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# PRODUCTION & MARKETS

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# **CENTRAL & SOUTH EAST EUROPE**

#### Polish propylene market

PCC Rokita has concluded a contract buy for propylene from the Ruhr-Petrol GmbH, continuing arrangements from 2016. A contract was signed at the start of 2017 for propylene supply worth €11.7 million for the current year. There is a possibility of its termination without notice in the event of default by the Ruhr-Petrol relevant provisions of the contract.

PCC Rokita is required to buy propylene in Germany as there is a shoratge in Poland and imports average 150,000-160,000 tpa, most of which goes to Kedzierzyn for the production of oxo alcohols. The dependency on imported propylene will continue until the introduction of the new plants at Police and Plock which are not expected until 2019-2020.

Poland Propylene Imports (unit-			
Country	Q1 16	Q2 16	Q3 16
Russia	28.3	20.2	23.4
Azerbaijan	2.6	3.0	3.0
Bulgaria	0.3	0.0	0.0
Germany	9.8	13.9	9.5
Slovakia	0.0	1.3	0.0
Others	0.2	0.0	3.4
Total	43.2	39.6	39.4

Propylene produced at Grupa Azoty's PDH Poland complex at Police is intended to meet the full demand of the Grupa Azoty's oxo alcohol plant at Kedzierzyn. As defined in commercial terms the estimated production volume at the Police site will comprise 427,000 tpa of propylene. PDH Poland is a special purpose vehicle set up by Grupa Azoty appointed to construct a plant for the production of propylene using PDH. The first ton of propylene is scheduled to be produced in the second half of 2019.

Propylene imports into Poland totalled 119,000 tons in the first three quarters in 2016 against 111,000 tons in the same period in

2015. Russia has been the largest source of imports, accounting for 28,300 tons in Q1 followed by 20,200 tons in Q2 and 23,400 tons in Q3. Overall Russia accounted for 60% of imports into Poland for the first three quarters in 2016. Prices for propylene imports averaged €510/ton overall, including €471/ton for Russian supplies against €587/ton from Germany which supplied 33,228 tons to Poland in January to September 2016.



#### **Central European margins 2016**

Petrochemical margins in Central Europe softened towards the end of 2016 as producers encountered rising crude prices. Orlen's average petrochemical margins fell in the fourth quarter to €906. Unipetrol's polyolefin margins dropped in late 2016, reversing the trends from the early part of 2016 when margins significantly exceeded levels in the early part of 2015.

Regarding refining margins, both PKN Orlen and MOL reported higher levels at the end of 2016 than

the start but the differences were minor. In the fourth quarter of last year, PKN Orlen recorded a refining margin of \$5.8 per barrel, 34.9% more than in the third quarter of 2016 and by 5.5% more than in the fourth quarter of 2015. The Lotos Group reported a refining margin of \$8.18 for each barrel of crude oil processed, 36.1% higher than in the third quarter and 31.7% higher than in the fourth quarter in 2015.

# **PKN Orlen strategy**

PKN Orlen's new strategy remains focused exploiting the integrated value chain, with a growing role of the petrochemical business, and cautious continuation of upstream projects. The rapidly changing business environment has forced the company to adjust its planning horizon. In 2017 and 2018, PKN Orlen plans to spend an average of zl 5.4 billion per annum on capex projects, of which z 3.7 billion is intended for downstream projects, zl 0.6 billion in retail, and zl 0.8 billion in upstream. Petrochemical projects currently underway include the construction of the polyethylene unit at Litvinov, and a metathesis facility for propylene at Plock. Work will also be undertaken by PKN Orlen on a future development concept for the petrochemical business.



The new strategy provides for a continued focus on the security of feedstock supplies. Based on a new contract signed in September with PGNiG, PKN Orlen has secured supplies of natural gas for the next five years. As for oil supplies, it plans to tighten or forge new relationships with major oil producers. The company's refineries are currently supplied with oil under long-term contracts with Rosneft, Tatneft and Saudi Aramco, with additional volumes purchased on the spot market. With its technological configuration, PKN Orlen's plants are capable of

processing more than 80 types of oil from different parts of the world.

# Unipetrol- Česká rafinérská

Unipetrol has completed integration with its subsidiary Česká rafinérská, managing two Czech refineries at Litvínov and Kralupy. On 1 January 2017 the company Česká rafinérská ceased to exist, and in its place, a new organizational unit called Unipetrol RPA Refineries took its place. The company ensures that it will continue to work towards maximizing the utilisation of the production capacity of the two Czech refineries

Czech Petrochemical Imports (unit-kilo tons)			
Product	Jan-Nov 16	Jan-Nov 15	
Ethylene	124.2	31.6	
Propylene	125.8	31.0	
Butadiene	51.1	29.0	
Benzene	76.4	80.0	
Ethylbenzene	50.9	11.9	

group. The merger of Česká rafinérská and Unipetrol RPA will also contribute to greater convergence of petrochemical production and refining, while increasing the competitiveness of the Unipetrol group. The total processing capacity of two plants at Litvinov and Kralupy is 8.7 million tpa.

Regardiing the Litvnov cracker, the resumption of olefin production in late 2016 has meant that imports of

ethylene have been scaled back although propylene imports are continuing. Ethylbenzene exports have resumed from the Czech Republic to Poland following the restart of the cracker.

Polish PTA Exports (unit-kilo tons)			
Country	Jan-Sep 16	Jan-Sep 15	
Belarus	18.8	15.9	
Russia	29.9	9.1	
Switzerland	2.5	2.5	
Netherlands	7.3	2.8	
Lithuania	8.0	42.9	
Germany	242.6	221.6	
Italy	1.2	3.9	
Turkey	8.9	0.0	
Others	3.1	3.2	
Total	322.4	301.7	

# Polish PTA Exports, Jan-Sep 2016

Polish exports of PTA totalled 322,486 tons in the first three quarters in 2016 against 301,763 tons in the same period in 2015. The average price in January to September 2016 amounted to €598/ton, falling from €635/ton in 2015 and €765/ton in 2014. The major end destination for Polish PTA exports remains Germany, accounting for 74% of shipments in the first three quarters in 2016, totalling 242,646 tons at a price of €595/ton.

#### BOP announces force majeure

Basell Orlen Polyolefins (BOP) announced a force majeure on some of its products on 17 January. Production capacities at BOP's plant in Plock stand at 400,000 tpa of polypropylene and 320,000 tpa of HDPE. Even with production of HDPE Poland is a net importer. HDPE imports into Poland totalled 225,670 tons in the first three quarters of 2016 against export volumes of

155,504 tons. Germany and Hungary were the two largest suppliers to the Polish market.

HDPE is the main category of polyethylene produced by the Orlen Group, including Unipetrol and Basell Orlen Polyolefins, whilst LDPE is not produced in the Czech Republic and only in small volumes in Poland.

Imports of LDPE into Poland amount to over 400,000 tpa. In the first three quarters in 2016 Poland imported 353,370 tons of LDPE, for which the major suppliers into Poland included Germany and the Netherlands. Exports of LDPE in January to September 2016 amounted to 74,365 tons at an average price of €1088/ton.



## Polish methanol imports, Jan-Sep 2016

Polish methanol imports totalled 326,000 tons in the first three quarters in 2016, with 120,100 tons being supplied in the third quarter. Russia supplied 80,140 tons to the Polish market in the third quarter, following 74,899 tons and 72,744 tons in the second and first quarters respectively. Average import prices for Russian methanol amounted to €182 per ton in the first three quarters in 2016 against the overall average of €192 per ton for Poland. More expensive methanol imports were sourced from

the EU including Germany (€216/ton) and the Netherlands (€227/ton), whilst the 21,665 tons purchased from Norway were priced at €205/ton.

Polish Tyre Production (unit-kilo tons)			
Sector	Jan-Nov 16	Jan-Nov 15	
Car Tyres	257.8	249.0	
Bus & truck Tyres	187.6	185.9	
Agricultural tyres	26.7	25.3	
Total	472.1	460.2	

#### Polish synthetic rubber market

Styrene imports into Poland rose significantly in the first three quarters of 2016 to 159,400 tons against 55,800 tons in the same period in 2015. The main supplier to the Polish market was the Netherlands and the main consumer Synthos where rubber production has risen this year following the introduction of new capacity. Usage of rubber for tyre production rose from 469,682 tons in the period

January to November 2015 to 486,929 tons in the same period in 2016, with the main categories shown in the table opposite.



Polish Butadiene Imports (unit-kilo tons) Q1 16 Q2 16 Q3 16 Austria 3.2 2.9 5.8 Czech R 0.0 0.0 0.9 Netherlands 3.8 9.4 3.0 Hungary 6.1 7.7 0.3 13.2 Totals 13.0 16.6

Imports of styrene from the Netherlands totalled 117,214 tons in the first half of 2016, at an average of €959 per ton. The major changes in the Polish styrene market took place in the third and particularly fourth quarter in 2015.

Butadiene imports were dominated by MOL in the first half of 2016, but were then overtaken in the third quarter by imports from the Netherlands following new contract arrangements. Hungarian imports were by far the cheapest at €492 per ton on average, whist

imports from the Netherlands were priced at €544 per ton and from Austria at €720 per ton.

#### Grupa Azoty-polyamide & caprolactam

Poland imported 69,237 tons of polyamide in the first three quarters in 2016 against exports of 112,328 tons. Export activity has dropped this year as increased domestic consumption has restricted availability. At present Grupa

Azoty is undertaking a new polyamide 6 project at Tarnow to meet increased domestic demand. Uhde Inventa-Fischer is the project manager in which the new plant is being designed to operate on a capacity of 80,000 tpa of polyamide 6, mainly for film applications and engineering plastics.

Caprolactam exports from Poland totalled 55,000 tons in the first three quarters of 2016 at an average price of €1,115/ton. Caprolactam is produced at Azoty's two plants Pulawy and



Chemical Industry Trends in Central/South East Europe & Eurasia

Tarnow. The major destinations for Polish caprolactam exports in 2016 included China, Taiwan and Germany. Exports have been in decline in the past few years due mainly to lower margins and opportunities in Asia, and Grupa Azoty's strategy is aimed at reducing export dependency by increasing polyamide capacity.

Polish 2-EH Exports (unit-kilo tons)			
Country	Jan-Sep 16	Jan-Sep 15	
Czech R	13.4	11.6	
Germany	12.6	10.6	
Italy	6.5	8.6	
France	8.7	8.2	
India	3.0	4.0	
Turkey	9.9	4.1	
Belgium	6.7	3.8	
Austria	2.4	1.7	
South Korea	3.0	0.0	
UK	0.7	0.6	
Ukraine	1.0	0.9	
Others	0.8	1.8	
Total	68.7	55.8	

Polish Chemical Production (unit-kilo tons)			
Product	Jan-Nov 16	Jan-Nov 15	
Caustic Soda Liquid	278.6	297.1	
Caustic Soda Solid	63.6	59.5	
Soda Ash	1055.3	985.6	
Ethylene	380.3	496.9	
Propylene	279.2	356.6	
Butadiene	49.5	55.4	
Toluene	14.5	12.0	
Phenol	36.4	32.5	
Caprolactam	149.7	150.7	
Acetic Acid	8.2	9.5	
Polyethylene	269.3	342.8	
Polystyrene	52.9	45.1	
EPS	86.3	77.6	
PVC	235.9	297.6	
Polypropylene	193.4	224.9	
Synthetic Rubber	202.1	174.9	
Ammonia (Gaseous)	2357.0	1217.0	
Ammonia (Liquid)	87.0	1238.0	
Pesticides	27.9	27.1	
Nitric Acid	2135.0	2167.0	
Nitrogen Fertilisers	1771.1	1807.0	
Phosphate Fertilisers	424.9	434.4	
Potassium Fertilisers	351.2	350.2	

#### Polish plasticizer trade Jan-Sep 2016

Grupa Azoty Kedzierzyn exported 67,338 tons of 2-ethylhexanol in the first three quarters in 2016, up from 55,828 tons in the same period in 2015. Average prices per ton dropped from €925 in 2015 to €821 in the same period in 2016. Destination countries were largely unchanged, with the three leading markets comprising the Czech Republic, Germany and France. Very little product is shipped outside of Europe.

DOP exports from Poland dropped to 7,092 tons in the first three quarters in 2016 against 7,424 tons in the same period in 2015 whilst DINP exports almost doubled to 1,208 tons. DINP export prices averaged €1028 per ton whilst DOP exports averaged €914 per ton. The two main consumers for Polish DOP exports, mainly from the Boryszew plant, comprised Russia (1,900 tons) and Ukraine (1,700 tons). Germany was the largest EU country for Polish DOP exports, accounting for 701 tons in the first three

quarters in 2016. For DINP, Hungary was the largest destination for Polish exports in 2016, accounting for over 50% of deliveries or 447 tons.

Imports of DINP into Poland outweigh imports tenfold at present and totalled 13,139 tons in the first three quarters in 2016, slightly up on the same period last year. The main supplier of DINP to Poland is the Czech Republic, from Deza at Valasske Mezirici, which increased shipments by around 50% in January to September 2016 over 2015 to 6,720 tons. DINP imports into Poland rose to 15,031 tons in 2015 from 10,392 tons in 2014 and 9,788 tons in 2013.

#### Spolana new unloading facilties and chlorine closure

Chemoservis DWORY K-protos has signed a contract for Kc 66 million to build a plant for unloading chemicals at Spolana. The investment is related to the need to improve logistics in the company. The major event for Spolana in 2017 is the required closure of the caustic soda plant at Neratovice, which is based on mercury. The plant could be closed by mid-2017 which would mean that Spolana would need to import raw materials for PVC production.

#### Spolchemie starts trial run of new chlorine plant

Spolchemie at Usti nad Labem started trial operation in January of its membrane electrolysis unit and is ready to

close the existing mercury technology to meet the environmental requirement of the EU. The first stage of trial operation, including filling equipment and operating substances, is required before production can start. In the first quarter this year products, including hydroxides and chlorine, from the new plant will be offered to customers. For a short period, the mercury plant will remain as a backup should there be technical problems with the membrane unit. However, the process of dismantling the mercury plant is required to be closed before the end of 2017.

# RUSSIA

Russian Chemical Production (unit-kilo tons)		
Product	Jan-Nov 16	Jan-Nov 15
Caustic Soda	1,025.0	1,010.0
Soda Ash	2,783.9	2,811.0
Ethylene	2,537.2	2,516.0
Propylene	1,173.0	1,684.1
Benzene	1,123.8	1,106.7
Xylenes	517.2	495.7
Styrene	603.4	602.5
Phenol	203.2	224.2
Ammonia	14,700.0	13,600.0
Nitrogen Fertilisers	8,660.0	7,830.0
Phosphate Fertilisers	3,182.0	2,940.0
Potash Fertilisers	6,999.0	7,338.0
Plastics in Bulk	7,056.0	6,590.0
Polyethylene	1,933.0	1,624.0
Polystyrene	493.5	484.0
PVC	737.3	714.3
Polypropylene	1,236.2	1,224.7
Polyamide	142.4	130.0
Synthetic Rubber	1,342.7	1,327.1
Synthetic Fibres	138.1	118.1
Naphtha	13,700.0	11,737.8

## Russian chemical industry projections 2017

Despite the weakness of the domestic economy the Russian Ministry of Industry and Trade has forecast 4% production growth this year in the chemical and textile industry, repeating the growth of around 4% in 2016. The chemical industry in Russia has been the star performer over the past few years due to a range of factors including investment, lower feedstock costs and a weaker currency, whereas overall industry is growing at much slower rates.

Over the period 2013-2016 new grassroots facilities have been established by included Tobolsk-Polymer, Polyom, and RusVinyl, but the most important part of growth has come from modernisation of existing facilities in the petrochemical industry. The expansion of Akron at Novgorod and Fosagro at Cherepovets, in addition to the establishment of Ammoni in Tatarstan, has helped increase fertiliser production. State support for the agricultural sector has led to a dramatic rise in the production of plant protection agents. The weaker currency has helped make domestic production more attractive in terms of price, although certain products cannot be replaced and thus the deficit in chemical trade continues.

Whilst export activity is important the domestic market is ultimately the main focus for most producers and particularly those located in the Volga-Urals region. Efforts to develop chemical industry clusters and zones

feature prominently in Russian government planning but there are claims from some of the leading regions (such as Tatarstan) that Moscow lacks understanding of regional markets and which are the best incentives to offer to potential investors. Moreover, regions argue for more autonomy rather than working through the rigid centralised management structure imposed from Moscow, simply because many policies from the federal government are poorly thought out and are not appropriate for each region.



The most recent federal instrument designed to attract investment, both foreign and domestic, comprises the TOR (Territory of Priority Development). The first TOR was set up in 2014 allowing amongst other advantages exemption from the property tax and other taxes and fees, combined with income tax incentives.

The concept of the TOR was first developed for the Russian Far East, and involves the new creation of two grassroots

petrochemical TORs at Svobodny in the Amur Oblast and Nakhodka in the Primorsky Kray.

The concept is now being applied to other regions in Russia and in 2017 the regional government of Bashkortostan plans to apply for four priority development areas (TORs), focused on single-industry towns, including Blagoveshchensk with the main enterprise Polief. Attracting new foreign investors is particularly difficult though when the government is seen as unreliable.

#### DRSC to install energy substation for Amur GPP

Far Eastern Distribution Company (DRSC) plans to put into operation in 2017 a substation which will provide part of the electricity needs of the Amur Gas Processing Plant (GPP) and its ancillary facilities. The project to build a substation is located in the Svobodny area in the Amur Oblast. Transformers have been transported by rail, the weight of each piece of equipment was 35 tons and construction will start in the near future. The start of the power substation 35/10 kV is planned for June 2017. The Amur GPP is being designed to process up to 42 billion cubic metres of gas per annum, and could provide the basis for the Amur Gas Chemical Complex if SIBUR decides to proceed with the project.

#### ZapSibNeftekhim could start in 2019

SIBUR has rescheduled launch of the petrochemical complex under ZapSibNeftekhim for 2019, being brought forward from 2020. The complex involves capacities of 1.5 million tpa of polyethylene and 500,000 tpa of polypropylene. Total investment in construction is estimated at \$ 9.5 billion. 4.45 billion of which will invest from its own resources

## VNKH Complex receives Putin's support

President Putin has instructed all relevant bodies and companies such as Transneft, Gazprom and Russian Railways to provide full committed support to the construction of the VNKH complex at Nakhodka in the Primorsky Kray. The cluster area for the petrochemical industry will be established by 1 March 2017. Russian Railways have been requested to ensure priority delivery of goods for the construction of the Eastern Petrochemical Complex (VNHK). The corresponding order given by the President indicates that Gazprom and other gas suppliers will provide connection of the complex to the main gas pipelines and gas distribution networks.

The VNKH complex is being designed to process up to 30 million tpa of hydrocarbons which are aimed at ensuring the quality of motor fuel in the Russian Far East. Another objective is related to the transition from Russian raw materials exports to the production of high value petrochemicals.

Despite the fact that the plant will ship in large volume production on maritime transport, part of the supply will be supplied by rail.

# **Russian petrochemical markets**

#### Russian Railways, discounts for Tobolsk LPGs

Russian Railways has extended for 2017 its discount on transportation of propane, butane and isobutane from Tobolsk to Ust-Luga in the Leningrad region for export. This includes return carriages, but its size is reduced from 9% to 3%. In 2016.49 million tons of LPGs were shipped from Tobolsk to Ust Luga. SIBUR completed the expansion of the Tobolsk fractionating unit in 2016 from 6.6 million tpa to 8 million tpa. In 2016 the capacity of the Ust Luga LPG terminal was increased from 1.5 million tpa to 2.4 million tpa.

Russian Propylene Domestic Sales (unit-kilo tons)			
Company	Jan-Dec 16	Jan-Dec 15	
Angarsk Polymer Plant	42.2	62.1	
Omsk Kaucuk	3.4	4.1	
SIBUR-Kstovo	102.0	89.9	
Akrilat	0.4	3.7	
LUKoil-NNOS	196.7	194.4	
Tomskneftekhim	1.7	0.1	
Gazprom neftekhim Salavat	3.3	15.7	
Nizhnekamskneftekhim	0.0	2.0	
SIBUR-Khimprom	0.0	0.0	
Stavrolen	0.7	4.2	
Tobolsk-Polymer	1.8	11.0	
Ufaorgsintez	0.0	5.0	
Total	352.3	392.1	

#### Russian monomer production, Jan-Nov 2016

Russian ethylene production totalled 2.572 million tons in the period January to November 2016 against 2.522 million tons in the same period in 2015, whilst propylene production rose from 1.285 million tons to 1.339 million tons. Propylene numbers exclude PDH propylene, such as produced at Tobolsk. Both ethylene and propylene production have achieved record levels in 2016, mainly due to the restart of the Stavrolen cracker and despite the extended outage at Angarsk.

# Russian propylene sales & exports, Jan-Dec 2016

Propylene sales on the Russian domestic market amounted to 34,200 tons in December, or 7% more than in November. Due to reduced export

opportunities in December SIBUR-Kstovo boosted deliveries to the domestic market by 1.8 times to 7,900 tons, whilst Lukoil-NNOS increased sales by 20% to 20,000 tons. At the same time, the Angarsk Polymer Plant reduced shipments of propylene by 15% against November to 6,400 tons. In 2016 sales of propylene on the domestic market totalled 352,300 tons which is 9% down on 2015. Whilst propylene monomer sales fell in 2016, sales of propane-propylene fractions rose 16% in over 2015 to 181,600 tons.

Russian Propylene Exports (unit-kilo tons)		
Company	Jan-Dec 16	Jan-Dec 15
Lukoil-NNOS	68.9	14.3
SIBUR-Kstovo	53.9	54.3
Omsk Kaucuk	4.2	0.0
Angarsk Polymer Plant	1.9	12.7
Stavrolen	15.7	3.7
Total	144.5	84.9

Propylene exports from Russia dropped to 13,100 tons in December against 20,700 tons in November, the fall due to seasonal trends. Overall though, for the whole of 2016 Russian propylene exports totalled 144,500 tons against 84,900 tons in 2015. The sharp rise was due in main to the capacity expansion at Lukoil-NNOS at Kstovo, in addition to increased availability from SIBUR-Kstovo. Imports into Russia fell by 31% in 2016 to 3,342 tons, all of which came from Azerbaijan and went in the main to one Russian consumer Volzhskiy Orgsintez. Propane-propylene fraction exports from Russia totalled 53,600 tons in January

to December 2016, 20% down on the same period in 2015. In recent months nearly all of the propanepropylene shipments have been delivered to Poland. Exports declined in 2016 as producers focused more on the domestic market.

Russian Styrene Production (unit-kilo tons)			
Producer	Jan-Nov 16	Jan-Nov 15	
Nizhnekamskneftekhim	275.2	273.8	
Angarsk Polymer Plant	20.1	33.0	
SIBUR-Khimprom	119.6	117.4	
Gazprom n Salavat	162.0	146.3	
Plastik, Uzlovaya	48.9	41.5	
Total	625.7	612.1	

#### Russian styrene production Jan-Nov 2016

Russian styrene production totalled 625,811 tons in the first eleven months in 2016 against 608,709 tons in the same period in 2015. Although Angarsk Polymer Plant was forced to reduce volumes due to the extended outage between February and June, increases were noted by SIBUR-Khimprom and Gazprom neftekhim Salavat.

#### Russian styrene sales & exports Jan-Dec 2016

Styrene sales on the domestic market dropped 12.6% in December to 7,100 tons. Gazprom neftekhim Salavat 1290 tons SIBUR-Khimprom 714 tons and the Angarsk

shipped 4,730 tons, Plastik at Uzlovaya 1,290 tons, SIBUR-Khimprom 714 tons and the Angarsk Polymer Plant 366 tons. Sales on the domestic market totalled 96,800 tons in the whole of 2016, 6%

Russian Styrene Domestic Sales (unit-kilo tons)			
Producer	Jan-Dec 1	16 Jan-Dec 15	
Angarsk Polymer Plant	9.6	19.0	
Plastik	2.6	3.0	
Gazprom n Salavat	50.7	36.1	
SIBUR-Khimprom	33.9	33.7	
Nizhnekamskneftekhim	0.0	2.0	
Total	96.8	93.8	

Russian Styrene Exports (unit-kilo tons)			
Producer	Jan-Dec 16	Jan-Dec 15	
Angarsk Polymer Plant	0.6	4.6	
Plastik Uzlovaya	8.6	0.0	
Gazprom n Salavat	105.8	90.5	
Nizhnekamskneftekhim	3.1	2.2	
SIBUR-Khimprom	8.7	12.6	
Total	126.8	109.8	



domestic market totalled 96,800 tons in the whole of 2016, 6% less than in 2015. In the export market Russian styrene shipments dropped 26.6% in December to 11,000 tons, of which Gazprom neftekhim Salavat accounted for 9,760 tons and SIBUR-Khimprom 1,220 tons. Finland took 8,700 tons in December, accounting for 62.3% of total shipments. For the whole of 2016 Russian styrene exports totalled 128,300 tons which was 17.7% up on 2015.

# Gazprom neftekhim Salavat-ethylene raw materials

Gazprom neftekhim Salavat expects to increase the volume of deliveries of Surgut gas condensate in 2017 from the Achimov reservoirs. The refining capacity of Gazprom neftekhim Salavat is 10 million tpa, set up originally for processing of heavy crudes. The refinery has since been upgraded to process West Siberian oil and gas condensate from the Karachaganak field in Kazakhstan. The company does not plan to give up oil completely, but will increase usage of gas condensates.

Ethylene production at Salavat totalled 340,000 tons in

2016, and ammonia 570,000 tons. Polymer production rose by 18,000 tons over 2015. Gazprom neftekhim Salavat processed 4.4 million tons of gas condensate in 2016 and 2.6 million tons of oil. The changes in 2016 meant that the higher condensate purchases reduced the monthly volume of oil production from 200,000 tons to 60-70,000 tons. Last year Gazprom neftekhim Salavat completed construction of the complex for acrylic acid and acrylates, in addition to an isomerisation unit for pentane-hexane fraction, and the installation of a sulphide-neutralizing alkaline waste. Continued construction took place for the catalytic cracking unit, hydrogen production plants, and processing propane-propylene fractions.

#### Rosneft-Sayanskkhimplast ethylene prices

At the end of 2016 Rosneft and Sayanskkhimplast entered into a settlement agreement regarding the supply of ethylene, whilst at the same time the Arbitration Court of Irkutsk region agreed to stop the proceedings that were in process. The parties signed a settlement agreement on the price and volumes of supplies of ethylene from Angarsk Polymer Plant to Sayanskkhimplast.



Price disputes between Rosneft and Sayanskkhimplast intensified last year with a proposal to increase the price of ethylene supplied to Sayansk for the production of PVC. Rosneft argues that it sold ethylene at 30% below market prices in 2015, although Sayanskkhimplast still claimed that PVC production remained unprofitable.

A price formula has thus been developed, thus providing an appropriate balance of economic interests of the seller and the buyer. In addition to the question of price, Sayanskkhimplast sought to

increase ethylene supply up to 140,000 tons in 2017 and to 150,000 tons in 2018. The FAS estimated that Angarsk Polymer Plant is now able to produce 216,000 tpa of ethylene but the supply to Sayanskkhimplast



tpa of ethylene but the supply to Sayanskkhimplast via the product will be able to amount to only 119,000 tons. The remainder of the ethylene production at Angarsk is used captively for the production of LDPE.

#### Kazanorgsintez-ethane supply

Tatneft supplied 187,000 tons of ethane from the Minnibayevo gas processing plant to Kazanorgsintez in 2016 for ethylene production, 16,700 tons up on 2015. Tatneft supplies around 30% of ethane requirements for Kazanorgsintez, supplementing the main source of supply from

Gazprom's Orenburg gas processing plant. Although Tatneft increased supply in 2016 Kazanorgsintez still faces raw material shortages. Kazanorgsintez signed another long-term contract in 2015 with Gazprom for ethane supply from Orenburg and is considering options on how to increase capacity. Gazprom is considering the construction by 2022 of a gas processing plant in Tatarstan, which would be capable of producing 2.2 million tpa of ethane and 1.5-1.6 million tpa of LPG which could be delivered to both Kazanorgsintez and Nizhnekamskneftekhim.



According to Kazanorgsintez, the investment strategy for the period up to 2020, includes the planned construction of a new ethylene production facilities, the modernisation of reactors on the LDPE plant, and building its own source of benzene supply. Undertaking these projects will allow for the expansion of the ethylene capacity to 1 million tpa. Producing its own benzene will allow Kazanorgsintez to reduce costs in the production of cumene through to polycarbonate.

# **Gazprom Neft-Orenburg**

At the start of 2017 Gazprom Neft began commissioning a gas pipeline supplying raw materials from the Orenburg gas condensate field to the Orenburg GPP. Completion of the compressor station is expected in 2017, which will increase the supply of gas to the plant. The maximum capacity of the pipeline is 5.7 billion cubic metres of gas per annum. By

expanding the gas infrastructure in 2017 Gazprom Neft plans to complete construction of a compressor station, which will make it possible to supply to the Orenburg GPP the entire volume produced in the Eastern area of the Orenburg gas fields, amounting to more than 5 billion cubic metres. More than 8 billion cubic metres of gas and about 1.5 million tpa of condensate comes from the Karachaganak gas condensate field (Kazakhstan), in addition to 650,000 tons of oil supply from the fields of the Orenburg region.

Bul	k	Po	lym	ers

Russian HDPE Production (unit-kilo tons)				
Producer Jan-Dec 16 Jan-Dec 15				
Kazanorgsintez	486.2	465.9		
Stavrolen	271.2	189.5		
Nizhnekamskneftekhim	135.6	152.1		
Gazprom neftekhim Salavat	108.4	93.9		
Total	1001.4	908.4		

#### **Russian HDPE production, 2016**

Russian HDPE production rose 11% in 2016 to just over million tons, driven in particular by higher utilisation rates at Stavrolen. Kazanorgsintez produced 486,200 tons in 2016 which is 4% higher than in 2015, whilst Stavrolen produced 271,200 tons against 189,500 tons in 2015. Stavrolen reduced production in December due to a short shutdown, but overall production was significantly higher in 2016 as the plant did not operate for the full

twelve months in 2015. Nizhnekamskneftekhim reduced production of HDPE by 12% in 2016 due to occasional switches to LLDPE and thus produced only 135,600 tons last year. The smallest of the Russian HDPE producers Gazprom neftekhim Salavat produced 108,500 tons of HDPE in 2016 against 93,900 tons in 2015. The reason for the rise was mainly the extended shutdown that took place in July-August 2015 which was not repeated last year.

#### Russian polyethylene imports, 2016

Russian polyethylene imports totalled 485,500 tons in 2016, 15% down on 2015 when volumes totalled



Russian Polypropylene Production (unit-kilo tons)			
Producer Jan-Dec 16 Jan-Dec 15			
Ufaorgsintez	123.1	126.6	
Stavrolen	112.4	109.6	
Moscow NPZ	129.4	117.7	
Nizhnekamskneftekhim	216.7	213.2	
Polyom	202.8	191.0	
Tomskneftekhim	129.9	137.6	
Tobolsk-Polymer	463.5	378.9	
Total	1377.8	1264.3	

2016, 15% down on 2015 when volumes totalled 572,000 tons. The largest fall in 2016 was recorded in LLDPE and HDPE imports. LLDPE imports fell from 217,300 tons in 2015 to 172,800 tons in 2016, which was due to the rise in domestic production. HDPE imports declined from 192,600 tons to 153,600 tons, also due to higher domestic production. LDPE imports fell from 102,900 tons to 87,900 tons, which was due to lower demand. EVA imports was the only sector which recorded a rise, up 46% on 2015 to 27,000 tons.

#### **Russian polypropylene production, 2016**

Russian polypropylene production increased by 8% against 2016 to 1.378 million tons. Polyom at Omsk produced 202,800 tons in 2016, 5.5% up on 2015, whilst Tobolsk Polymer increased volumes by around 18% from 378,900 tons. Neftekhimya at Moscow increased production by 12% over 117,700 tons in 2015, whilst Stavrolen increased production from to 109,600 tons to 114,400 tons. Nizhnekamskneftekhim rose 2% to 216,700 tons 162,400 tons, whilst Ufaorgsintez and Tomskneftekhim both reduced volumes slightly against 2015.

# Russian polypropylene imports, 2016

Despite the rise in domestic production polypropylene imports into Russia grew by 11% in the full year of 2016 to 167,200 tons. Homopolymer imports rose 19.2% to 72,500 tons, whilst the only decline was recorded for random copolymers dropping from 36,300 tons to 34,800 tons. Import of propylene block copolymers increased by 9% to 30,800 tons. Imports are sourced largely from the Middle East and Europe.

Russian Polypropylene Imports (unit-kilo tons)			
Jan-Dec 16 Jan-Dec 15			
Homopolymers	72.5	58.3	
Block	30.8	28.2	
Random	34.8	36.3	
Other	29.1	26.0	
Total	167.2	148.8	

#### Russian PVC Production (unit-kilo tons)

Producer	Jan-Dec 16	Jan-Dec 15
Bashkir Soda	248.7	242.2
Kaustik	88.5	95.4
RusVinyl	305.0	237.3
Sayanskkhimplast	142.8	208.5
Total	785.0	783.4

Russian PVC Imports (unit-kilo tons)			
Source	Jan-Dec 16	Jan-Dec 15	
US	19.6	15.9	
China	95.8	64.7	
Europe	7.5	11.0	
Others	1.3	4.3	
Total	124.2	95.9	

Russian Benzene Consumers (unit-kilo tons)			
Consumer	Jan-Dec 16	Jan-Dec 16	
Kuibyshevazot	133.0	154.6	
Azot Kemerovo	93.4	103.0	
Shchekinoazot	53.2	47.7	
Kazanorgsintez	71.1	66.7	
Khimprom	0.7	0.4	
IS laboratories	6.5	0.8	
Togliattikaucuk	3.5	0.0	
Omsk Kaucuk	26.7	6.1	
Chelyabinsk MK	5.2	0.0	
Nizhnekamskneftekhim	42.9	61.7	
Novolipetsk	5.4	3.7	
Samaraorgsintez	44.7	56.7	
Zapsib	49.7	42.8	
SIBUR-Khimprom	91.6	79.7	
Promsintez	13.7	19.6	
Tumazi Carbon Plant	1.5	2.0	
Ufaorgsintez	9.0	0.0	
Uralorgsintez	65.5	73.0	
Zavod im Ya M Sverdlov	13.4	19.0	
Totals	730.4	737.5	

# **Russian PVC production, 2016**

Russian PVC production totalled 785,000 tons in 2016 against 783,400 tons in 2015. RusVinvl increased production from 237,300 tons in 2015 to 305,000 tons whilst Bashkir Soda increased production by 3% to 248,700 tons Sayanskkhimplast produced 142,800 tons in January to December 2016 against 208,600 tons in 2015. The reduction was due to the extended outage between February and June. Kaustik at Volgograd reduced production by 6.900 tons in 2016, falling to 88,500 tons.

Imports of PVC into the Russian market increased by 30% in 2016 to 124,200 tons. China accounted for 95,800 tons in 2016 against 64,100 tons in 2015, whilst imports from the US rose 12% to 19,600 tons. The flow of imports fell sharply in the last two months of 2016 as demand dropped in line with seasonal trends and production plants ran at full capacity. The main factor behind the rise in imports in 2016 was the extended outage at Sayanskkhimplast. PVC exports from Russia rose 52% in 2016 over 2015 to 71,400 tons. The rise in exports was noted towards the end of 2016 when 17,700 tons was shipped in December compared to 10,800 tons in November.

# Russian polycarbonate, Jan-Dec 2016

Kazanorgsintez increased the production of polycarbonates by 5% in 2016 to 70,900 tons. Extrusion grade polycarbonate comprised 86% of production or 61,200 tons. Exports accounted for 10,600 tons in 2016 while imports into Russia dropped 54% to 11,500 tons which was due mostly to lower consumption. Import sources last year included Covestro (4,000 tons), SABIC (2,700 tons), and Lotte (900 tons). Consumption of polycarbonate dropped in 2016 by 19% to 71,500 tons.

# Russian market for corrosion coatings

Polyplastik estimates that the Russian market of polymer compositions for corrosion protection of pipes at around 100,000 tpa will continue to expand due to new projects being undertaken by Gazprom and Transneft for the construction of pipelines. Polyplastik stressed however, that establishing a major share on the domestic market is difficult without state support. Transneft has no single anti-corrosion coatings supplier, purchasing the materials abroad rather than from domestic sources.

# Aromatics

# Russian benzene domestic market, Jan-Dec 2016

Benzene merchant sales on the Russian domestic market totalled 730,400 tons in 2016 against 737,500 vazot reduced purchases by 154,600 tons to 133.000 tons.

tons in 2015. The largest consumer Kuibyshevazot reduced purchases by 154,600 tons to 133,000 tons, due to the use of phenol for caprolactam production.

Russian Aromatics Production 2010 (unit-kilo tons)				
Product	Sep	Oct	Nov	
Benzene	101.4	109.2	118.4	
Toluene	25.2	21.0	26.1	
Xylenes	36.0	44.7	51.9	
Styrene	57.7	53.4	58.0	
Ethylbenzene	66.5	62.7	62.8	

In December, sales volumes of Russian benzene for synthesis and nitration amounted to 61,000 tons. During the month Kirishinefteorgsintez reduced deliveries of the product to the domestic market by 47% to 2,200 tons, mainly due to an increase in exports. Excluding crude benzene sales, shipments of benzene for synthesis and nitration amounted to 638,900 tons in 2016, largely unchanged from 2015. Benzene exports from Russia rose 49% in December over November to 3,000 tons, all of which was shipped by Kirishinefteorgsintez to the Netherlands.

By comparison Kirishinefteorgsintez exported only 994 tons of benzene in the whole of 2016. Imports of benzene amounted to 2,200 tons in December, twice higher than in November, all of which went to Kuibyshevazot. The caprolactam producer increased imports of benzene by 6.2 times in December to 1,900 tons from the Atyrau refinery in Kazakhstan whilst benzene purchases from the Ukrainian company Zaporozhkoks increased 2.6 times to 308 tons. Benzene imports into Russia totalled 14,300 tons in the whole of 2016, 3.8 times higher than in 2015. Benzene imports totalled 11,900 tons in January to November 2016, which is 3.3 times lower than in 2015. Aside Ukrainian imports such as Zaporozhkoks, benzene has also started to arrive from the Atyrau refinery in Kazakhstan (1,200 tons in September).

# Russian benzene production, Jan-Nov 2016

Benzene production in November amounted to 118,400 tons against 109,200 tons in October. Kirishinefteorgsintez increased production by 2.2 times over October to 4,700 tons whilst Gazprom Neft at the Omsk Refinery increased output by 44% to 9,600 tons and SIBUR-Kstovo increased by 38% to 7,200

Russian Orthoxylene Domestic Sales (unit-kilo tons)			
Producer Jan-Dec 16 Jan-Dec 15			
Gazprom Neft	45.3	58.9	
Ufaneftekhim	52.7	41.9	
Kirishinefteorgsintez 32.5 34.7			
Total 130.4 135.5			
Source; Chem-Courier			

tons. Russian benzene production totalled 1.128 million tons for January to November 2016 against 1.098 million tons in the same period in 2015.

Nizhnekamskneftekhim is undertaking plans to modernise the production of benzene after signing a license agreement with GTC Technology (USA). The GT-BTX® technology will be applied to the olefins plant EP-600 at Nizhnekamsk, which will process C6-C8 hydrocarbons. he

modernisation will allow Nizhnekamskneftekhim to reduce the cost of production of benzene, and also to provide savings of up to 40,000 tpa of hydrocarbons. The agreement with GTC includes the development of the basic design, technical services, the supply of catalyst, solvent and equipment. The start the upgraded production is scheduled for 2017.

# Russian xylene markets, Jan-Dec 2016

Orthoxylene sales on the domestic market totalled 130,400 tons in 2016 against 135,500 tons in 2015. Consumption slowed down in the second half of 2016 after a strong first half in demand particularly from paints and fuels. The main phthalic anhydride producer in Russia Kamteks-Khimprom increased its purchases of orthoxylene in December by 9% to 8,860 tons, whilst the second and smaller producer

Russian Paraxylene Domestic Sales (unit-kilo tons)			
Producer Jan-Dec 16 Jan-Dec 15			
Gazprom Neft	61.6	77.3	
Ufaneftekhim	107.5	109.4	
Kirishinefteorgsintez 0.2 0.2			
Total	169.2	186.9	

Gazprom neftekhim Salavat increased by 2.1 times to 990 tons. Dmitrievsky Chemical Plant, which uses orthoxylene in solvent production, reduced purchases by 2.8 times to 280 tons in December.

For the whole of 2016 Russian exports of orthoxylene amounted to 100,140 tons which was 34% higher than in 2015. In December orthoxylene exports amounted to 7,500

tons which was 2.1 times higher than in the previous month. Gazprom Neft supplied 7,220 tons, all of which went to Finland.

Paraxylene sales on the Russian domestic market totalled 169,200 tons in 2016 against 186,900 tons in 2015, due to lower demand from Polief. PTA imports into Russia totalled 182,300 tons in the first eleven months in 2016 against 153,500 tons in the same period in 2015. The leading suppliers included South Korea, Belgium, China and Poland.

Russian PTA Imports (unit-kilo tons)				
Country Jan-Nov 16 Jan-Nov 15				
Belgium	45.3	30.3		
Brazil	3.4	8.2		
China	41.5	37.6		
South Korea	61.0	66.8		
Poland	29.9	8.1		
Thailand	1.0	0.0		
Portugal	0.0	2.5		
UK	0.2	0.0		
Total	182.3	153.5		

Russian Market Phenol Sales by Supplier

(unit-kilo tons)

45.0

13.0

65.6

0.4

3.9

127.9

Producer

Novokuibyshevsk PC

Kazanorgsintez

Ufaorgsintez

LUKoil-VNPZ

Borealis

Total

Jan-Dec16

Jan-Dec 15

49.8

14 1

43.8

1.0

3.9

112.6

South Korea reduced shipments from 66,800 tons in January to November 2015 to 61,000 tons in the same period in 2015, whilst Belgium increased shipments from 30,300 tons to 45,300 tons.

## Russian phenol market sales 2016

Phenol sales on the Russian domestic market increased in the whole of 2016 to 127,900 tons against 112,600 tons in 2015. The rise was mainly due to purchases made by Kuibyshevazot in place of benzene. The largest supplier to the market last year was Ufaorgsintez, which increased domestic sales from 43,800 tons in 2015 to 65,600 tons. Novokuibyshevsk Petrochemical Company shipped 45,000 tons in 2016, followed by Kazanorgsintez with 13,000 tons.

Borealis continued to supply benzene from Finland, shipping 3,900 tons in 2016, which was largely sold to Russian consumers YM Sverdlov, Astatine, and Pigment. Russian phenol exports amounted to 8,131 tons in 2016 against 1,525 tons in 2015. The largest exporter was Ufaorgsintez, accounting for around 90% of shipments. Phenol shipments are likely to increase following the start of the modernised phenol-acetone facilities at Omsk Kaucuk in 2018-2019.

#### Synthetic Rubber

**Russian synthetic rubber producers** C4 sales on the domestic Russian market fell in December by 9% against November to 29,600 tons.

Russian C4 Supplies (unit-kilo tons)				
Supplier	Jan-Dec 16	Jan-Dec 15		
Angarsk Polymer	22.5	65.8		
Krasnoyarsk Synthetic Rubber	0.5	0.4		
Kazanorgsintez	38.7	31.8		
Stavrolen	72.8	59.3		
SIBUR-Kstovo	83.4	73.5		
Gazprom neftekhim Salavat	0.0	6.4		
Tomskneftekhim	62.8	67.5		
Ufaorgsintez	26.0	26.1		
Naftan (Belarus)	41.5	54.3		
SANORS	0.1	0.5		
Azerkhimya	23.2	24.6		
Efremov Synthetic Rubber	0.0	0.2		
Iran	0.8	1.4		
Total	372.2	411.7		

Overall sales in 2016, including domestic and import sources, totalled 372,200 tons in 2016 against 411,700 tons in 2015. The largest domestic merchant buyer in 2016 was SIBUR Togliatti, which purchased 161,200 tons, followed by Nizhnekamskneftekhim with 159,700 tons. The other major consumer was Omsk Kaucuk which shipped in 60,600 tons, some of which came from imported sources.

C4 imports into Russia totalled 66,400 tons in 2016, 18% less than in 2015. The main source of imports is Belarus followed by Azerbaijan.

SIBUR has invested 400 million roubles in the first phase of reconstruction of water recycling systems at the industrial site of Voronezhsintezkaucuk.

Rostekhnadzor has completed the investigation into the May 2016 accident in the production of rubber at Nizhnekamskneftekhim which caused the death

of two employees of the company. One of the causes of the accident was the lack of tightness of valves on the mounted section of the pipeline. The accident in the production of synthetic rubber.

#### Nizhnekamskneftekhim isobutylene, butyl & isoprene rubber

Nizhnekamskneftekhim started a new installation for the production of isobutylene by the end 2016, as part of providing the feedstock base for isoprene monomer production. Isobutylene is considered by Nizhnekamskneftekhim to be more economical in the production of isoprene monomer than isopentane, which it has traditionally used in the production process.

Russian Synthetic Rubber Export Prices (euros per ton)				
Product	Nov-16	Oct-16	Average 2016	
Synthetic Rubber	1179.8	1296.5	1189.0	
SKMS Rubber	1056.6	1008.3	894.4	
SKD Rubber	1145.9	1105.2	996.4	
Isoprene rubber	1159.6	1136.4	1068.5	
<b>Russian Synthe</b>	tic Rubb	er Expor	ts by Country	
	(unit-kilo	o tons)		
Country	Jan-No	ov 16	Jan-Nov 15	
Belgium	15.6		14.0	
Brazil	25.8		52.4	
Bulgaria	1.0		3.0	
Canada	15.3		19.3	
China	121.5		84.6	
Czech Republic	29.5		27.0	
Germany	27.5		23.4	
Hungary	65.6		69.9	
India	99.7		76.4	

6.7

18.5

4.1

7.0

27.2

118.2

4.7

38.0

15.4

32.2

7.5

95

9.9

2.4

26.5

24.1

56.4

83.6

893.2

9.7

31.6

12.3

11.3

13.5

111.0

5.4

36.0

13.9

29.2

9.8

6.5

16.5

5.9

39.2

15.1

51.0

74.8

862.7

Italy

Japan Latvia

Lithuania

Mexico

Poland

Portugal

Romania

Serbia

Spain

Taiwan

Thailand

Turkey

Ukraine

Others

Total

US

Slovakia

South Korea

The new isobutylene unit includes a capacity of 160,000 tpa, and combines with a 100,000 tpa unit for formaldehyde. The new isobutylene unit is also helpful in the production of MTBE and particularly butyl rubber where capacity at Nizhnekamsk is scheduled to rise to 220,000 tpa by February 2017.

Butyl rubber capacity is being expanded to fulfill contracts with global tyre suppliers such as Pirelli, Michelin and Bridgestone. Last year Nizhnekamskneftekhim produced 198,000 tons of butyl rubber, of which 126,900 tons was halogenated. As part of the reconstruction process, isoprene rubber capacity at Nizhnekamskneftekhim is being increased from 280,000 tpa eventually to 380,000 tpa. At the end of 2015 Nizhnekamskneftekhim held a 42% share in the world market for polyisoprene rubber and 16% in butyl rubber.

# SIBUR-Reliance Industries

SIBUR and Reliance Industries state that they will ready to launch the production of butyl rubber at Jamnagar (India) in 2018. The halobutyl rubber production project is currently at the design stage.

The project was first initiated in 2012 by forming a jv Reliance SIBUR Elastomers Private Limited and in February 2013 the first stone of the new plant at Jamnagar was laid. SIBUR undertook to develop the basic design of the new complex, whilst Reliance Industries has committed to provide the necessary infrastructure.

The production launch was originally scheduled for 2015 but was delayed partly due to delays in the raw material arrangements at Jamnagar. The capacity of the plant under construction of butyl rubber production will be 120,000 tpa, of which around 60,000 tpa could be directed to halogenated butyl rubber in the new venture. India is an attractive destination for investment in view of the growing demand for synthetic rubber in the local market, a good investment climate of Gujarat, infrastructure and availability of raw materials with the world-class RIL area.

rubber will meet the growing demand from the pharmaceutical companies, and the biggest Indian and international tyre manufacturers.

The cumulative annual growth rate of demand for halobutyl rubber in India is estimated at 8-10% in the next few years due to the rising popularity of tubeless tyres in the subcontinent as well as significant investments in the production of closures for pharmaceutical products and internal coating of containers and tanks. It is expected that production of the new complex will displace the local market with imported analogues.

# Russian synthetic rubber exports, Jan-Nov 2016

Synthetic rubber exports from Russia totalled 892,300 tons in the first eleven months in 2016, against 862,700 tons in the same period in 2015. By country, the largest destinations included China, Poland and India. Other important markets included the US, Romania and the Czech Republic. Central-East Europe is

the most important region for Russian rubber exports. Prices were significantly down in 2016 due to a combination of oversupply and low feedstock costs.

Russian Synthetic Rubber Exports (unit-kilo tons)				
Category Jan-Nov 16 Jan-Nov 15				
E-SBR	23.8	29.3		
Block	37.0	31.0		
SSBR	8.3	6.9		
SBR	45.0	66.5		
Polybutadiene	216.1	207.4		
Butyl Rubber	118.3	117.3		
HBR	111.1	109.5		
NBR	27.6	26.8		
Isoprene Rubber	251.6	236.1		
Others	53.7	32.0		
Total	892.3	862.7		

#### Russian synthetic rubber market

The synthetic rubber market in Russia has declined in recent years due to the weak economy, but 2016 did see something of a stabilisation in consumption levels by falling by around 3% against 2015. Consumption dropped significantly in the period 2013-2015, dropping 16% in 2015. Consumption of rubber in Russia in non-tyre applications fell in 2015 to 243,000 tons against 291,000 tons in 2014. Around 60% of rubber consumed in 2015 was sourced domestically. This year the market has stabilised to an extent and may even slightly improve on 2015 consumption levels. Despite the weakening of the rouble, the imported products are still competitive in quality and thus cannot be replaced completely from domestic sources.

This year prices may be higher. Flooding in Thailand has led to sharp rise in price of natural rubber due to damage to production, which maybe favourable to synthetic rubber export prices from Russia in the short term. The problem is not only in the cost but supply disruptions are expected to last several months. Prices in Shanghai jumped 2.5% in January to about \$2270.

#### Russian tyre market

The Russian tyre market continued to fall in 2016, albeit at a slower pace. According to Michelin estimates, the overall Russian tyre market declined by 11% by the end of 2016, to 30.8 million tyres. This follows a fall in 2015 of a drop in sales of about 20%, and at the same time an increase in export activity based on a cheaper rouble.

Continental Tyres in at Kaluga increased exports by 30% in 2016 over the previous year. The plant increased production by 50% in 2016 over 2015 to 3 million pieces, having originally started in October 2013. Part of the exports are shipped to the Canadian and Chinese markets. Continental customers include Renault, Ford, Avtovaz, Nissan and the Volkswagen Group. Nokian Tyres before 2014 sold around 40% of production from its plant in the Leningrad region, but following the depreciation of the rouble and the diminishing domestic economy the ratio has fallen to 15-20%.

Regarding synthetic rubber sales, the main factor of interest is the level of plant utilisation and the amount of

Russian Chemical Commodity Exports				December 2016	
	Jan-Nov 16	Jan-Nov 15	Jan-Nov 16	Jan-Nov 15	production of con
Product	Kilo tons	USD Mil	Kilo tons	USD Mil	tyres in the Ulya
Ammonia	3,510	801	3,201	1,222	plant will eventua
Methanol	1,342	224	1,115	300	Furthermore, in
Nitrogen Fertilisers	11,411	1,954	10,238	2,379	2016, Nokian Tyre
Potash	8,089	1,620	10,622	2,820	to establish a factor
Mixed Fertilisers	8,342	2,388	7,599	2,904	region in 2017 and
Synthetic Rubber	892.3	1,160	863	1,279	annum. The d

investment activity into new plants. In December 2016 Bridgestone started production of commercial batches of tyres in the Ulyanovsk region. The plant will eventually produce up to 2 million tyres per annum. Furthermore, in early December 2016, Nokian Tyres announced plans to establish a factory in the Leningrad region in 2017 another production line capacity of about 1.5 million tyres per annum. The domestic market is

expected to stabilise in 2017 after several years of significant declines under the premise there should be a case of pent-up demand due to car purchasing cycles in the past four to eight years.

#### Methanol

#### Russian methanol, Jan-Dec 2016

Russian methanol exports rose 40% in December over November to 148,700 tons. Sibmetakhim shipped 47,200 tons, Metafrax 34,900 tons, Tomet 20,100 tons, Shchekinoazot 24,100 tons) and Azot 17,000 tons. The remaining 695 tons were shipped by Akron. Finland accounted for 83,700 tons of Russian methanol shipments in December, followed by Poland 16,100 tons, Germany 11,200 tons and Slovakia 11,500 tons. Russian exports of methanol totalled 1.525 million tons in January to December 2016 against 1.327 million tons in 2015. Average export prices dropped in 2016 to \$166 per ton from \$269 per ton in 2015.

Russian methanol production amounted to 342,000 tons in November, 13% up on October and the highest volume in 2016. Metafrax accounted for 30% of production, followed by Tomet and Sibmetakhim with almost 20% each, and Shchekinoazot and Azot 14% and 8%, respectively. Sibmetakhim increased production 2.5 times in November after its maintenance outage, producing 82,500 tons, whilst Akron increased production by 4% to 8,300 tons. Akron has opened a new warehouse for methanol storage at Novgorod, including five installations with a capacity of 1000 m3 each for crude methanol.

Russian Methanol Production (unit-kilo tons)					
Producer Jan-Nov 16 Jan-Nov 15					
Shchekinoazot	445.4	409.2			
Sibmetakhim	700.4	786.7			
Metafrax	966.4	833.8			
Akron	71.6	83.7			
Azot, Novomoskovsk	290.5	278.5			
Angarsk Petrochemical	0.6	5.5			
Azot, Nevinnomyssk	111.7	111.9			
Togliattiazot	611.1	678.2			
Ammoni	119.4	49.4			
Totals	3317.1	3236.9			

## Russian methanol and ammonia projects

One of the largest current projects for methanol and ammonia in Russia belongs to National Chemical Group at Nakhodka in the Primorsky Kray in which part owner Arkady Rotenberg sold his share in late 2016. The share was sold to Artem Obolensky who now owns half of the project. The jv between National Chemical Group and Gazprom involves the construction of a methanol plant of 1.1 million tpa capacity. The main feedstock question is how the gas from the Yamal Peninsula be delivered to the Russian Far East.

Currently National Chemical Group is in talks to attract funding from the Japanese group JBIC, and the Korean group KEXIM. The cost of the plant is estimated at \$5 billion. The complex is being located on a 600-hectare site at the port of Vostochny which will provide good access for shipping and export possibilities.



Having recently taken a 19.5% stake in Pechora LNG, Rosneft is considering a possible project for methanol and urea. Pechora LNG is based on the Korovinsk Kumzhinsk fields in the Nenets Autonomous Okrug where reserves comprise 165.8 billion cubic metres of gas and 5.6 million tons of condensate.

Regarding projects at the more advanced stage UralMetanolGroup is scheduled to start construction of the methanol plant at Chempark Tagil, in Nizhniy Tagil, in the near future.

Shchekinoazot continues to implement its project for new facilities for methanol and ammonia M-450 / A-135, which will be followed by the construction of a third methanol plant. Shchekinoazot and Haldor Topsoe signed a contract on 10 November 2016 for engineering services for the new construction unit for methanol capacity of 500,000 tpa. This will add to the current M-450 plant, producing 450,000 tpa, which started in 2011. The main objective of the new project for the next two years entails the preparation of the construction

Shchekinoazot Production (unit-kilo tons)				
Product 2016 2015				
Caprolactam	58.0	54.8		
Cyclohexane 4.1 3.4				
Methanol 485.0 451.6				
Formaldehyde 32.0 30.1				

site, engineering surveys, basic engineering and design documentation, passing through state examination of the project and obtaining a building permit.

The company's management believes that, despite the complexity of the methanol market in Russia and in Europe, this project will have a reasonable payback period. Importantly the rising costs of gas mean that Shchekinoazot requires the most effective technology that it would allow it

to compete successfully on the domestic and international markets.

#### Shchekinoazot 2016

Shchekinoazot produced 485,000 tons of methanol in 2016, which is 7.4% more than in 2015, whilst ammonia production amounted to 60,500 tons. Caprolactam production remained unchanged at 58,000 tons, cyclohexane production rose 21% to 4,090 tons, whilst formaldehyde increased by 6.3% to 31,990 tons.

#### Togliatti-Odessa ammonia pipeline news

Fosagro plans to build an ammonia pipeline, which will connect Balakovo branch of Apatit with the main ammonia pipeline Togliatti-Odessa. The connection will stretch 15 kilometres and the uninterrupted delivery of ammonia will reduce transport costs. Construction of the ammonia pipeline, which will connect the complex enterprise storage of liquid ammonia for the production of mineral fertilisers with the main ammonia Togliatti-Odessa, is scheduled for completion in August 2017. The company Samaraneftegazstroy has been selected as the contractor.



In January Togliattiazot (TOAZ) sent an official claim to Ukrainian state enterprise Ukrhimtransammiak as it had stopped the ammonia transit through Ukrainian section of the main ammonia Togliatti-Odessa on 23 December 2016. TOAZ believes that Ukrhimtransammiak illegally refuses to fulfil the obligations under the contract of 2007 and continues to illegally impose new higher transit tariff. TOAZ has insisted that Ukrhimtransammiak immediately resume the transit of ammonia and execution obligation in kind of transportation agreed to in January 2017 of 130,000 tons of liquid ammonia.

The ammonia pipeline Togliatti-Odessa was built in the late 1970s for the transportation of Russian ammonia for export. The capacity for ammonia transportation is 2.52 million tons per annum, of which 2.12 million tons is accounted for by Russian companies, and the remaining 400,000 tons was for Stirol at Gorlovka which has since suspended production activity. The total length of the ammonia is 2,420 kilometres, including 1,020 kilometres inside Ukraine.

Russian MEG Market (unit-kilo tons)				
2016 2015				
Domestic Sales	103.5	135.3		
Exports	119.7	95.8		
Imports	35.4	14.8		

Russian N-butanol Exports (unit-kilo tons)				
Producer	Jan-Dec 16	6 Jan-Dec 15		
Gazprom neftekhim Salavat	57.0	36.2		
SIBUR-Khimprom	5.7	12.9		
Angarsk Petrochemical	0.5	13.6		
Azot Nevinnomyssk	0.7	11.6		
Dmitrievsky Chemical Plant	0.8	0.2		
Total	64.7	76.9		
Russian Isobutanol Exports (unit-kilo tons)				
Producer	Jan-Dec 16	6 Jan-Dec 15		
Gazprom n Salavat	20.5	0.0		
SIBUR-Khimprom	0.0	2.2		
Angarsk Petrochemical	0.2	12.6		
Dmitrievsky Chemical Plant	125.3	0.6		
Total	20.7	15.4		

#### Russian MEG market

MEG sales on the Russian domestic market amounted to 13,310 tons in December, 21% up on November. SIBUR-Neftekhim supplied 9,970 tons in December, followed by 3,300 tons from Nizhnekamskneftekhim. For January-December 2016, domestic Russian MEG sales totalled 103,500 tons which was 30.7% down on 2015. Polief was the main consumer, followed by smaller purchasers such as BaltTechProm and Obninskorgsintez. In December, MEG exports amounted to 8,190 tons of which SIBUR-Neftekhim accounted for 4,640 tons and Nizhnekamskneftekhim 3,470 tons. Belarus took 7,380 tons in December. For 2016 MEG exports from Russia totalled 119.720 tons, 25% more than in i2015.

**Organic chemicals** 

In November, the sole Russian importer TD Ecopolymer which reduced product purchases by 31%, to 2,100 tons. The main supplier of MEG was Saudi Arabia. In December Ecopolymer increased imports by 2.5 times to 5,200 tons of which Saudi Arabia supplied 4,200 tons. Other suppliers included the

Netherlands with 1,000 tons. Imports of MEG into the Russian market rose 2.4 times in 2016 to 35,400 tons, mainly to compensate for the rise in export activity.

# Russian butanols, Jan-Dec 2016

Russian butanol exports amounted to 3,720 tons in November, twice less than in October. In December exports dropped further to 3,040 tons, in which isobutanol shipments comprised 89%. SIBUR-Khimprom shipped 1,580 tons in December, and Gazprom neftekhim Salavat 1,440 tons. Finland accounted for 44% of exports in December, followed by Ukraine (21%) and Turkey (19%). Russian butanol exports totalled 88,690 tons in 2016, 31% less than in 2015.

Russian Butanol Consumption (unit-kilo tons)			
Consumer	Jan-Dec 16	Jan-Dec 15	
Akrilat	25.3	24.6	
Dmitrievsky Chemical	22.4	23.8	
Plant of Synthetic Alcohol	1.2	1.9	
Volzhskiy Orgsintez	6.3	5.9	
Roshalsky Plant of Plasticizers	1.5	0.0	
Others	15.2	15.7	
Total	71.9	71.8	

Sales of butanols on the domestic market totalled 71,860 tons in 2016, almost unchanged from 2015. The two largest consumers on the merchant market comprised Akrilat, which is part of SIBUR, and Dmitrievsky Chemical Plant. Akrilat purchased 25,300 tons in 2016, vs 24,600 tons in 2015.

Sales of domestic butanols on the Russian market amounted to 4,340 tons in December, 29% less than in November. The proportion of nbutanol in gross sales amounted to 91% in

December 2016. SIBUR-Khimprom supplied 3,640 tons in December followed by 350 tons from Azot at Nevinnomyssk and 220 tons from Angarsk Petrochemical.

Gazprom neftekhim Salavat reduced sales by 17 times in December against November to 120 tons, due principally to the start-up of the acrylates complex. Significant amounts of n-butanol produced by Gazprom neftekhim Salavat is now used in the production of butyl acrylate.



Butanol production in Russia amounted to 16,760 tons in November, 3% up on October. SIBUR-Khimprom produced 8,180 tons, followed by Gazprom neftekhim Salavat with 6,720 tons, Azot Nevinnomyssk Azot 1,660 tons and Angarsk Petrochemical 200 tons. In the period January to November 2016. Russian butanol production totalled 205,560 tons which was 5% down on 2015.

#### Acrylic Salavat

Acrylic Salavat-Acrylates Complex Capacity Glacial Acetic... Acrylates Acrylic Acid 0 20 40 60 80 pl KILO TONS PER ANNUM

Acrylic Salavat, a subsidiary of Gazprom neftekhim Salavat, started production of the new acrylate complex

in late 2016. In January reports emerged that Acrylic Salavat was exporting to Turkey and was examining the Asian market. The acrylates complex is one of the ten key projects for Gazprom neftekhim Salavat. In December 2012 the company signed an EPC-contract with Mitsubishi Heavy Industries, Ltd. (Japan), the trading house Sojitz Corporation (Japan) and Renaissance Construction (Turkey) for the construction of the complex. The complex will operate the acrylic acid plant with a production capacity of 80,000 tpa, butyl acrylate with a capacity of 80,000 tpa and glacial

acrylic acid capacity of 35,000 tpa. Investments into the project are estimated at 38.9 billion roubles.

Russian Organic Chemical Production 2016					
Oct Nov Dec					
Isopropanol	3.0	3.7	2.3		
N-Butanol	9.9	10.1	13.5		
Isobutanol	6.5	6.7	7.4		
MEG	37.5	41.0	43.2		
Propylene glycol	0.1	0.1	0.0		
Phenol	20.5	19.9	15.3		
Acetic Acid	17.4	14.5	17.1		
Butyl Acetate	5.1	5.3	3.6		
Phthalic Anhydride	4.1	12.3	11.2		
Methionine	2.2	2.4	2.5		

#### Russian solvents & alcohols, Jan-Nov 2016

Imports of DOP in November amounted to 89 tons in November, against 269 tons in October. All of the imports in November came from the Polish company Boryszew. Russian DOP imports totalled 2,440 tons I the first eleven months in 2016, 33% down on 2015.

Metafrax produced 22,740 tons of pentaerythritol in 2016, which is 3% more than in 2015. Lukoil is exploring the use of polyacrylamide in chemical EOR technologies, which could mean increased usage of acrylonitrile for domestic consumption. The company possesses acrylonitrile production capacity of 150,000 tpa and sodium cyanide

Chemical Industry Trends in Central/South East Europe & Eurasia

capacity of 48,000 tpa. Kamteks-Khimprom reduced phthalic anhydride exports by 20% in 2016 to 38,950 tons. In December 2016 the company exported 5,990 tons which is 59% up on November, and directed mostly to Pakistan, China, UAE, Finland, etc.

**Other Products** 

Russian Organic Chemical Export Prices (euros per ton)				
Product	Nov-16	Oct-16	2016 Average	
Plasticizer Alcohols	0.0	513.1	365.1	
<b>Butanols</b>	337.5	319.0	193.2	
Methanol	147.5	140.7	124.9	
MEG	0.0	638.6	541.5	
Acetic acid	274.7	231.2	237.3	
Butyl Acetate	483.2	495.8	304.6	
Caprolactam	1211.7	1228.9	980.5	
Acetone	464.8	411.6	286.9	

# Linde Gas Rus Dzerzhinsk

Linde Gas Rus will receive priority status in the Dzerzhinsk area that gives it preferential tax treatment in the production of industrial gases. The plant was launched on 22 September 2016, including a capacity of 30,000 cubic metres per hour of oxygen gas. The main consumer of industrial gases is SIBUR-Neftekhim with which Linde signed an agreement on construction and operation on site in Dzerzhinsk SIBUR air separation plant to supply industrial gases (oxygen, nitrogen and compressed air) produced by the production of ethylene oxide and glycol. Part of the industrial gases produced by

the new plant is supplied to other consumers, sold on the market of Nizhniy Novgorod region and other regions.

#### TAIF considering epichlorodhydrin project

TAIF and Tatneft are considering the possibility of launching production of epichlorohydrin and epoxy resins in Tatarstan. The initiator of the project Institute of Petrochemical Synthesis (TIPS) has designed technology for producing epichlorohydrin from propylene, leading to the production of epoxy resins (DE-22 and DE-20). TIPS believes that Tatarstan can create a production plant for epoxy resins with a capacity of 20,000 tpa-40,000 tpa. For the production of 40,000 tpa of epoxy resins, about 22,800 tons of epichlorohydrin is required. Currently Russian consumption of epoxy resins is serviced through imports from Asia. Demand is estimated at 40-60,000 tpa. Epichlorohydrin was previously produced at Usolye-Sibirsk and Sterlitamak, but have been suspended in both cases.

Be	arus
	alus

Azot Grodno Production (unit-kilo tons)				
Product	Jan-Dec 16	Jan-Dec 15		
Methanol	70.3	85.3		
Caprolactam	108.6	128.1		
Polyamide primary	102.9	95.7		
Polyamide filled	11.2	8.9		
Ammonia	1079.1	1103.0		
Urea	1032.1	1053.6		
Fertilisers	772.8	797.9		
Fibres	37.5	31.0		

#### Azot Grodno production

Azot at Grodno increased the production of marketable products in value terms by 3.9% in 2016. The company managed to obtain a significant increase in tonnage for tyre cord fabrics, fibres and yarns. Regarding gas prices for Azot in 2017, the price of Russian gas for Belarus was retained in October at \$132 per thousand cubic metres.

For 2016, the company increased tonnage figures for the polyamide by 4.1% to 102,900 tons. Cord fabric production increased by 35.7%, amounting to 30,104 thousand running metres, and fibres and filaments by b21.8% to 30,225 tons. At

the same time the production of ammonium sulphate at Grodno fell by 13.9% to 274.380 tons. Methanol production at Grodno decreased by 20.7% to 70,300 tons and caprolactam decreased by 12.5% to 108,600 tons.

#### **Belarussian polyethylene production 2016** LDPE production in Belarus totalled 92,400 tons in 2016, 25% down on 2015. The main reason for such a decline in production volumes was due to a fire in June 2016 at one of the production lines, which led to a halving of the olefin production volumes.

#### Belarussian cracker project at Polymir

Polymir announced plans at the start of 2017 to build a new ethylene-propylene plant and bring it to full capacity by 2021. The estimated capacity of the new plant is 300,000 tpa and would be directed towards the production of polyethylene. The investment required for the project is estimated at \$511 million

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and Polymir is ready to consider proposals from potential investors. This could include various scenarios including a joint venture, an additional issue of shares, or the acquisition of the enterprise as a property complex. The project plan is to sell its products through existing distribution channels belonging to Naftan.

Belarussian Organic Chemical Exports (unit-kilo tons)			
Product	Jan-Nov 1	6 Jan-Nov 15	
Acrylonitrile	32.6	33.3	
Caprolactam	6.5	29.8	
Phthalic anhydride	20.2	22.8	
Methanol	29.4	65.3	

## Belarussian chemical trade, Jan-Nov 2016

Methanol exports from Belarus in the first eleven months in 2016 totalled 29,396 tons against 65,349 tons in the same period in 2015. Caprolactam exports from Belarus declined from 29,848 tons in the period January to November 2015 to 6,451 tons in 2016, with Azot not exporting since the first half of last year.

For acrylonitrile exports, the largest destination for Belarussian product in the first eleven months in 2016 was Turkey accounting for 18,111 tons, followed by Hungary with 4.021 tons. A new market direction for Belarussian acrylonitrile exports in November was Iran where 3,014 tons was exported at an average price of \$1097/ton. Phthalic anhydride exports from Belarus dropped to 16,147 tons in the first eleven months to 2016 from 17,869 tons. Polyethylene exports fell to 102,915 tons in January to November 2016 from 113,195 tons in the same period in 2015.

Mogilevkhimvolokno PTA Imports (unit-kilo tons)				
Country	Jan-Nov 16	Jan-Nov 15		
Poland	21.3	31.1		
Russia	3.4	3.2		
South Korea	23.1	9.0		
Portugal	1.0	0.0		
Thailand	1.1	3.2		
Total	49.8	46.5		

**Belarussian Polymer Imports** 

(unit-kilo tons)

22.5

76.4

41.7

62.0

Product PVC

LDPE

HDPE

Polystyrene

Polypropylene 88.8

Regarding imports, paraxylene shipments from Russia increased from 10,473 tons in January to November 2015 to 19,893 tons in the same period in 2016. PTA imports rose slightly to 49,822 tons from 46,421 tons in the first eleven months in 2015. Poland is the dominant supplier of PTA accounting 21,293 tons in the first eleven months of 2016 followed by South Korea with 23,055 tons. For MEG, Belarus imported 60,738 tons in the first eleven months in 2016 against 57,258 tons in the same period in 2015. Russia accounted for almost all imports in both years.

## Belarussian polymer imports, Jan-Nov 2016

In the first eleven months in 2016 imports of polypropylene into Belarus increased by 12.9% and amounted to 88,800 tons. The largest increase was seen in the supply of propylene copolymers which rose from 19,565 tons in the period January to November 2015 to 28,427 tons in 2016. Jan-Nov 16 Jan-Nov 15

Polyethylene imports rose 31.2% in the first eleven months in 2016, totalling 124,416 tons against 96,453 tons in same period in 2015. HDPE imports rose slightly to 41,700 tons, whilst LDPE imports rose from 50,700 tons to 76,400 tons. PVC imports decreased by 21% and amounted to 22,500 tons against 24,000 tons. The main reason for the decline is falling export sales of finished products, in particular, profile-moulded products.

Ukrainian Polymer Imports (unit-kilo tons)				
Product	Jan-Nov 16	Jan-Nov 15		
PVC	100.5	79.1		
LDPE	60.5	59.3		
LLDPE	53.0	53.4		
HDPE	112.5	83.2		
PP	108.9	80.7		

24.0

75.7

50.7

39.1

46.2

7,600 tons to 7,300 tons.

Ukrainian Polymer Imports, Jan-Nov 2016

Ukraine

Imports of PVC into Ukraine totalled 100,500 tons in the first eleven months in 2016 compared to 78,600 tons in the same period of 2015. Imports of PVC from the US totalled 54,500 tons against 31,700 January to November 2016, whilst volumes from the US totalled 37,900 tons against 38,100 tons and Russian imports dropped slightly from

Polyethylene imports rose by 24% in January to November 2016 to 238,700 tons, including a rise of HDPE shipments to 112,500 tons against 83,200 tons in the same period in 2015. LDPE imports rose 2% to 60,500 tons whilst LLDPE imports rose from 41,300 tons to 53,000 tons. Polypropylene imports rose 27% in January to November 2016 against 2015, rising to 108,900 tons from 80,700 tons. The greatest increase in external deliveries fell on the PP-random, and significantly increased the import of homo-PP which rose to 83,500 tons in January to November 2016 against 65,600 tons in 2015.

# Other Ukrainian chemical news

Ukrainian exports of benzene dropped 20% in 2016 to 24,400 tons. Methanol imports into Ukraine



totalled 39,407 tons in 2016 against 43,864 tons in 2015, with sources divided between Russia and Ukraine. Linik uses methanol for MTBE production. At the end of 2016 the Ukrainian government approved the import of methanol to the Linik refinery at Lisichansk and the import of aromatics to the Kirovograd solvent plant.

The Cabinet of Ministers has revised the list and the size of the quotas for the import of substances in the Ukraine, used as components of motor fuels or as raw material

for the chemical industry. This will allow methanol imports of 8,800 tons per annum and 4,000 tons of xylenes and toluene to be delivered to Linik and the Kirovograd solvent plant respectively. KarpatSmol will also see its quota rise from 12,000 tpa to 18,000 tpa. In addition, the Cabinet has increased the quota of benzene supply to Evraz Bagleykoks from 8,500 tons to 19,012 tons.

The Verkhovna Rada has allowed the import without payment of excise duty all kinds of liquefied gases, including butane, isobutane, etc. for the needs of the production of ethylene at Karpatneftekhim. More than two thousand employees of Karpatneftekhim in the Ivano-Frankivsk region have petitioned the Ukrainian President with a request to restore trade relations with Russia in an attempt to restart ethylene and polyethylene production.

# Ukrainian plasticizer alcohol imports, Jan-Nov 2016

Phthalic anhydride imports into Ukraine amounted to 293 tons in November against 65 tons in October. Lakokraska from Belarus is the main supplier, with imports totalling 3,760 tons for the period January to November 2016 which was 16% down on the same period in 2015. The main consumers of phthalic anhydride in Ukraine include Lizinvest and Polikem. Whilst phthalic imports fell in 2016, DOP imports rose 3.3 times in January to November to 4,150 tons. Imports in 2016 were largely divided between Boryszew from Poland and Deza in the Czech Republic.

# **Central Asia**



# Turkmenistan urea complex-start in 2018

Turkmenistan has scheduled the launch of its new urea production plant at Garabogaz in 2018. Capacity of the new production is being designed to produce 1.16 million tpa and is being built on a site area of 60 hectares.

Construction began in December 2014 and should be completed in June 2018, based on investments of \$1.35 billion. The project partners include Mitsubishi Corporation and Mitsubishi Heavy Industries, whilst the

contractor selected for the construction is the Turkish company Gap Inşaat.

# Turkmenistan petrochemical complex to start in 2018

According to the project schedule, Turkmenistan plans to launch its new complex for the production of polyethylene and polypropylene at Kiyanly by September 2018. For the complex around 97% of process equipment has been delivered, whilst the level of installation at the start of January 2017 was

estimated at 63%. Investments into the project are estimated at \$3.4 billion. The project partners include Toyo Engineering, a consortium of South Korean companies comprising LG International Corporation and Hyundai Engineering. Licensing agreements have been signed with Toyo (Japan), INEOS (UK), Lummus (US), and Grace (USA).

Construction of the complex began in 2013 and currently involves 12,000 staff. The complex is being designed to process 5 billion cubic metres of gas per annum, and producing 386,000 tpa of polyethylene and 81,000 tpa of polypropylene.

#### SOCAR-Axens AlphaButol technology

Axens has been awarded a contract by SOCAR for its AlphaButol technology licensing for the production of high purity 1-Butene through ethylene dimerization. The AlphaButol unit of 32,000 tpa will be installed at Garadag, and will be part of SOCAR's large GPC project. The GPC project is a totally integrated grassroots project, from natural gas processing to the production of high-value polymers through the inclusion of an entire petrochemical complex. The plant will produce approximately 600,000 tpa of polyethylene and 120,000 tpa of propylene.

#### **Technip-SOCAR**

SOCAR has awarded contracts to Technip for plants being built as part of a new OGPC complex at Garadag, near Baku, in Azerbaijan. The deal includes a service contract for the ethylene and Kriomaks technology licences for a petrochemical complex and the natural gas liquids recovery section of a gas processing plant, respectively.

Technip will carry out the process and engineering design for a steam cracker with capacities of 610,000 tpa of ethylene and 120,000 tpa of propylene as well as a single-train gas processing plant of 10 billion cubic

metres per annum. The contract does not include the proposed polyethylene unit at the site. Technip will also design the related utilities and offsite units. The contractor's operating centre in Rome will execute the projects, which are scheduled to be completed during the second half of 2017.

#### SOCAR Polymer to become operational by 2018

Separate from the GPC at Garadag, a subsidiary of SOCAR (SOCAR Polymer) is expected to be fully operational in 2018. The project involves construction of polypropylene and high density polyethylene plants which are being located at the Sumgait Chemical Industrial Park (SCIP) in Azerbaijan. The construction of plants, is currently on track, whilst the total cost of the project is estimated at \$750 million. The production capacity will be 120,000 tpa of polyethylene and 180,000 tpa of polypropylene, at the initial stage. The total capacity is planned to reach 570,000 tpa by 2021.

SOCAR Polymer was incorporated on 16 July 2013 in order to reinforce development of chemical industry of the country. Around 30% of the plant's output will be directed to domestic market, while 70% is to earmarked for export to Turkey, Europe and neighbour countries.

million euros. At the end of 2016 design works were performed at 100% and construction 58%. It planned to finish construction in 2017, and to put into operation at the beginning of 2018.

After reaching the design capacity of the enterprise will be able to produce 650,000 tpa-660,000 tpa. The level of urea consumption in Azerbaijan is estimated at 150-200,000 tpa, whilst the remaining volumes will be exported. In addition to the production of urea for the production of ammonia will be placed the site, low-power companies, specializing in the production of various chemical products for use in the domestic market of Azerbaijan.

#### SOCAR, urea project at Sungait

SOCAR will receive €500 million from the Export-Import Bank of Korea (KEXIM) for the construction of a urea plant. The plans for the construction of a urea plant were announced by SOCAR in mid-2011. In March 2013 the contract was made with the Korean company Samsung Engineering Co Ltd for the design, procurement and construction of the plant at Sumgait. Licensors include Stamicarbon and Haldor Topsoe.

Originally the plant was planned to be commissioned in late 2014 or early 2015. Due to the delay timing of the project investment has grown from an initial 500 million euros to more than 700



# SOCAR petrochemical exports 2016

SOCAR exported 7,813 tons of polyethylene in December, 6,282 tons of propylene, 605 tons of isopropanol and 580 tons of C4s. In total for 2016 SOCAR exported 84,540 tons of polyethylene, 9,931 tons of isopropanol, 43,837 tons of propylene and 23,347 tons of C4s.

Russian Domestic Chemical Price Monitor (euros per ton)			
Product	Dec-16	Oct-16	Average 2016
Ethylene	472.0	427.9	353.8
Propylene	407.4	470.6	395.5
Benzene	498.9	530.7	472.3
Xylenes	543.1	502.5	469.7
Toluene	470.5	473.2	385.8
Styrene	792.5	791.0	747.7
Plasticizer Alcohols	644.8	625.7	557.0
Butanols	634.9	634.1	546.4
Methanol	154.5	146.1	126.4
Methanol wood	195.6	189.7	129.8
MEG	648.0	653.8	578.2
Phenol	959.0	944.6	763.6
Acetic acid	468.2	469.9	402.7
Butyl acetate	523.8	502.9	464.7
Caprolactam	1569.0	1522.1	1339.6
Formalin	155.5	150.0	130.2
Acetone	501.3	468.6	395.5
Polyethylene	1169.5	1191.8	1091.7
Polystyrene	1204.9	1147.5	1139.0
PVC	776.2	819.8	712.8
Epoxy resins	2386.5	2327.4	2096.5
Polypropylene	1183.2	1139.2	1008.6
Amino-resins	260.5	253.7	231.8
Phenolic resins	465.0	469.8	410.9
Silicone polymers	2594.2	2880.3	2615.1
Synthetic rubber	1287.2	1244.1	1078.2
SKMS	1058.9	1013.1	851.8
Butadiene rubber	1208.4	1158.6	966.2
NPR	1742.5	1638.2	1448.5
Isoprene rubber	1305.4	1264.9	1105.1
Other synthetic rubber	2317.8	2371.6	2100.4

Relevant Currencies		
Czech crown. Kc. \$1= 20.852. €1 = 27.444: Hungarian Forint. Ft. \$1 = 229.253. €1 = 310.141: Polish zloty. zl. \$ =4.14 Ukrainian hryvnia. \$1 = 24.8. €1 = 27.7: Rus rouble. \$1 = 59.7. €1 = 64.5	\$1=3.016. €1	
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