmenistan, which produces synthetic gas from natural gas. A plant for the production of environmentally friendly synthetic gasoline from natural gas in the Ahal region of Turkmenistan was commissioned in June 2019. The plant, built under a contract by Turkmengaz with a consortium of companies Kawasaki Heavy Industries (Japan) and Renaissance (Turkey), is designed to process 1.785 billion cubic metres per annum of gas and produce 600,00 tpa of Eco-93 gasoline conforming to the EURO-5 standard, and also 12,000 tpa of diesel fuel and 115,000 tpa of LPG.

Kazakh petrochemical projects at Atyrau and Aktau

Kazakhstan is seeking to develop petrochemicals as an alternative to oil and gas which it has relied on heavily as a main income source for the past two decades. Whilst KPI is currently engaged in constructing a polypropylene plant at Atyrau, with a capacity of 500,000 tpa for $2.6 billion, negotiations are underway

with Borealis on a joint project for the production of polyethylene with a capacity of 1.25 million tpa. Construction work has been carried out on the polypropylene production project since 2018, which was estimated to have been 52% completed by the end of 2019. The plant is scheduled to be launched in 2021. The polyethylene project is planned to be implemented jointly with Borealis. Its cost is estimated at $6.9 billion.

Kazakh Production of Aromatics 2019			
Product	***Sep***	***Oct***	***Nov***
Benzene	0.594	1.296	2.135
Paraxylene	0	0	6.744

More than $1 billion will be spent on the construction of a gas separation unit with a capacity of 7 billion cubic metres per annum at the Tengiz field, from which raw materials will be supplied. The feasibility study of the project is scheduled for completion in 2019. Private investors are expected to implement projects for the production of PET, methanol and cyclohexane. In addition, four promising projects are at different stages of development $2 billion. The possibility of further processing of paraxylene into PET, benzene into cyclohexane, is also being studied. In addition to investments at Atyrau the Singapore company Westgasoil is building a gas-chemical complex at Aktau with a capacity of 300,000 tpa of methanol, 600,000 tpa of olefins at an estimated cost of $1.8 billion.

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