METHODOLOGY AND SPECIFICATIONS GUIDE

argusmedia.com

ARGUS RUSSIAN FERTILIZERS

Contents:

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The most up-to-date *Argus Russian Fertilizers* methodology is available on www.argusmedia.com

Methodology overview

Methodology rationale

Argus strives to construct methodologies that reflect the way the market trades. Argus aims to produce price assessments which are reliable and representative indicators of commodity market values and are free from distortion. As a result, the specific currencies, volume units, locations and other particulars of an assessment are determined by industry conventions.

In the markets, Argus publishes physical market prices in the open market as laid out in the specifications and methodology guide. Argus uses the trading period deemed by Argus to be most appropriate, in consultation with industry, to capture market liquidity.
In order to be included in the assessment process, deals must meet the minimum volume, delivery, timing and specification requirements in our methodology. In illiquid markets, and in other cases where deemed appropriate, Argus assesses the range within which product could have traded by applying a strict process outlined later in this methodology.

Survey process

Argus price assessments are informed by information received from a wide cross section of market participants, including producers, consumers and intermediaries. Argus reporters engage with the industry by proactively polling participants for market data. Argus will contact and accept market data from all credible market sources including front and back office of market participants and brokers. Argus will also receive market data from electronic trading platforms and directly from the back offices of market participants. Argus will accept market data by telephone, instant messenger, email or other means.

Argus encourages all sources of market data to submit all market data to which they are a party that falls within the Argus stated methodological criteria for the relevant assessment. Argus encourages all sources of market data to submit transaction data from back office functions.

Throughout all markets, Argus is constantly seeking to increase the number of companies willing to provide market data. Reporters are mentored and held accountable for expanding their pool of contacts. The number of entities providing market data can vary significantly from day to day based on market conditions.

For certain price assessments identified by local management, if more than 50pc of the market data involved in arriving at a price assessment is sourced from a single party the supervising editor will engage in an analysis of the market data with the primary reporter to ensure that the quality and integrity of the assessment has not been affected.

Market data usage

In each market, Argus uses the methodological approach deemed to be the most reliable and representative for that market. Argus will utilise various types of market data in its methodologies, to include:

- Transactions
- Bids and offers
- Other market information, to include spread values between grades, locations, timings, and many other data.

In many markets, the relevant methodology will assign a relatively higher importance to transactions over bids and offers, and a relatively higher importance to bids and offers over other market information. Certain markets however will exist for which such a hierarchy would produce unreliable and non-representative price assessments, and so the methodology must assign a different relative importance in order to ensure the quality and integrity of the price assessment. And even in markets for which the hierarchy normally applies, certain market situations will at times emerge for which the strict hierarchy would produce non-representative prices, requiring Argus to adapt in order to publish representative prices.

Verification of transaction data

Reporters carefully analyse all data submitted to the price assessment process. These data include transactions, bids, offers, volumes, counterparties, specifications and any other information that contributes materially to the determination of price. This high level of care described applies regardless of the methodology employed. Specific to transactions, bids, and offers, reporters seek to verify the price, the volume, the specifications, location basis, and counterparty. In some transactional average methodologies, reporters also examine the full array of transactions to match counterparties and arrive at a list of unique transactions. In some transactional average methodologies, full details of the transactions verified are published electronically and are accessible by subscribers. The deals are also published in the daily report.

Several tests are applied by reporters in all markets to transactional data to determine if it should be subjected to further scrutiny. If a transaction has been identified as failing such a test, it will receive further scrutiny. For assessments used to settle derivatives and for many other assessments, Argus has established internal procedures that involve escalation of inquiry within the source's company and escalating review within Argus management. Should this process determine that a transaction should be excluded from the price assessment process, the supervising editor will initiate approval and, if necessary, documentation procedures.

Primary tests applied by reporters

- Transactions not transacted at arm's length, including deals between related parties or affiliates.
- Transaction prices that deviate significantly from the mean of all transactions submitted for that day.
- Transaction prices that fall outside of the generally observed lows and highs that operated throughout the trading day.
- Transactions that are suspected to be a leg of another transaction or in some way contingent on an unknown transaction.
- Single deal volumes that significantly exceed the typical transaction volume for that market.
- Transaction details that are identified by other market participants as being for any reason potentially anomalous and perceived by Argus to be as such.

- Transaction details that are reported by one counterparty differently than the other counterparty.
- Any transaction details that appear to the reporter to be illogical or to stray from the norms of trading behaviour. This could include but is not limited to divergent specifications, unusual delivery location and counterparties not typically seen.
- Transactions that involve the same counterparties, the same price and delivery dates are checked to see that they are separate deals and not one deal duplicated in Argus records.

Secondary tests applied by editors for transactions identified for further scrutiny

Transaction tests

- The impact of linkage of the deal to possible other transactions such as contingent legs, exchanges, options, swaps, or other derivative instruments. This will include a review of transactions in markets that the reporter may not be covering.
- The nature of disagreement between counterparties on transactional details.
- The possibility that a deal is directly linked to an offsetting transaction that is not publicly known, for example a "wash trade" which has the purpose of influencing the published price.
- The impact of non-market factors on price or volume, including distressed delivery, credit issues, scheduling issues, demurrage, or containment.

Source tests

- The credibility of the explanation provided for the outlying nature of the transaction.
- The track record of the source. Sources will be deemed more credible if they
  - Regularly provide transaction data with few errors.
  - Provide data by Argus' established deadline.
  - Quickly respond to queries from Argus reporters.
  - Have staff designated to respond to such queries.
- How close the information receipt is to the deadline for information, and the impact of that proximity on the validation process.

Assessment guidelines

When insufficient, inadequate, or no transaction information exists, or when Argus concludes that a transaction based methodology will not produce representative prices, Argus reporters will make an assessment of market value by applying intelligent judgment based on a broad array of factual market information. Reporters must use a high degree of care in gathering and validating all market data used in determining price assessments, a degree of care equal to that applying to gathering and validating transactions. The information used to form an assessment could include deals done, bids, offers, tenders, spread trades, exchange trades, fundamental supply and demand information and other inputs.

The assessment process employing judgment is rigorous, replicable, and uses widely accepted valuation metrics. These valuation metrics mirror the process used by physical commodity traders to internally assess value prior to entering the market with a bid or offer. Applying these valuation metrics along with sound judgment significantly narrows the band within which a commodity can be assessed, and greatly increases the accuracy and consistency of the price series. The application of judgment is conducted jointly with the supervising editor, in order to be sure that guidelines below are being followed. Valuation metrics include the following:

Relative value transactions

Frequently transactions occur which instead of being an outright purchase or sale of a single commodity, are instead exchanges of commodities. Such transactions allow reporters to value less liquid markets against more liquid ones and establish a strong basis for the exercise of judgment.

- Exchange one commodity for a different commodity in the same market at a negotiated value.
- Exchange delivery dates for the same commodity at a negotiated value.
- Exchange a commodity in one location for the same commodity at another location at a negotiated value.

Bids and offers

If a sufficient number of bids and offers populate the market, then in most cases the highest bid and the lowest offer can be assumed to define the boundaries between which a deal could be transacted.

Comparative metrics

- The relative values between compared commodities are readily discussed in the market and can be discovered through dialogue with market participants. These discussions are the precursor to negotiation and conclusion of transactions.
- Comparison to the same commodity in another market centre.
- Comparison to a more actively traded but slightly different specification commodity in the same market centre.
- Comparison to the same commodity traded for a different delivery timing.
- Comparison to the commodity's primary feedstock or primary derived product(s).
- Comparison to trade in the same commodity but in a different modality (as in barge versus oceangoing vessel) or in a different total volume (as in full cargo load versus partial cargo load).

Volume minimums and transaction data thresholds

Argus typically does not establish thresholds strictly on the basis of a count of transactions, as this could lead to unreliable and non-representative assessments and because of the varying transportation infrastructure found in all commodity markets. Instead, minimum volumes are typically established which may apply to each transaction accepted, to the aggregate of transactions, to transactions which set a low or high assessment or to other volumetrically relevant parameters.

For price assessments used to settle derivatives, Argus will seek to establish minimum transaction data thresholds and when no such threshold can be established Argus will explain the reasons. These thresholds will often reflect the minimum volumes necessary to

produce a transaction-based methodology, but may also establish minimum deal parameters for use by a methodology that is based primarily on judgment.

Should no transaction threshold exist, or should submitted data fall below this methodology's stated transaction data threshold for any reason, Argus will follow the procedures outlined elsewhere in this document regarding the exercise of judgment in the price assessment process.

Transparency

Argus values transparency in energy markets. As a result, where available, we publish lists of deals in our reports that include price, basis, counterparty and volume information. The deal tables allow subscribers to cross check and verify the deals against the prices. Argus feels transparency and openness is vital to developing confidence in the price assessment process.

Swaps and forwards markets

Argus publishes forward assessments for numerous markets. These include forward market contracts that can allow physical delivery and swaps contracts that swap a fixed price for the average of a floating published price. Argus looks at forward swaps to inform physical assessments but places primary emphasis on the physical markets.

Publications and price data

Argus Russian fertilizer prices are published in the Argus Russian Fertilizers report. Subsets of these prices appear in other Argus market reports and newsletters in various forms. The price data are available independent of the text-based report in electronic files that can feed into various databases. These price data are also supplied through various third-party data integrators. The Argus website also provides access to prices, reports and news with various web-based tools. All Argus prices are kept in a historical database and available for purchase. Contact your local Argus office for information.

A publication schedule is available at www.argusmedia.com

Corrections to assessments

Argus will on occasion publish corrections to price assessments after the publication date. We will correct errors that arise from clerical mistakes, calculation errors, or a misapplication of our stated methodology. Argus will not retroactively assess markets based on new information learned after the assessments are published. We make our best effort to assess markets based on the information we gather during the trading day assessed.

Ethics and compliance

Argus operates according to the best practices in the publishing field, and maintains thorough compliance procedures throughout the firm. We want to be seen as a preferred provider by our sub-scribers, who are held to equally high standards, while at the same time maintaining our editorial integrity and independence. Argus has a strict ethics policy that applies to all staff. The policy can be found on our website at www.argusmedia.com. Included in this policy are restrictions against staff trading in any energy commodity or energy related stocks, and guidelines for accepting gifts. Argus also has strict policies regarding central archiving of email and instant messenger communication, maintenance and archiving of notes, and archiving of spreadsheets and deal lists used in the price assessment process. Argus publishes prices that report and reflect prevailing levels for open-market arms length transactions (please see the Argus Global Compliance Policy for a detailed definition of arms length).

Consistency in the assessment process

Argus recognises the need to have judgment consistently applied by reporters covering separate markets, and by reporters replacing existing reporters in the assessment process. In order to ensure this consistency, Argus has developed a programme of training and oversight of reporters. This programme includes:

- A global price reporting manual describing among other things the guidelines for the exercise of judgment
- Cross-training of staff between markets to ensure proper holiday and sick leave backup. Editors that float between markets to monitor staff application of best practices
- Experienced editors overseeing reporting teams are involved in daily mentoring and assisting in the application of judgment for illiquid markets
- Editors are required to sign-off on all price assessments each day, thus ensuring the consistent application of judgment.

Review of methodology

The overriding objective of any methodology is to produce price assessments which are reliable and representative indicators of commodity market values and are free from distortion. As a result, Argus editors and reporters are regularly examining our methodologies and are in regular dialogue with the industry in order to ensure that the methodologies are representative of the market being assessed. This process is integral with reporting on a given market. In addition to this ongoing review of methodology, Argus conducts reviews of all of its methodologies and methodology documents on at least an annual basis.

Argus market report editors and management will periodically and as merited initiate reviews of market coverage based on a qualitative analysis that includes measurements of liquidity, visibility of market data, consistency of market data, quality of market data and industry usage of the assessments. Report editors will review:

- Appropriateness of the methodology of existing assessments
- Termination of existing assessments
- Initiation of new assessments.

The report editor will initiate an informal process to examine viability. This process includes:

- Informal discussions with market participants
- Informal discussions with other stakeholders
- Internal review of market data

Should changes, terminations, or initiations be merited, the report editor will submit an internal proposal to management for review and approval. Should changes or terminations of existing assess-

ments be approved, then formal procedures for external consultation are begun.

Changes to methodology

Formal proposals to change methodologies typically emerge out of the ongoing process of internal and external review of the methodologies. Formal procedures for external consultation regarding material changes to existing methodologies will be initiated with an announcement of the proposed change published in the relevant Argus report. This announcement will include:

- Details on the proposed change and the rationale
- Method for submitting comments with a deadline for submissions
- For prices used in derivatives, notice that all formal comments will be published after the given consultation period unless submitter requests confidentiality.

Argus will provide sufficient opportunity for stakeholders to analyse and comment on changes, but will not allow the time needed to follow these procedures to create a situation wherein unrepresentative or false prices are published, markets are disrupted, or market participants are put at unnecessary risk. Argus will engage with industry throughout this process in order to gain acceptance of proposed changes to methodology. Argus cannot however guarantee universal acceptance and will act for the good order of the market and ensure the continued integrity of its price assessments as an overriding objective.

Following the consultation period, Argus management will commence an internal review and decide on the methodology change. This will be followed by an announcement of the decision, which will be published in the relevant Argus report and include a date for implementation. For prices used in derivatives, publication of stakeholders' formal comments that are not subject to confidentiality and Argus' response to those comments will also take place.

Publication frequency

Argus publishes the Argus Russian Fertilizers report weekly on Monday.

Argus Russian Fertilizers is not published for one week during the Christmas/New Year holidays in the UK although the precise dates of non-publication are dependent on when holidays fall within the week.

A full publication schedule is available at www.argusmedia.com.

Price assessments

Sulphur

Russian oil refineries, gas processing plants and petrochemical plants sell crushed lump and granular sulphur for export shipped by rail to the ports of St. Petersburg and Ust-Luga. Sales are concluded on a cpt Avtovo, Predportovaya, Zanevskiy Most, Noviy Port and Luzhskaya basis.

Sulphur is shipped in big bags or in 50kg bags. Upon delivery to railway stations' transhipment terminals, cargoes are loaded into TEU/FEU containers and shipped to end-users by sea.

Sulphur buyers are Russian and international trading companies that sell the volumes abroad. Argus assesses monthly the market price for sulphur in big bags on the cpt St. Petersburg/Ust-Luga basis. Minimum trade volume for inclusion in the assessment is 500t.

Netback calculation

Fertilizer netbacks are calculated according to the formula:

$N = Pr - Ed - L - T - R - Re + P$

where
N is Netback index
Pr is fob Black Sea/Baltic price range
Ed is export duty
L is cost of loading operations in the port
T is cost of transit
R is the Russian railway tariff
Re is cost of renting rolling stock
P is the packaging cost for netbacks of product in big-bags

Netback indexes are published as a range excluding VAT. All components of the formula are expressed in US dollars per ton and rounded to two decimal places except for netback indexes which are expressed in Russian roubles and rounded to integers.

Sulphur netbacks are calculated according to the formula:

$N = C - Fr - L - T - R - Re$

where
N is the netback index
C is the contract price assessment cfr Brazil or cfr North Africa
Fr is the cost of freight
L is the cost of loading operations in the port
T is cost of transit
R is the railway tariff (when sulphur is delivered from Kazakhstan, the tariff Kazakhstan Temir Zholy is taken into account)
Re is cost of renting rolling stock.

Netback indexes are published as a range including VAT. All components of the formula are expressed in US dollars per ton and rounded to two decimal places except for netback indexes which are expressed in Russian roubles and rounded to integers.

All components of the formula are as of the date of assessment.

In the case of shipments of product in big bags (flexible intermediate bulk containers), the calculation is based on the fob bulk price. Other formula components are the same as for bagged product. Packaging costs are added to the resulting netback. Packaging costs are determined annually in January based on consultations with market participants, packaging manufacturers and shippers.

When calculating netback indexes Argus uses price assessments published in Argus weekly reports:

- Argus Nitrogen - see the Argus Nitrogen methodology
- Argus Phosphates - see the Argus Phosphates methodology
- Argus Potash - see the Argus Potash methodology
- Argus Ammonia - see the Argus Ammonia methodology
- Argus Sulphur - see the Argus Sulphur methodology
- NPKs - see the Argus NPKs methodology

Price assessments are published as a range in US dollars per tonne. Netbacks are calculated for both the low and the high.

Urea prices

When calculating netback indexes for Grade B urea Argus uses price assessments published in Argus Nitrogen:

- Prilled urea fob Black Sea bulk
- Prilled urea fob Baltic bulk
- Granular urea fob Black Sea bulk
- Granular urea fob Baltic bulk

The following plants ship urea for export from Russia:

- Azot Berezniki
- Novomoskovsky Azot
- Acron
- Ammoni
- Gazprom neftekhim Salavat
- Kemerovo Azot
- Kuibyshevazot
- Mineral fertilizers (Perm)
- Nevinnomyssky Azot
- Togliattyazot
- Apatit (Cherepovets)

Ammonium nitrate prices

When calculating netback indexes for Grade B ammonium nitrate Argus uses price assessments published in Argus Nitrogen:

- Ammonium nitrate fob Baltic bulk;
- Ammonium nitrate fob Black Sea bulk.

The following plants ship ammonium nitrate for export from Russia:

- Azot Berezniki
- Novomoskovsky Azot
- Acron
- Ammoni
- Dorogobuzh
- Kemerovo Azot
- Kuibyshevazot
- Meleuz
- Rossosh
- Nevinnomyssky Azot
- Togliattyazot
- Apatit (Cherepovets)
- Uralchem Kirovo-Chepetsk

UAN 32 prices

When calculating netback indexes for UAN Argus uses price assessments published in Argus Nitrogen:

- UAN 32 fob Black Sea;
- UAN 32 fob Baltic.

The following plants ship UAN for export from Russia:

- Novomoskovsky Azoty
- Acron
- Nevinnomyssky Azot

MAP prices

When calculating netback indexes for MAP Argus uses price assessments published in Argus Phosphates:

- MAP fob Baltic bulk.

The following plants ship MAP for export from Russia:

- Belorechensk Fertilizer plant
- Voskresensk Fertilizer plant
- PG Phosphorit (Kingisepp)
- Apatit (Balakovo)
- Apatit (Cherepovets)

DAP prices

When calculating netback indexes for DAP Argus uses price assessments published in Argus Phosphates:

- DAP fob Baltic/Black Sea bulk.

The following plants ship DAP for export from Russia:

- PG Phosphorit (Kingisepp)
- Apatit (Cherepovets)

NPK prices

When calculating netback indexes for NPKs Argus uses price assessments published in Argus NPKs:

- 16-16-16 fob Baltic/Black Sea (bulk);
- 15-15-15 fob Baltic/Black Sea (bulk);
- 10-26-26 fob Baltic (bulk).

The following plants ship NPKs for export from Russia:

- Acron
- Dorogobuzh
- Rossosh
- Nevinnomyssky Azot
- Apatit (Cherepovets)

MOP prices

When calculating netback indexes for MOP Argus uses price assessments published in Argus Potash:

- Standard MOP fob Baltic/Black Sea bulk (spot)
- Granular MOP fob Baltic/Black Sea bulk (spot)

Uralkali and Eurochem ships MOP for export from Russia.

Sulphur prices

When calculating netback indexes for sulphur, Argus uses price assessments published in Argus Sulphur:

- cfr Brazil bulk;
- cfr North Africa (lump-granular) bulk.

The following companies ship sulphur for export from Russia and the CIS countries:

- Gazprom Dobycha Astrakhan
- Gazprom Dobycha Orenburg
- Tengizchevroil
- Kashagan
- Rosneft
- Gazpromneft
- Lukoil
- Tatneft, and others.

Russian and Kazakh sulphur is predominantly shipped to North Africa and Latin America. Based on consultations with market participants, Argus has identified two contract price assessments that are most representative of market conditions: cfr Brazil and cfr contract North Africa.

For the purposes of netback calculation, freight rates published in Argus Sulphur are added to the general formula, allowing for the calculation of an implied fob price, which is used in the further derivation of netback prices.

- Black Sea ports to North Africa,
- Black Sea ports to Brazil,
- Baltic ports to North Africa,
- Baltic ports to Brazil

For netbacks calculated on the basis of the cfr Brazil contract price assessment, the low and the high ends of the range reflect the lowest and the highest price of granular sulphur. For netbacks calculated on the basis of the cfr North Africa contract price assessment, the low end of the range reflects the lowest price of crushed lump sulphur and the high end reflects the price of granular sulphur.

Additionally, Argus calculates netbacks for sulphur in big bags/bagged to railway stations where Russian refineries and Kazakh sulphur producers load their cargoes. In this case prices are net back from the cpt St. Petersburg/Ust-Luga assessment that is published in Argus Russian Fertilizers.

In this case, netbacks are calculated according to the formula:

$N = P - R - Re$

where
N is the netback index
P is the price assessment cpt St. Petersburg/Ust-Luga
R is the railway tariff including transit tariffs
Re is the cost of renting rolling stock

Export destinations

When calculating netback indexes Argus uses market assessments of costs associated with delivery to destinations actively used by each fertilizer producer.

To determine export destinations, Argus reporters use a variety of sources including conversations with market participants and railway statistics of fertilizer shipments. Changes in fertilizer deliveries to Black Sea and Baltic ports are reviewed once per year in January by the publication editor together with reporters.

Supplies from pricing points that are not assessed by Argus or using routes where tariffs are not set at the open market are not included in netback calculation, except in cases when ranges calculated for comparable pricing points are assumed representative of export prices in such ports. These exceptions are specified in this methodology.

Transportation costs

Railways

Russian railway tariffs are based on the tariff policy of CIS and Baltic countries' railway companies for privately-owned rolling stock effective on the date of publication of the basic price assessments (every Thursday). Argus uses specialized software for railway tariff calculation called Rail-Tarif.

Assumptions used for tariff calculations

- Number of railway wagon axles: 4
- Average actual load
  - mineral wagon (urea): 64t
  - mineral wagon (AN, amsul, MAP, DAP, NPK and MOP): 69t
  - open wagon: 66t
  - chemical tank wagon: 66t
  - ammonia tank wagon: 37t
- All tariffs are used excluding value added tax with exception of empty railway wagon return in Russia.
- Export railway tariffs used in netback calculation are set on per wagon basis.

- Tariffs for empty railway wagon return are set on per wagon basis, regardless of wagon type.
- Tariffs for empty railway wagon return are not used in netback calculation if fertilizers are transported in open wagons.
- When sulphur is delivered in bulk in open wagons from the railway stations of Aksarayskaya (Gazprom dobycha Astrakhan) and Kargala (Gazprom dobycha Orenburg), tariffs for empty railway wagon return are used in the netback calculation.

Rail freight

The basic cost of rent of gondola cars, hoppers, tanks for ammonia and UAN is assessed and published on a monthly basis. Information required for the assessments is collected by personal contacts, telephone, electronic mail and messengers.

Average market rental rates are published as a range of prices in roubles per day excluding VAT in Argus Russian Fertilizers. Rates are published separately for each type of rolling stock: hoppers, gondola cars, ammonia and UAN tanks.

Base parameters used for transportation cost assessments

- Railway wagon load: depends on rolling stock type (please see above);
- Speed of loaded railway wagon, no border crossing: 330 km/d;
- Speed of empty railway wagon return, no border crossing: 330 km/d;
- Speed of loaded railway wagon return in case of border crossing: 200 km/d;
- Speed of empty railway wagon return in case of border crossing: 200 km/d;
- Cumulative delay during railway wagon loading and discharge: 4 days;
- Delay at each border station: 1 day.

For the purposes of netback calculation, rail freight rates on a roubles/d basis are converted to Roubles/t using the following formula:

C = D * S / L, where

C is cost of renting a railway wagon, Roubles/t;
D is duration of loaded run and empty railway wagon return, d;
S is speed of loaded run and empty railway wagon return, km/d;
L is railroad car load, t.

Loading and storage at port terminals

Loading and storage tariffs at specialised terminals at Baltic and Black Sea ports are used in the netback calculation formula and are published weekly, as a range, in the Argus Russian Fertilizers report. The average of this range is used in the fertilizer netbacks calculation.

The cost of mineral fertilizer and sulphur handling in the ports is assessed once a year, in January, through a survey of terminal operators, shippers and employees of transport and logistics companies. Information required for the assessment is collected by personal contacts, telephone, electronic mail and messengers.

Certain terminals in the Baltic ports of Ventspils, Kotka, Muuga, Riga and Sillamae offer storage and loading services including rail transit through respective countries. In these cases the loading rates published in the report include appropriate rail transit tariffs which are not calculated separately. When a netback on sulphur (in bulk) is calculated, loading rates in specialized terminals are published as price ranges. The average of this range is used in the netback calculation.

Currency exchange

For netback calculation, Argus uses the Russian Rouble rate of the Central Bank of Russia published on the official website for the date of assessment. Argus uses exchange rates provided by Ice www.theice.com/solutions/data to convert loading and transit costs from Euro to US dollars.

Calculated indexes

Argus publishes calculated indexes of mineral fertilizer prices delivered to key agricultural regions of Russia:

- Krasnodar Territory
- Belgorod region
- Voronezh region
- Rostov region
- Lipetsk region
- Stavropol Territory

Indexes are published as a price range including VAT.
Indexes are calculated by adding the cost of transportation to key railway stations in the regions to the export parity index (netback).

Calculated indexes do not include the distributor costs for storage, packaging and other costs.

Products and specifications

Urea

Urea is a dry bulk fertilizer containing 46pc nitrogen by weight. It is produced by combining ammonia with carbon dioxide, which is generated during the production of ammonia. It is produced in two forms — prilled and granular. Both of these are widely used for direct application to land. Granular urea is also often used as a feedstock for bulk blending for NPK manufacture. Prilled urea is also used in a variety of industrial processes. Prices are only assessed based on deals concluded in the agricultural sector. Netbacks are calculated based on bulk cargo shipments in mineral wagons.

Ammonium nitrate (AN)

Ammonium nitrate (AN) is a dry bulk fertilizer containing a total of 33.5-34.5pc nitrogen both in nitrate and ammonium form. Russian producers market two grades of AN, A and B. Grade B is used in agriculture for direct application. Grade A is used in industry for the manufacture of explosive substances and mixtures. The prices published in Argus

Nitrogen refer only to agricultural grade AN. AN is classified as a hazardous substance and various countries have introduced regulations controlling its transport, storage and handling. AN is produced in prilled form and treated by anti-caking additives. Netbacks are calculated based on bulk cargo shipments in mineral wagons.

Ammonium Sulphate (amsul)

Ammonium sulphate (amsul) is a dry bulk fertilizer containing 21pc nitrogen and 12-13pc sulphur. It is used for direct application in agriculture, as a component in producing nitrogen fertilizers containing sulphur and as a raw material in making compound fertilizers. Ammonium sulphate is produced primarily as a by-product or co-product of other processes, most commonly in the manufacture of caprolactam and acrylonitrile and also from steel making. Caprolactam grade ammonium sulphate is sometimes referred to as standard or crystalline ammonium sulphate. Steel grade ammonium sulphate is a lower quality product and is often referred to as raw material grade. The prices assessed refer to both grades of ammonium sulphate. Netbacks are calculated based on bulk cargo shipments in mineral wagons and shipments in big bags in open wagons.

Urea ammonium nitrate (UAN)

Urea ammonium nitrate (UAN) solutions are a liquid fertilizer produced as a mixture of liquid urea and liquid ammonium nitrate (35.4% urea, 44.3% ammonium nitrate, 19.4% water and 0.5% ammonia water). It is the only nitrogen fertilizer containing all three nitrogen compounds and therefore ensuring complex agronomic effect. UAN with corrosion inhibitor may be transported in tank wagons. Argus assesses prices for UAN with 32pc nitrogen content.

Monammonium phosphate (MAP)

Monammonium phosphate (MAP) is a highly concentrated granulated nitrogen-phosphoric fertilizer, where nitrogen is represented in ammonia form. Typically it contains 11-12pc nitrogen and 52pc phosphate by weight. It is formulated by adding phosphoric acid to ammonia solution. MAP can be used in granular form for direct application to land or for use as a raw material in bulk blending. This product is non-hygroscopic, non-dust-forming and non-caking, of equalized granulometric composition, and water-soluble. Netbacks are calculated based on bulk cargo shipments in mineral wagons.

Diammonium phosphate (DAP)

Diammonium phosphate (DAP) is a dry, bulk fertilizer containing 18pc nitrogen and 46pc phosphate by weight. It is produced by combining ammonia with phosphoric acid and is widely used in granular form for direct application to land or as a feedstock for bulk blending for NPK manufacture. Prices are only assessed based on deals concluded in the agricultural sector. This product is non-hygroscopic, non-dust-forming and non-caking, of equalized granulometric composition, and water-soluble. Netbacks are calculated based on bulk cargo shipments in mineral wagons.

NPKs

NPK fertilizers are high-performance compound nitrogen-phosphate-potassium fertilizers including all nutrients required for plant growth, enabling farmers to reduce blending costs and avoid extra expenses resulting from separate application. NPKs are applied universally and are often used for preparing blends with modified nutrient content and minor nutrient additives. NPK fertilizers are produced in granular form, are non-hydroscopic and non-caking. Netbacks are calculated based on bulk cargo shipments in mineral wagons and shipments in big bags in open wagons.

Anhydrous ammonia

Anyhdrous ammonia is a liquid bulk fertilizer with maximum 0.5pc water/moisture content by weight while maximum mass concentration of oil is 10ppm. Ammonia is predominantly used for downstream production of fertilizers (78pc of total volume are used for this purpose), for direct fertilizer application on crops (3pc of total volume) and for non-fertilizer, industrial use (19pc of total volume). Anhydrous ammonia is transported in special ammonia tank wagons and tank trucks, in steel cylinders, by tankers, and also by ammonia pipelines. Shipments of anhydrous ammonia in tank wagons and tank trucks are carried out in compliance with dangerous goods regulations applied to the respective types of transportation.

Muriate of potash (MOP)

Muriate of potash (MOP) can be either standard (powder) or granular. Water soluble potash content (as K2O nutrient) minimum 60pc. Moisture max 0.50pc by weight. Standard MOP particle size: varies according to supplier but smaller than granular MOP. MOP is transported in mineral wagons.

Sulphur (crushed lump and granular)

Sulphur is usually sold in three forms: crushed lump, granular or liquid.

Sulphur is first produced in liquid form. But costs associated with storage, transportation, unloading, and static electricity accumulation during transportation of liquid sulphur are high. At the same time liquid sulphur has higher purity than crushed lumps and granular product.

Crushed lump sulphur is produced by cooling, solidification of molten sulphur and crushing sulphur blocks. The main disadvantage of crushed lump sulphur is that it may lose weight, get dirty and dampen during storage and transportation. It is safer and more convenient to store granular sulphur. But granulation of sulphur, whether it is air-stream, water or fluidized bed granulation, is expensive.

Around 80pc of sulphur is used to produce sulphuric acid. In turn, 78pc of sulphuric acid is utilized in fertilizer production. The applications of sulphuric acid in the chemical industry include production of other acids (phosphoric acid, hydrochloric acid, etc.), colourants, industrial salts and plastics. Sulphuric acid is also used for refining in the petrochemical industry and for chemical milling in metallurgy. Sulphur is a raw material in the production of phosphate-based fertilizers.

Granular and crushed lump sulphur from the plants of Gazprom and TCO is shipped in bulk. Sulphur form the Russian oil refineries is shipped in big-bags or bags. Sulphur for exports is delivered to the sea ports by rail in open wagons.