METHODOLOGY AND SPECIFICATIONS GUIDE

# ARGUS RUSSIAN PETROCHEMICALS

**Contents:**



***LAST UPDATED: MAY 2020***

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

# Introduction

## Methodology rationale

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

In the Russian petrochemicals markets, Argus publishes physical market prices in the open spot 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 spot 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, 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 are 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. This 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.

Several tests are applied by reporters in all markets to transactional data to determine if they should be subjected to further scrutiny. If a transaction has been identified as failing such a test, it will receive further scrutiny.

**Primary tests applied by reporters**

- Transactions not transacted at arms 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 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.
- Analysis of prices in forward markets for physically deliverable commodity that allow extrapolation of value into the prompt timing for the commodity assessed.
- 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

Because of the varying transportation infrastructure found in all commodity markets, 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. 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.

## 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 subscribers, 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 indicators of commodity market values, free from distortion and representative of spot market values.

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 physical 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 assessments 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

Argus Russian Petrochemicals covers the Russian and CIS countries' markets for fuel components used for blending with gasoline to increase octane number. The report also contains market information for aromatics including benzene, toluene, orthoxylene and methanol. Along with high-octane fuel components, anti-knocking fuel agents are used for this purpose, but most of them create air pollution problems. Since they contain oxygen, high-octane fuel components are also used to enhance oxidation of combustion products (oxygenate function).

High-octane fuel components, as well as advanced refining products (obtained by catalytic cracking, catalytic reforming, isomerisation, alkylation, hydrocracking), are blended with motor fuel in proportions needed to achieve the required octane level.

High-octane fuel components used in motor fuel blends in large volumes in Russia include methyl tert-butyl ether (MTBE) and toluene.

Argus publishes price assessments for MTBE, toluene orthoxylene, methanol and benzene in the Russian-language Argus Russian Petrochemicals, published every Monday.

The report focuses on:

- MTBE, toluene, benzene, methanol and orthoxylene prices and commentary for the Russian domestic market
- Analysis of the former Soviet Union countries and other export MTBE markets
- MTBE prices and markets in western Europe
- MTBE prices in the US and Asia
- Fundamental data on markets in Russia and Ukraine

## Price reporting

Argus publishes prices that report and reflect prevailing levels for open-market arms length transactions (Argus Global Compliance Policy).

Argus employees obtain information on spot transactions, bids and offers from market participants (consumers, traders, producers) by phone, e-mail and other communication tools with the cut off at 18:00 Moscow time (Friday). Argus publishes the most competitive range of market price assessments over the course of the preceding five working days excluding the day of issue (Monday).

## Russian domestic prices

Argus publishes spot prices for high-octane fuel components and aromatics in the Russian domestic market.

### Price assessments

- MTBE fca Volzhsky (Ectos-Volga, Volgograd region), weekly
- MTBE fca Kosyakovka (Sterlitamak Petrochemical plant, Republic of Bashkortostan), weekly
- MTBE fca Kombinatskaya (Omsk Kauchuk, Omsk region), weekly
- MTBE fca Tobolsk (Sibur, Tyumen region), weekly
- Toluene fca Kombinatskaya (Gazpromneft, Omsk region), monthly
- Toluene fca Kirishi (Surgutnefregaz, Leningrad region), weekly
- Orthoxylene fca Kombinatskaya (Gazpromneft, Omsk region), monthly
- Orthoxylene fca Kirishi (Surgutneftegaz, Leningrad region), weekly
- Benzene fca Salavat (Gazprom Neftekhim Salavat, Republic of Bashkortostan), monthly
- Methanol fca Kaznacheyevka (Shchekinoazot, Tula region), monthly
- Methanol fca Himzavodskaya (Tomet, Samara region), monthly
- Methanol fca Ugleuralskaya (Metafrax, Perm region), monthly

The minimum cargo size is 50 tonnes (44 tonnes for methanol cargoes). Loading period is 2-30 days. The prices are published in Roubles per ton including VAT.

Argus also publishes weekly MTBE factors as ratios of the MTBE price to the price of Ai-92 and Ai-95 gasoline produced by the Omsk and Perm refineries. See the Argus Russian Motor Fuels methodology.

### Product quality:

- MTBE: grade A only, in line with the Russian industrial standard TU 38.103704-90, as the most liquid grade by mass ratio in merchant product (98%)
- Toluene Kirishi: GOST 14710-78, min 99.6% by weight;
- Toluene Kombinatskaya: TU 38.301-19-97-96 (1-3), min 99.75%, by weight
- Orthoxylene Kirishi: TU 38.101254-72 E (1-7)
- Orthoxylene Kombinatskaya: TU 38.101254-72 E (1-7)
- Benzene Kirishi GOST 9572-93
- Benzene Novokuznetsk-Severny GOST 8448-78
- Methanol GOST 2222-95

## Methanol netbacks

Netbacks for Russian methanol are calculated weekly as the Argus Rotterdam fob European quarterly contract price (EQCP) for methanol published in Argus Global Methanol less freight between Rotterdam and Kotka, loading costs at the port of Kotka, railway tariffs between individual plants and the loading port and rail car rent.

Netbacks are published both including and excluding value-added tax (VAT) for:

- Mendeleevskazot, Tatarstan
- Metafrax, Perm region
- Shchekinoazot, Tula region
- Sibmetakhim, Tomsk region
- Tomet, Samara region
- EuroChem, Tula region

See the Argus Global Methanol and Argus Nefte Transport methodologies.

## International market prices

Argus Russian Petrochemicals publishes global MTBE prices — in Europe (fob Rotterdam), in the US (fob US Gulf) and in Asia (fob Singapore).

International market prices for MTBE and high-octane fuel components are published in Argus Fuels and Octane and the Argus MTBE Outlook. See the Argus Fuels and Octane methodology.

## Specifications and properties

Argus Russian Petrochemicals covers the products that meet the standards and technical regulations effective in the Russian Federation.

The technical regulations effective for methyl tert-butyl ether, is Russian industrial standard TU 38.103704-90. Physical and chemical properties of MTBE must conform to standards and requirements provided by these technical regulations.

- The toluene specification is GOST 14710-78; TU 38.301-19-97-96 (1-3)
- The methanol specification is GOST 2222-95
- The orthoxylene specification is TU 38.101254-72 E (1-7)
- The benzene specification is GOST 9572-93; GOST 8448-78

**Physical, chemical and fuel properties of MTBE**

| **Molecular formula** | **$(CH_3)_3COCH_3$** |
|---|---|
| **Parameters** | |
| Molecular weight | 88.146 |
| Colour | Colourless transparent liquid with etheric odor |
| Freezing point | -108.6˚C |
| Boiling point | 55.2˚C |
| Density at 20 ˚C | 0.7405 g/cm³ |
| Refractive index at 20 ˚C | 1.369 |
| Specific heat | 2.1 kJ/kg |
| Heat of vaporisation | 332.5 kJ/kg |
| Flashpoint | -27˚C |
| Auto ignition temperature | 443˚C |
| Flammability limits | 1.4 – 10% |
| Maximum allowable concentration in operating space air | 100 mg/m³ |
| Maximum allowable concentration in atmosphere of populated areas | 0.1 mg/m³ |
| RON | 115-135 |
| MON | 100–101 |

**Mechanical properties of MTBE**

| **Parameters** | **Grade A** | **Grade B** | **Grade V** |
|---|---|---|---|
| **Product code (Russian Classification of Production)** | **24 3419 110109** | **24 3419 110208** | **24 3419 110300** |
| **Appearance** | **transparent liquid** | | |
| Methyl tert-butyl ether min, %, by weight | 98.0 | 96.0 | 94.0 |
| Alcohol (methanol and ter-butanol) max, %, by weight | 1.5 | 2.5 | 4.0 |
| Hydrocarbons C4 and C8 max, %, by weight | 1.5 | 1.5 | 3.0 |
| Moisture max, %, by weight | 0.10 | 0.10 | 0.10 |
| Solid particles | Absent | Absent | Absent |

**Main properties of ethers blended with gasoline**

| **Parameters** | **MTBE** | **ETBE** | **TAME** | **Diisopropyl ether** | **Comment** |
|---|---|---|---|---|---|
| RON | 117 | 119 | 112 | 110 | |
| MON | 103 | 105 | 98 | 100 | |
| ether content, % vol. | 11 | 12.7 | 12.7 | 12.7 | 2% of oxygen in blend |
| | 15.1 | 17.2 | 17.2 | 17.2 | 2.7% of oxygen in blend |
| Tboil, ˚C | 55 | 73 | 86 | 68 | |
| solubility in water, %, at 20 ˚C | 4.8 | 0.1 | 0.2 | 0.2 | |

MTBE content in motor fuel is limited to 15.1% vol.