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ARGUS RUSSIAN LPG AND CONDENSATE

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The most up-to-date Argus Russian LPG and Condensate methodology is available on www.argusmedia.com

Introduction

The Argus Russian LPG and Condensate is published weekly in the Russian language and is available in the countries of the former Soviet Union and eastern Europe.

The report consists of commentaries on the international and local markets, news stories, statistical data and price quotations for LPG, other hydrocarbon gases, naphtha and crude.

The international LPG price assessments are taken from the Argus International LPG report. A full methodology of these assessments can be found in the Argus International LPG Methodology at www.argusmedia.com.

Price assessments

Argus LPG price assessments reflect a consensus of informed market opinion on daily bid/ask spreads for propane, butane, various gas mixtures and liquids in each region. Argus market specialists conduct comprehensive daily surveys of key market participants to collect trade information and gauge prevailing market sentiment.

Through interrogative inquiry and analysis, the Argus market reporters consider a broad range of information before setting the price quotation. This includes information on fixed price and formula-related physical deals, market premiums, market discounts, reported but unconfirmed trades, tender results, netbacks, bids, offers, movements of the forward curve, spreads and supply and demand fundamentals including, but not limited to, inventories, weather and arbitrage between regions.

Argus covers regional trade in the LPG markets of the Asia-Pacific, east-central Europe, northwest Europe, the Mediterranean and the US to reflect a daily consensus on the prices of the day. The quoted prices will reflect the consensus level of market activity at the end of the trading day in each region. In the absence of market liquidity, Argus will use its knowledge and experience, combined with a market consensus, to establish a perceived buy-sell range.

This method minimises the chances of distortion or inconsistency in approach that accompanies other methodologies. It provides greater confidence to the subscribers that the prices will be representative of the market and not distorted by unrepresentative factors. The price series are used extensively in third-party contracts, risk management contracts (such as swaps), internal price transfer, internal benchmarking, mark-to-market assessment and market analysis.

Reporting on LPG markets calls for a certain degree of judgment on the part of the reporter, especially when the market is opaque and confused. Deals are reported if they are confirmed by a reliable source, but the reporters will always use their judgment before establishing the final price assessments. This approach means reporters need to have a wide range of contacts. Argus reporters have to understand the market they are reporting. This rigorous approach guarantees precise, reliable and relevant assessments.

This methodology is updated regularly after extensive consultation with the industry. Any changes to the specifications behind the quotations will be announced in the relevant market reports and on www.argusmedia.com and www.argus.ru. Amendments to the methodology will be made when necessary to reflect the changes in the structure of trading and any changes in the pricing or contractual norms of each market.

The price assessments are based on market surveys that are conducted over the telephone and through electronic mail exchanges. Argus uses all appropriate informational sources to identify the prices prevailing in a market and does not restrict itself to one subsection of the market such as a single trading platform or any single informational channel.

The market surveys are balanced in their approach and are conducted by well trained specialists who are part of a dedicated team responsible for the report.

Information from the survey is verified as best possible and archived in databases. The methodologies are detailed and transparent. A professional approach by trained staff monitored by experienced managers is a characteristic of the Argus tradition.

All assessments and formulas refer to the price on the day of the published report. The prices are for contracts under whatever general terms and conditions are accepted as the standard prevailing in that particular market.

Argus Russian LPG and Condensate

Russian domestic terminal prices

Argus has published weekly Russian domestic LPG assessments from October 2007. The domestic terminal prices are assessed in 25t to 200t lots for (free on truck) domestic inland terminals. The prices are fixed in Russian roubles per tonne every Tuesday at 5.00pm Moscow time.

The following regions are assessed

Moscow
Krasnodar
Stavropol
Rostov
Nizhniy Novgorod
Tatarstan
Tyumen
Leningrad

Russian LPG refinery gate price assessments

Argus has published prices for LPG at gas processing plants in Orenburg, Perm, Astrakhan and Surgut since June 2009. Prices for propane-butane mix are assessed every Tuesday at 5.00pm Moscow time basis for gas processing plant (GPP) and are published on Wednesdays in the Russian-language Argus Russian LPG and Condensate. Assessments reflect opinion of informed market

participants on the buy–sell range for 100-1,000t cargo size on pre-payment conditions. The prices are published in roubles per tonne, including VAT. The period of delivery is calendar month.

Argus Russian NGL price indexes

Russian natural gas liquids (NGL, also known as wide fraction of light hydrocarbons or ShFLU) is an intermediate product of oil, gas or condensate refining. NGLs are mixtures of various hydrocarbon gases – ethane to hexane and higher. The quality of Russian NGLs is determined by the standard TU 38.101524-93. According to this standard, NGLs are divided in two grades. Grade A NGL is mostly produced at gas processing plants, while grade B NGL is produced at oil refineries (see table).

NGL quality standard TU 38.101524-93		
Test	Grade A	Grade B
Methane, ethane, %	<3	<5
Propane, %	>15	-
Hydrocarbons C4-C5 and higher, %	>45	>40
Hydrocarbons C6 and higher, %	>15	>30
Methanol mass fraction, pc	not limited	
Mass fraction of hydrogen sulphide and mercaptan sulphur, %	<0.025	<0.05
Including hydrogen sulphide, %	<0.003	
Appearance	Clean and clear liquid	
Free water and alkali content	none	

Argus publishes weekly price indexes for the Russian domestic market of NGLs (Argus Russian NGL indexes). These indexes reflect the opinion of informed market participants on the buy–sell range for NGLs sold from gas processing plants (Grade A) and refineries (Grade B) in the Volga-Urals region.

The Argus Russian NGL indexes are set weekly basis fca Novootradnaya (Grade A) and fca Kashpir/Kryazh (Grade B). Argus publishes buy–sell ranges in roubles per tonne for 500 - 2,000t lot sizes on pre-payment conditions, including VAT.

The period of delivery is calendar month.

FSU border prices

Argus RBS (Romania, Bulgaria, Serbia) propanebutane mix

Prices are in US dollars/tonne. Railcars are 100-500t. Basis is daf D'yakovo/Halmeu and Reni/Giurgiuleşti/Galati on the Ukraine-Romania border. The timing is for railcars lifting 5-30 days forward. Time stamp is 5.30pm Moscow time.

Fob Black Sea propane-butane mix

Prices are in US dollars/tonne. Small cargoes (coasters) are 1,000-4,000t. Basis is fob Ukrainian Black Sea Ports (Ilyichevsk and Kerch). The timing is cargoes for lifting 5-25 days forward. Time stamp is 5.30pm Moscow time.

Daf Brest propane-butane mix

Prices are in US dollars/tonne. Railcars are 100-1,000t. Basis is daf Brest (Belarus-Polish border). The timing is for railcars lifting 2-25 days forward. Time stamp is 5.30pm Moscow time. Argus does not include off specification or 'formula' transactions in its assessment.

Daf Brest propane

Prices are in US dollars/tonne. Railcars are 100-1,000t. Basis is daf Brest (Belarus-Polish border). The timing is for railcars lifting 2-25 days forward. Time stamp is 5.30pm Moscow time. Argus does not include off specification or 'formula' transactions in its assessment.

Daf Gukovo propane-butane mix.

Basis is Gukovo (Russian - Ukrainian border) weekly. Railcars are 100-1,000t. The timing is for the railcars lifting 5-25 days forward. The stamp is 5.30 Moscow time. Argus does not include the specification or "formula" transactions in its assessment

International comparisons

Argus North Sea Index

see *Argus International LPG methodology*

Official prices

Sonatrach fob Bethioua (propane and butane)
 Saudi Aramco (propane and butane)
 Kuwait Petroleum Company (propane and butane)
 see *Argus International LPG methodology*

Prices in northwest Europe

Propane

cif ARA (large cargoes)
 fob NWE (small)
 cif ARA (small)
 fob ARA (barge)
 fca ARA (rail)

Butane

cif ARA (large cargoes)
 fob NWE (small)
 cif ARA (small)
 fob ARA (barge)
 fca ARA (rail)

Naphtha

Spot
 Swap (1 month)
 Swap (2 month)
 Swap (3 month)

Crude futures (Ice Brent)

1 month
 2 month
 3 month
 North Sea Dated
 see *Argus International LPG methodology*

LPG prices in the Mediterranean

Propane

cif Med (large cargoes)
fob Med (small)
fca Med (rail)

Butane

cif Med (large cargoes)
fob Med (small)
see Argus International LPG methodology

Asia-Pacific prices

Refrigerated cargoes

Propane

Gulf CP (fob)
Japan (cfr)
East China (cfr)
South China (cfr)
Argus Far East Index

Butane

Gulf CP (fob)
Japan (cfr)
East China (cfr)
South China (cfr)
West Coast India CP (cfr)
Argus Far East Index

Pressurised cargoes

Propane

South China (cfr)
fob Thailand

Butane

South China (cfr)
see Argus International LPG methodology

US prices

Propane (fob)

Tet
USG import values
Mt. Belvieu

Butane (fob)

Tet
USG import values
Mt. Belvieu
Non-Tet (cents per gallon)

Purity ethane
Ethane-propane mix

Isobutane
Natural gasoline

Futures (Nymex Propane)

1 month
2 month
3 month
4 month

Swaps (Propane)

1 month
2 month
3 month
Next quarter
see Argus International LPG methodology

Prices in China

Prices are in US dollars/tonne.

East China terminal prices

Ninbo
Wenzhou
Taicang
Shanghai
Zhangjiagang
Fujian

East China refinery prices

Sanghai
Zhenhai
Yangzi
Fujian
Gaoqiao

South China terminal prices

Zhuhai
Shanzhen
Raoping
Nansha
Shantou
Yangjiang

South China refinery prices

Maomin
Guangzhou

Northeast China refinery prices

Daqing
Dalian

Northwest China refinery prices

Urumqi

Inland China refinery prices

Lanzhou
Yan-An
see Argus International LPG methodology