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ARGUS EUROPEAN PRODUCTS

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LAST UPDATED: JANUARY 2021

The most up-to-date Argus European Products 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 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 European products 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. Argus assesses some clean product markets as a basis differential to the Ice gasoil and Brent settlement prices to arrive at fixed prices because the futures settlement price is a representative futures price reference.

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, Argus Open Markets™ (AOM™) and directly from the back offices of market participants. Argus will accept market data by telephone, instant messenger, email, AOM 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. 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. 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 transactional average methodologies, full details of the transactions verified are published on electronic bulletin boards that 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 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.

Minimum transaction thresholds

Commodity	Modality	Location	Minimum Transaction Thresholds	
			Low/high minimum volume	VWA aggregate minimum volume
Eurobob oxy gasoline	Barge	ARA	na	3,000t
Eurobob non-oxy gasoline	Barge	ARA	na	3,000t

Transparency

Argus values transparency in energy markets. As a result, 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.

Basis differentials and absolute prices

In heating oil, jet fuel and diesel markets, differentials to futures are the negotiated bids, offers, and transaction values. Argus fixed prices are derived by adding the differentials to the Ice gasoil futures settlement prices in these cases. On vacuum gasoil and straight-run fuel oil assessments, the differentials are linked to the Ice Brent futures contract.

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 products prices for Europe are published in the Argus European Products report. Subsets of these prices appear in other

Argus market reports and newsletters in various forms, such as Argus Jet Fuel and Argus Global Markets. 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.

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 val-

ues, 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.

Naphtha and gasoline

Northwest Europe

Cargoes

95R gasoline 10ppm fob northwest Europe cargo

Motor gasoline 95 Ron (octane) 10ppm sulphur. Prices are assessed as a differential to the Eurobob oxy barge price assessment, taking into account a cargo-to-barge discount and a storage and blending premium, both of which are regularly reviewed.

Unit: US dollars/tonne

Period: loading 5-15 days forward

Size: standardised to 10,000-15,000t

Basis: fob northwest Europe

Specifications: 95 Ron, unleaded, 10ppm sulphur, standard Eurograde

Assessment time: 9.00am to 5.30pm London time

Non-oxy gasoline 10ppm cif northwest Europe cargo

Prices are assessed as a differential to the Eurobob oxy barge price assessment

Unit: US dollars/tonne

Period: delivery 5-20 days forward

Size: standardised to 30,000-37,000t

Basis: cif northwest Europe

Specifications: max 95 Ron, premium unleaded, 10ppm sulphur, standard non-oxy Eurograde EN228, 60kpa summer and 90kpa winter RVP, aromatics 35pc

Assessment time: 9.00am to 5.30pm London time

91R gasoline fob northwest Europe cargo

Motor gasoline 91 Ron (octane) Prices are assessed as 91R gasoline cif northwest Europe cargoes minus the UK Continental freight cost unless modified by Argus according to market conditions.

The UK Continental freight cost will be based on current spot freight rates (WS100 rates) as they apply to an average of specific routes.

These routes are Brofjorden to Rotterdam, Coryton to Le Havre and Le Havre to Hamburg for 22,000t vessels.

Unit: US dollars/tonne

Period: loading 5-15 days forward

Size: standardised to 10,000-15,000t

Basis: fob northwest Europe

Specifications: 91 Ron, unleaded

Assessment time: 9.00am to 5.30pm London time

95R gasoline 10ppm cif northwest Europe cargo

Motor gasoline 95 Ron (octane) 10ppm sulphur Prices are assessed as a net-forward from the 95R gasoline 10ppm fob cargo price assessment, using current spot freight rates (WS100 rates) as they apply to an average of specific routes. These routes are Amsterdam, Rotterdam and Antwerp to Hamburg for 22,000t vessels.

Unit: US dollars/tonne

Period: delivery 5-15 days forward

Size: standardised to 10,000-15,000t

Basis: cif Hamburg

Specifications: 95 Ron, unleaded, 10ppm sulphur, standard Eurograde

Assessment time: 9.00am to 5.30pm London time

91R gasoline cif northwest Europe cargo

Motor gasoline 91 Ron (octane) Prices are usually assessed by market participants at a differential to the 95 Ron gasoline 10ppm Eurograde barge assessment.

Unit: US dollars/tonne

Period: delivery 5-15 days forward

Size: standardised to 10,000-15,000t

Basis: cif Hamburg

Specifications: 91 Ron, unleaded

Assessment time: 9.00am to 5.30pm London time

Naphtha 65 para cif northwest Europe cargo

Quality

Argus assesses material meeting the following specifications. Pipeline specification or grades with a paraffinic content of more than 70 paraffins may command a premium or discount to typical open spec grades and this differential, determined by Argus, may be factored into price assessments when they trade.

Specifications		
Specific gravity	At 15°C	Max 0.735
Vapour pressure	PSI	Max 12.5
Colour	Saybolt	Min plus 20
Lead	PPB	Max 50
Sulphur	ppm	Max 500
IBP	°C	Min 30
FBP	°C	Max 180
Paraffins	% vol	Min 65
Olefins	% vol	Max 1
Naphthenes	% vol	To be reported
Aromatics	% vol	To be reported
Total chlorines	ppm	Max 10
MTBE	ppm	Max 50
Hydrogen sulphide	ppm	Max 10
Mercaptans	ppm	To be reported
Mercury	ppb	Max 5
Total oxygenate content	ppm	Max 100

Period

To be considered for inclusion in the assessment, market information must be for a 10-30 day delivery period from the day of assessment. Assessments will be normalised to reflect delivery 15 days from the day of assessment using other spot trade and forward markets to determine market structure. Sellers should guarantee a five-day delivery range, which must then be narrowed to a three-day range at least five days before the delivery period.

Assessment timing

Argus will consider for inclusion in the assessment, in accord with the hierarchy of information outlined below all relevant market activity between 4.00pm-4.45pm London time.

Volumes

Trade sizes of 12,500-32,000t will be considered for inclusion in the cif northwest Europe cargo assessment.

Unit

All prices are in \$/tonne

Location

Prices are assessed basis delivery Amsterdam, Rotterdam or Antwerp (ARA).

Data considered in the Argus assessment

Argus will form its price assessments on the basis of data provided using the following information hierarchy:

1. Confirmed trade conducted via AOM for cargoes that meet Argus' methodology, timing and location criteria
2. Confirmed trade outside AOM for cargoes that meet Argus' published methodology, timing and location criteria
3. Bids and offers conducted via AOM for cargoes that meet Argus' methodology, timing and location criteria
4. Confirmed bids and offers conducted outside AOM for cargoes that meet Argus' published methodology, timing and location criteria
5. Other data including bids, offers and trades for other volumes, locations or timings, forward markets and arbitrage economics

Certain market situations may emerge in which confirmed trade and bids and offers would not produce representative prices. In these circumstances Argus will publish representative prices by moving down the information hierarchy as it considers appropriate.

Ice Brent differentials

Confirmed trade conducted via AOM is converted to a differential to front-month Ice Brent futures prices using the prevailing futures market price at the time of trade. Those differentials are converted back to fixed-price Naphtha trades for assessment purposes using the front-month Ice Brent futures price at 4.45pm London time.

Barges

98R gasoline fob northwest Europe barge

As trade on 98R grades is infrequent, Argus applies a differential to the more liquid Eurobob oxy grade to inform its assessments.

Unit: US dollars/tonne

Period: loading 2-8 days forward

Size: standardised to 1,000-2,000t

Basis: fob Rotterdam/Amsterdam/Antwerp

Specifications: 98 Ron, 88 Mon, unleaded, 0.755 specific gravity, "superplus" with benzene limits at 1% maximum, maximum 10ppm sulphur

Assessment time: 9.00am to 5.30pm London time

95R gasoline 10ppm fob northwest Europe barge

Prices are assessed taking into account trade, bids, offers and other relevant market information, including market structure, to inform a differential to the Eurobob oxy barges price assessment.

Unit: US dollars/tonne

Period: loading 2-8 days forward

Size: standardised to 1,000-2,000t

Basis: fob Rotterdam/Amsterdam/Antwerp

Specifications: 95 Ron, 85 Mon, unleaded, 0.755 specific gravity, 10ppm sulphur, standard Eurograde meeting EN228 specifications

Assessment time: 9.00am to 5.30pm London time

Eurobob oxy

Prices are typically a volume-weighted average of deals done within Argus criteria and published on the Argus Gasoline Bulletin board.

Unit: US dollars/tonne

Period: loading 2-8 days forward

Size: standardised to 1,000-2,000t

Basis: fob Rotterdam/Amsterdam/Antwerp/Terneuzen

Specifications: grades of gasoline that meet EN228 specifications with a maximum of 10ppm sulphur and maximum vapour pressure of 90kPa in the winter and 60kPa in the summer after they have been blended with 4.8% ethanol of minimum 98.7% purity. Oxygen content is limited to 0.9%

No more than trace alcohol content

Specific gravity is 0.755 g/ml

Metal content must not exceed 1 mg/l

Assessment time: 9am to 5.30pm London time.

To be considered for inclusion in the assessment, a minimum of two load ports must be specified at the time of trade.

Standard nomination procedures must be followed. The buyer should give two working days' notice of barge ETA. Nominations received after 2pm London time or on Fridays after 1pm London time will be deemed to be received on the following working day. Otherwise, the original day of nomination will count as day one of the two days' notice. Barges can arrive to be loaded at any time from midnight after the two-day notice period. For instance, for a barge deal done on Monday morning, the barge can arrive to be loaded at any time on Wednesday after Tuesday midnight.

Barges nominated on Thursday before 2pm London time can arrive to be loaded at any time on Saturday after midnight Friday. Barges nominated after 2pm London time on Thursday and before 1pm London time on Friday can arrive to be loaded at any time on Tuesday after midnight Monday. The same logic also applies to the penultimate working day before a UK public holiday on which Argus European Products is not published.

If less than 3,000t of trade within Argus criteria is reported, Argus will include in the volume-weighted average an assessment of the prevailing market price at 4.30pm London time based on bids, offers and other market information. That assessment will be assigned whatever volume is required such that the total volume of reported trades and the assessment equals 3,000t. If some volume of index-relevant trade less than 3,000t is reported, the assessment will be assigned a volume of 3,000t less the total volume of index-relevant trade and a volume-weighted average will be calculated. If no trade is reported, the published price will be the assessment.

The Eurobob oxy price assessment is published as a low-high range, 25¢/t on either side of the volume-weighted average and rounded to the nearest 25¢/t.

Clarification: Only bids and offers that meet the Argus Eurobob oxy specifications will be considered for inclusion in the Argus Eurobob oxy assessment. Offers stipulating superior qualities will not be considered and all deals must be concluded on an oxy basis to be included in the Argus Eurobob oxy assessment.

For a trade to be considered for inclusion in the assessment, the seller must commit at the time of trade to provide the buyer with a full quality certificate at the start of barge loading, at the start of loading ex-refinery or at the start of pump-over into the buyer's tank. The certificate must be for volumes loaded directly ex-refinery or from a single certified shore tank. For the avoidance of doubt, trades involving a "proportional composite" analysis of streams from multiple tanks or a "hand blend" test may not be considered for inclusion in the assessment.

Argus will publish a subscriber note in the European Products report at least one month ahead of any seasonal changes in winter/summer specifications, detailing the loading dates for deals it will consider in its assessments during the transition from one grade to another.

Eurobob non-oxy

Prices are typically a volume-weighted average of deals done within Argus criteria and published on the Argus Gasoline Bulletin board.

Unit: US dollars/tonne

Period: loading 2-8 days forward

Size: standardised to 1,000-2,000t

Basis: fob Rotterdam/Amsterdam/Antwerp/Terneuzen

Specifications: grades of gasoline that meet EN228 specifications with a maximum of 10ppm sulphur and maximum vapour pressure of 90kPa in the winter and 60kPa in the summer after they have been blended with 9.7% ethanol of 98.7% purity.

Assessment time: 9.00am to 5.30pm London time.

To be considered for inclusion in the assessment, a minimum of two load ports must be specified at the time of trade.

Standard nomination procedures must be followed. The buyer should give two working days' notice of the barge ETA. Nominations received after 2pm London time or on Fridays after 1pm London time will be deemed to be received on the following working day. Otherwise, the original day of nomination will count as day one of the two days' notice. Barges can arrive to be loaded at any time from midnight after the two-day notice period. For instance, for a barge deal done on Monday morning, the barge can arrive to be loaded at any time on Wednesday after Tuesday midnight.

Barges nominated on Thursday before 2pm London time can arrive to be loaded at any time on Saturday after midnight Friday. Barges nominated after 2pm London time on Thursday and before 1pm London time on Friday can arrive to be loaded at any time on Tuesday after midnight Monday. The same logic also applies to the penultimate working day before a UK public holiday on which Argus European Products is not published.

If less than 3,000t of trade within Argus' criteria is reported, Argus will include in the volume-weighted average an assessment of the prevailing market price at 4:30pm London time based on bids, offers and other market data. That assessment will be assigned whatever volume is required such that the total volume of reported trades and the assessment equals 3,000t. If some volume of index-relevant trade less than 3,000t is reported, the assessment will be assigned a volume of 3,000t less the total volume of index-relevant trade and a volume-weighted average will be calculated. If no trade is reported, the published price will be the assessment.

The Eurobob non-oxy price assessment is published as a low-high range, 25¢/t on either side of the volume-weighted average and rounded to the nearest 25¢/t.

Clarification: Only bids and offers that meet the Argus Eurobob non-oxy specifications will be considered for inclusion in the Argus Eurobob non-oxy assessment. Offers stipulating superior qualities will not be considered and all deals must be concluded on a non-oxy basis to be included in the Argus Eurobob non-oxy assessment.

For a trade to be considered for inclusion in the assessment, the seller must commit at the time of trade to provide the buyer with a full quality certificate at the start of barge loading, at the start of loading ex-refinery or at the start of pump-over into the buyer's tank. The certificate must be for volumes loaded directly ex-refinery or from a single certified shore tank. For the avoidance of doubt, trades involving a "proportional composite" analysis of streams from multiple tanks or a "hand blend" test may not be considered for inclusion in the assessment.

Argus will publish a subscriber note in the Argus European Products report at least one month ahead of any seasonal changes in winter/summer specifications, detailing the loading dates for deals it will consider in its assessments during the transition from one grade to another.

91R gasoline fob northwest Europe barge

Unit: US dollars/tonne

Period: loading 2-8 days forward

Size: standardised to 1,000-2,000t

Basis: fob Rotterdam/Amsterdam/Antwerp

Specifications: 91 Ron, 82.5 Mon, unleaded, 0.745 specific gravity, benzene limits at 1% maximum, 10ppm sulphur, standard Eurograde

Assessment time: 9.00am to 5.30pm London time.

MTBE fob northwest Europe barge

Argus publishes a daily MTBE factor and a high-low price range for MTBE.

The MTBE factor reflects the industry practice of pricing MTBE as a ratio or factor of the Eurobob oxy barge gasoline price as published in Argus European Products.

Fixed-price MTBE trade will be converted to a ratio by dividing the MTBE price by the Eurobob oxy barge price assessment on the day of trade.

The daily high-low range for MTBE is calculated by multiplying the MTBE factor for the day by the high and low prices for Eurobob oxy barge as published in Argus European Products.

Unit: US dollars/tonne

Period: loading 2-15 days forward

Size: standardised to 1,000t

Basis: fob Rotterdam.

Specifications: European grade, 98% purity.

ETBE fob northwest Europe barge

Argus publishes a daily ETBE price, assessed as a differential to MTBE.

Unit: US dollars/tonne

Period: loading 2-15 days forward

Size: standardised to 1,000t

Basis: fob Rotterdam.

Specifications: European grade, 95% purity.

Naphtha 65 para fob northwest Europe barge

Quality

Argus assesses material meeting the following specifications.

Pipeline specification or grades with a paraffinic content of more than 70 paraffins may command a premium or discount to typical open spec grades and this differential, determined by Argus, may be factored into price assessments when they trade.

Specifications		
Specific gravity	At 15°C	Max 0.735
Vapour pressure	PSI	Max 12.5
Colour	Saybolt	Min plus 20
Lead	PPB	Max 50
Sulphur	PPM	Max 500
IBP	°C	Min 30
FBP	°C	Max 180
Paraffins	% vol	Min 65
Olefins	% vol	Max 1
Naphthenes	% vol	To be reported
Aromatics	% vol	To be reported
Total chlorines	PPM	Max 10
MTBE	PPM	Max 50
Hydrogen sulphide	PPM	Max 10
Mercaptans	PPM	To be reported
Mercury	PPB	Max 5
Total oxygenate content	PPM	Max 100

Period

To be considered for inclusion in the assessment, market information must be for barges loading 3-30 days ahead of the day of assessment

Assessment timing

Argus will consider for inclusion in the assessment, in accord with the hierarchy of information outlined below all relevant market activity between 4.00pm-4.45pm London time.

Volumes

Barges of 1,000-5,000t will be considered for inclusion in the fob FARAG assessment.

Unit

All prices are in \$/tonne

Location

Location will be fob Flushing, Amsterdam, Rotterdam, Antwerp or Ghent (FARAG)

Data considered in the Argus assessment

Argus will form its price assessments on the basis of data provided using the following information hierarchy:

1. Confirmed trade conducted via AOM for barges that meet Argus' methodology, timing and location criteria
2. Confirmed trade outside AOM for barges that meet Argus' published methodology, timing and location criteria
3. Bids and offers conducted via AOM for barges that meet Argus' methodology, timing and location criteria
4. Confirmed bids and offers conducted outside AOM for barges that meet Argus' published methodology, timing and location criteria
5. Other data including bids, offers and trades for other volumes, locations or timings, forward markets and arbitrage economics

Certain market situations may emerge in which confirmed trade and bids and offers would not produce representative prices. In these circumstances Argus will publish representative prices by moving down the information hierarchy as it considers appropriate.

Nominations

Standard nomination procedures must be followed. The buyer should give two working days' notice of barge ETA. Nominations received after 2pm London time or on Fridays after 1pm London time will be deemed to be received on the following working day. Otherwise, the original day of nomination will count as day one of the two days' notice. Barges can arrive to be loaded at any time from midnight after the two-day notice period. For instance, for a barge deal done on Monday morning, the barge can arrive to be loaded at any time on Wednesday after Tuesday midnight.

West Mediterranean

95R gasoline 10ppm fob west Mediterranean

Prices are assessed taking into account Mediterranean cargo trade, bids, offers and other relevant market information, to inform a differential to the Eurobob oxy barges price assessment.

Unit: US dollars/tonne

Period: loading 5-15 days forward

Size: standardised to 20,000-30,000t

The basis is fob western Mediterranean

Specifications: 95 Ron, unleaded, 10ppm sulphur, standard Euro-grade (Spanish, Italian and French grades), 0.755 specific gravity, maximum 1% benzene

Assessment time: 9.00am to 5.30pm London time

Naphtha 65 para fob west Mediterranean

Prices are constructed by netting back from the Argus naphtha 65 para cif northwest Europe assessment using an Argus Mediterranean to northwest Europe freight assessment modified by *Argus* according to regional market conditions.

The Mediterranean to UK Continent freight cost will be based on current spot freight rates (WS100 rates) as they apply to an average of specific routes. These routes are Alexandria to Rotterdam, Skikda to Hamburg and Ras Lanuf to Antwerp for 30,000t naphtha vessels.

Unit: US dollars/tonne

Period: loading 5-15 days forward

Size: standardised to 10,000-25,000t

Specifications: 65-70% paraffins.

Assessment time: 8.30am to 5.30pm London time.

95R gasoline 10ppm cif west Mediterranean

Prices are assessed as a net-forward from the 95R gasoline 10ppm fob Med cargo price assessment, using an Argus cross-Mediterranean freight assessment.

Unit: US dollars/tonne

Period: delivery 5-15 days forward.

Size: standardised to 20,000-30,000t.

Basis: cif Lavera/Genoa calculated by adding to the fob western Mediterranean an assessment of spot freight. The spot freight is the cross-Mediterranean WS100 rate applied to an average of Skikda to Genoa, Zawia to Lavera and Alexandria to Genoa for 30,000t vessels.

Specifications: 95 Ron, unleaded, 10ppm sulphur, standard Euro-grade (Spanish, Italian and French grades), 0.755 specific gravity, maximum 1% benzene

Assessment time: 9.00am to 5.30pm London time.

Naphtha 65 para cif west Mediterranean

Unit: US dollars/tonne

Period: delivery 5-15 days forward.

Size: standardised to 10,000-25,000t.

Basis: cif Lavera/Genoa constructed by adding an Argus assessment for cross-Mediterranean freight to the naphtha 65 paraffinic fob west Mediterranean assessment modified by *Argus* according to regional market conditions. The cross-Mediterranean freight cost will be based on current spot freight rates (WS 100 rates) as they apply to an average of specific routes. These routes are Skikda to Genoa, Zawia to Lavera and Alexandria to Genoa for 30,000t naphtha vessels.

Specifications: 65-70% paraffins.

Assessment time: 8.30am to 5.30pm London time.

Middle distillates

Northwest Europe

Cargoes

Jet fob northwest Europe cargo

Prices are assessed by netting back from the Argus jet cif northwest Europe price using a UK Continental freight cost modified by *Argus* according to market conditions. The UK Continental freight cost will be based on current spot freight rates (WS100 rates) as they apply to an

average of specific routes. These routes are Brofjorden to Rotterdam, Coryton to Le Havre and Le Havre to Hamburg for 30,000t vessels.

Unit: US dollars/tonne

Period: loading 10-25 days forward.

Size: standardised to 30,000t.

Basis: fob northwest Europe.

Specifications: Defstan 91-091 latest issue, 0.800 specific gravity, EU qualified.

Assessment time: is 8.30am to 5.30pm London time.

Diesel French 10ppm fob northwest Europe cargo

Diesel 10ppm sulphur

Prices are netted back from the Argus diesel 10ppm cif northwest Europe price using UK Continental freight as assessed by *Argus* modified by any relevant market considerations. The UK Continental freight cost will be based on current spot freight rates (WS100 rates) as they apply to an average of specific routes. These routes are Brofjorden to Rotterdam, Coryton to Le Havre and Le Havre to Hamburg for 30,000t vessels.

Unit: US dollars/tonne

Period: loading 10-25 days forward

Size: standardised to 25,000-30,000t

Basis: fob northwest Europe

Specifications: 10ppm sulphur, minimum 51 cetane number, maximum 0.001% sulphur, up to 0.845 specific gravity, (in summer) plus 2°C cloud point, minus 4°C cold filter plugging point, (in winter) minus 5°C cloud point, minus 15°C cold filter plugging point. Price based on 0.845 maximum specific gravity at 15°C.

Assessment time: 8.30am to 5.30pm London time.

Diesel German 10ppm fob northwest Europe cargo

German diesel 10ppm sulphur

Prices are netted back from the Argus German diesel 10ppm cif price using UK Continental freight as assessed by *Argus* modified by any relevant market considerations. The UK Continental freight cost will be based on current spot freight rates (WS100 rates) as they apply to an average of specific routes. These routes are Brofjorden to Rotterdam, Coryton to Le Havre and Le Havre to Hamburg for 30,000t vessels.

Unit: US dollars/tonne

Period: loading 10-25 days forward

Size: is standardised to 25,000-30,000t

Basis: fob northwest Europe

Specifications: 10ppm sulphur, minimum 51 cetane number, prices exclude WASA (wax anti-settling additive), up to 0.845 specific gravity, (in summer) plus 5°C cloud point, minus 2°C cold filter plugging point, (in winter) minus 7°C cloud point, minus 22°C cold filter plugging point, (intermediate quality) minus 3°C cloud point, minus 13°C cold filter plugging point.

Price based on 0.845 maximum specific gravity at 15°C.

Assessment time: 8.30am to 5.30pm London time.

Heating oil French 0.1%S fob northwest Europe cargo

Prices are netted back from the Argus Heating Oil cif price using UK Continental freight as assessed by *Argus* modified by any relevant market considerations. The UK Continental freight cost will be based on current spot freight rates (WS100 rates) as they apply to an average

of specific routes. These routes are Brofjorden to Rotterdam, Coryton to Le Havre and Le Havre to Hamburg for 30,000t vessels.

Unit: US dollars/tonne

Period: loading 10-25 days forward

Size: standardised to 25,000-30,000t

Basis: fob northwest Europe

Specifications: French heating grade, minimum 40 cetane number, plus 2°C cloud point, minus 4°C cold filter plugging point and minus 9°C pour point, maximum 0.1% sulphur.

Price based on 0.845 specific gravity.

Assessment time: 8.30am to 5.30pm London time

Jet cif northwest Europe cargo

Prices are assessed as a differential to Ice front-month gasoil. Prices are published as a differential and as an outright price based on the assessed differential and the Ice front-month gasoil settlement.

Unit: US dollars/tonne

Period: delivery 10-25 days forward

Size: standardised to 30,000t

Basis: cif northwest Europe standardised to Rotterdam.

Specifications: Defstan 91-091 latest issue, 0.800 specific gravity, EU qualified.

Assessment time: 8.30am to 5.30pm London time.

UK ULSD cif northwest Europe cargo

UK ultra-low sulphur diesel 10ppm sulphur.

Prices are calculated using an Ice settlement price as published by the Intercontinental Exchange as a base price.

Unit: US dollars/tonne

Period: delivery 10-25 days forward

Size: standardised to 25,000-30,000t

Basis: cif UK Thames Estuary

Specifications: 10ppm sulphur, 0.845 maximum specific gravity at 15°C

Assessment time: 8.30am to 5.30pm London time.

Diesel French 10ppm cif northwest Europe cargo

Diesel 10ppm sulphur

Prices are calculated using an Ice settlement price as published by the Intercontinental Exchange as a base price.

Unit: US dollars/tonne

Period: delivery 10-25 days forward

Size: standardised to 25,000-30,000t.

Basis: cif Le Havre.

Specifications: 10ppm sulphur, minimum 51 cetane number, maximum 0.001% sulphur, up to 0.845 specific gravity, (in summer) plus 2°C cloud point, minus 4°C cold filter plugging point, (in winter) minus 5°C cloud point, minus 15°C cold filter plugging point.

Price based on 0.845 maximum specific gravity at 15°C

Assessment time: 8.30am to 5.30pm London time.

Diesel French 10ppm cif ARA cargo

Diesel 10ppm sulphur

Prices are calculated using an Ice settlement price as published by the Intercontinental Exchange as a base price.

Unit: US dollars/tonne

Period: delivery 10-25 days forward

Size: standardised to 25,000-30,000t

Basis: cif ARA

Specifications: 10ppm sulphur, minimum 51 cetane number, maximum 0.001% sulphur, up to 0.845 specific gravity, (in summer) plus 2°C cloud point, minus 4°C cold filter plugging point, (in winter) minus 5°C cloud point, minus 15°C cold filter plugging point.

Price based on 0.845 maximum specific gravity at 15°C

Assessment time: 8.30am to 5.30pm London time.

Diesel German 10ppm cif northwest Europe cargo

German diesel 10ppm sulphur

Prices are calculated using an Ice settlement price as published by the Intercontinental Exchange as a base price.

Unit: US dollars/tonne

Period: delivery 10-25 days forward

Size: standardised to 25,000-30,000t

Basis: cif Hamburg

Specifications: 10ppm sulphur, minimum 51 cetane number, prices exclude WASA (wax anti-settling additive), up to 0.845 specific gravity, (in summer) plus 5°C cloud point, minus 2°C cold filter plugging point, (in winter) minus 7°C cloud point, minus 22°C cold filter plugging point, (intermediate quality) minus 3°C cloud point, minus 13°C cold filter plugging point

Price based on 0.845 maximum specific gravity at 15°C

Assessment time: 8.30am to 5.30pm London time

Heating oil French 0.1%S cif northwest Europe cargo

Prices are calculated using an Ice settlement price as published by the Intercontinental Exchange as a base price.

Unit: US dollars/tonne

Period: delivery 10-25 days forward.

Size: standardised to 25,000-30,000t.

Basis: cif Le Havre.

The specifications are French heating grade, minimum 40 cetane number, plus 2°C cloud point, minus 4°C cold filter plugging point and minus 9°C pour point, maximum 0.1% sulphur.

Price based on 0.845 specific gravity.

Assessment time: 8.30am to 5.30pm London time.

Barges

Jet fob northwest Europe barge

Prices are assessed as a differential to Ice front-month gasoil.

Prices are published as a differential and as an outright price based on the assessed differential and the Ice front-month gasoil settlement. Typically the assessment is a volume-weighted average of deals concluded on an exchange-for-physical basis.

When no confirmed exchange-for-physical deals are concluded, Argus will use exchange-for-physical bids and offers to inform its assessment. 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.

When there is an insufficient number of bids and offers, comparative metrics may also inform the assessment. The relative values between compared commodities are readily discussed in the market and can be discovered through dialogue with market participants, including:

- Analysis of prices in forward markets for a physically deliverable commodity that allow extrapolation of value into the prompt timing for the commodity assessed.
- 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).

Unit: US dollars/tonne

Period: loading 2-8 days forward, not including weekends

Size: standardised to 2,000-5,000t. Trades for unusual quantities may be adjusted to reflect values for 2,000-5,000t

Basis: fob Rotterdam/Amsterdam/Antwerp/Flushing/Ghent (FARAG) at the seller's option. Bids, offers and trades for a different combination of these ports will be considered for inclusion in the assessment if the port restriction does not affect the price or if Argus can suitably adjust the price to a fob FARAG basis with loading at the seller's option.

Specifications: Defstan 91-091 latest issue, 0.800 specific gravity, EU qualified

Assessment time: 8.30am to 5.30pm London time

Diesel German 10ppm fob northwest Europe barge

German diesel 10ppm sulphur.

Prices are calculated using an Ice settlement price as published by the Intercontinental Exchange as a base price. Typically the assessment is a volume-weighted average of deals concluded on an exchange-for-physical basis.

Unit: US dollars/tonne

Period: loading 2-15 days forward

Size: standardised to 1,000-2,000t. Trades for unusual quantities may be adjusted to reflect values for 1,000-2,000t

Basis: fob Rotterdam/Amsterdam/Antwerp

Specifications: 10ppm sulphur, minimum 51 cetane number, prices exclude WASA (wax anti-settling additive), up to 0.845 specific gravity, (in summer) plus 5°C cloud point, minus 2°C cold filter plugging point, (in winter) minus 7°C cloud point, minus 22°C cold filter plugging point, (intermediate quality) minus 3°C cloud point, minus 13°C cold filter plugging point

Prices based on 0.845 specific gravity

Assessment time: is 8.30am to 5.30pm London time

Heating oil German 0.1%S fob northwest Europe barge

Prices are calculated using an Ice settlement price as published by the Intercontinental Exchange as a base price.

Typically the assessment is a volume-weighted average of deals concluded on an exchange-for-physical basis.

Unit: US dollars/tonne

Pricing period: loading 2-15 days forward

Size: standardised to 1,000-2,000t. Trades for unusual quantities may be adjusted to reflect values for 1,000-2,000t

Basis: fob Rotterdam/Amsterdam/Antwerp

Specifications: German grade, 0.845 specific gravity, 0.1% sulphur, (in summer) typically plus 3°C cloud point, minus 7°C cold filter plugging point and (in winter) 1°C cloud point, minus 11°C cold filter plugging point

Assessment time: 8.30am to 5.30pm London time

Marine gasoil 0.1%S fob northwest Europe barge

Published and assessed as an outright price and as differentials to the first and second month Ice gasoil futures settlement prices as published by the Intercontinental Exchange.

Unit: US dollars/tonne

Period: loading 10-30 days forward

Size: 1,000–5,000t. Trades for unusual quantities may be adjusted to reflect values for 1,000-5,000t

Basis: fob Rotterdam/Amsterdam/Antwerp

Specifications: maximum 0.1% sulphur, 0.89 specific gravity, meeting ISO 8217 2010 DMA quality specifications, with dyeing at the buyer's option and seller's cost

Assessment time: 8:30am to 5:30pm London time

Heating oil German 50ppm fob Northwest Europe barge

Prices are calculated using an Ice settlement price as published by the Intercontinental Exchange as a base price.

Typically the assessment is a volume-weighted average of deals concluded on an exchange-for-physical basis.

Unit: US dollars/tonne

Period: loading 2-15 days forward

Size: standardised to 1,000-2,000t. Trades for unusual quantities may be adjusted to reflect values for 1,000-2,000t

Basis: fob Rotterdam/Amsterdam/Antwerp

Specifications: German grade, 0.845 specific gravity, 0.005% sulphur, (in summer) typically plus 3°C cloud point, minus 7°C cold filter plugging point, (in winter) plus 1°C cloud point, minus 11°C cold filter plugging point

Assessment time: 8.30am to 5.30pm London time.

West Mediterranean

Jet fob west Mediterranean

Jet Mediterranean fob assessments are a netback from northwest Europe calculated using an Argus assessment of the west Mediterranean to northwest Europe freight costs modified by Argus according to regional market conditions.

The Mediterranean to UK Continent freight cost will be based on current spot freight rates (WS100 rates) as they apply to an average of specific routes. These routes are Santa Panagia Bay to Rotterdam, Milazzo to Le Havre and Ras Lanuf to Antwerp for 30,000t vessels.

Unit: US dollars/tonne

Period: loading 10-25 days forward

Size: standardised to 30,000t

Specifications: Defstan 91-091 latest issue, 0.800 specific gravity, EU qualified

Assessment time: 8.30am to 5.30pm London time

The differential between fob Mediterranean jet and cif Mediterranean jet assessments is published separately.

Diesel French 10ppm fob west Mediterranean

Diesel 10ppm sulphur

Prices are calculated subtracting an Argus assessment of cross-Mediterranean freight from the Argus Diesel 10ppm cif assessment modified by Argus according to regional market conditions.

The cross-Mediterranean freight cost will be based on current spot freight rates (WS100 rates) as they apply to an average of specific

routes. These routes are Skikda to Genoa, Zawia to Lavera and Alexandria to Genoa for 30,000t vessels.

Unit: US dollars/tonne

Period: loading 10-25 days forward

Size: standardised to 25,000-30,000t

Basis: fob Italian Isles

Specifications: maximum 0.005% sulphur, minimum 51 cetane number, up to 0.845 specific gravity, (in summer) plus 2°C cloud point, minus 4°C cold filter plugging point, (in winter) minus 5°C cloud point, minus 15°C cold filter plugging point

Price based on 0.845 maximum specific gravity at 15°C

Assessment time: 8.30am to 5.30pm London time

Heating oil French 0.1%S fob west Mediterranean

Prices are calculated subtracting an Argus assessment of cross-Mediterranean freight from the Argus Heating Oil cif assessment modified by Argus according to regional market conditions.

The cross-Mediterranean freight cost will be based on current spot freight rates (WS100 rates) as they apply to an average of specific routes. These routes are Skikda to Genoa, Zawia to Lavera and Alexandria to Genoa for 30,000t vessels.

Unit: US dollars/tonne

Period: loading 10-25 days forward

Size: standardised to 25,000-30,000t

Basis: fob Italian Isles

Specifications: French heating grade, minimum 40 cetane number, plus 2°C cloud point, minus 4°C cold filter plugging point and minus 9°C pour point, maximum 0.1% sulphur

Price based on 0.845 specific gravity

Assessment time: 8.30am to 5.30pm London time

Jet cif west Mediterranean

The cif west Mediterranean jet price assessment is published as a differential to Ice front-month gasoil and as an outright price. The price is typically based on indications of trade, bids and offers expressed as a differential to Ice gasoil or as a differential to cif northwest Europe jet cargo prices. Prices are assessed on a cif Genoa/Lavera basis. Bids, offers and trades for jet fuel cargoes delivered to Barcelona and Fiumicino will be considered for inclusion in the assessment after adjustment to a cif Genoa/Lavera basis using the cost of freight. Premiums paid to jet fob Mediterranean assessments and freight-adjusted prices of jet fuel delivered to the eastern Mediterranean will also be considered for inclusion in the assessment. Part cargoes will also be considered.

Unit: US dollars/tonne

Period: delivery 10-25 days forward

Size: standardised to 25,000-30,000t

Specifications: Defstan 91-091 latest issue, 0.800 specific gravity, EU qualified

Assessment time: 8.30am to 5.30pm London time

The differential between fob Mediterranean jet and cif Mediterranean jet assessments is published separately.

Diesel French 10ppm cif west Mediterranean

Diesel 10ppm sulphur

Prices are calculated using an Ice settlement price as published by the Intercontinental Exchange as a base price.

Period: delivery 10-25 days forward

Size: standardised to 25,000-30,000t

Basis: is cif Lavera/Genoa

Specifications: maximum 0.001% sulphur, minimum 51 cetane number, up to 0.845 specific gravity, (in summer) plus 2°C cloud point, minus 4°C cold filter plugging point, (in winter) minus 5°C cloud point, minus 15°C cold filter plugging point

Price based on maximum 0.845 specific gravity at 15°C

Assessment time: 8.30am to 5.30pm London time

Diesel 10ppm cif west Mediterranean diff to spot

Argus will publish a daily assessment that reflects traded premiums to spot assessments in the west Mediterranean for 25,000-30,000t cargoes.

Heating oil French 0.1%S cif west Mediterranean

Prices are calculated using an Ice settlement price as published by the Intercontinental Exchange as a base price.

Unit: US dollars/tonne

Period: delivery 10-25 days forward

Size: standardised to 25,000-30,000t

Basis: cif Lavera/Genoa

Fuel oil and VGO

Northwest Europe

Cargoes

Fuel oil 1%S fob northwest Europe cargo

Fuel oil 1% sulphur

Unit: US dollars/tonne

Period: loading 10-25 days forward

Size: standardised to 25,000-30,000t

Basis: fob northwest Europe standardised to Rotterdam

Specifications: maximum 1% sulphur, cracked, 380cst, 0.991 specific gravity, minimum 65°C flash

Assessment time: is 8.30am to 5.30pm London time

Fuel oil 3.5%S fob northwest Europe cargo

Fuel oil 3.5% sulphur

Unit: US dollars/tonne

Period: loading 10-25 days forward

Size: standardised to 25,000-30,000t

Basis: fob northwest Europe calculated by subtracting spot freight from the 3.5% cif northwest Europe assessment. The spot freight is the current WS100 rate applied to an average of the Tallinn to Rotterdam, Ventpils to Antwerp and Tallinn to Hamburg routes for 30,000t vessels

Specifications: maximum 3.5% sulphur, 380cst, 0.991 specific gravity, 300ppm maximum vanadium, H₂S 2ppm

Assessment time: 8.30am to 5.30pm London time

Fuel oil straight-run 0.5%S fob northwest Europe cargo

Straight run 0.5% fuel oil

The price is calculated as a differential to the Ice Brent 1 minute marker at 4.30pm London time and converted to US dollars/tonne

at a rate of 6.85 bl/t. See the [Argus Crude methodology](#) for details of the Ice Brent 1 minute marker price. Argus reserves the right to determine which Ice Brent contract month is used as the basis for the calculation, in line with market conditions.

Unit: US dollars/tonne

Period: loading 5-15 days forward

Size: standardised to 25,000-30,000t

Basis: fob northwest Europe standardised to UK east coast

Specifications: maximum 0.5% sulphur

Assessment time: 8.30am to 5.30pm London time

Fuel oil straight-run 0.5%S fob NWE cargo differential

Straight run 0.5% fuel oil

The price differential for straight run 0.5% fuel oil is assessed at a differential to Intercontinental Exchange's Ice Brent crude futures price.

Unit: US dollars/barrel

Period: loading 5-15 days forward

Size: standardised to 25,000-30,000t

Basis: fob northwest Europe standardised to UK east coast

Specifications: maximum 0.5% sulphur

Assessment time: 8.30am to 5.30pm London time

VGO 0.5%S fob northwest Europe cargo

Vacuum gasoil 0.5% sulphur

In the absence of confirmed trade within Europe, Argus will look at theoretical netback values to the US Gulf coast to help inform its price assessments in Europe.

Prices will also be published as a \$/bl differential to the Ice Brent 1 minute marker at 4.30pm London time and converted to US dollars/tonne at a rate of 6.88853 bl/t. See the [Argus Crude methodology](#) for details of the Ice Brent 1 minute marker price. Argus reserves the right to determine which Ice Brent contract month is used as the basis for the calculation, in line with market conditions.

Unit: US dollars/tonne

Period: loading 5-15 days forward

Size: standardised to 25,000-30,000t

Basis: fob Rotterdam

Specifications: maximum 0.5% sulphur, less than 1ppm sodium, nickel, vanadium, less than 2ppm iron, typical 80-85°C aniline, typical 0.915 density, maximum 0.5% CCR, maximum 1,500ppm nitrogen

Assessment time: 8.30am to 5.30pm London time.

VGO 2%S fob northwest Europe cargo

Vacuum gasoil 2% sulphur

In the absence of confirmed trade within Europe, Argus will look at theoretical netback values to the US Gulf coast to help inform its price assessments in Europe.

Prices will also be published as a \$/bl differential to Ice Brent the Ice Brent 1 minute marker at 4.30pm London time and converted to US dollars/tonne at a rate of 6.81405 bl/t. See the [Argus Crude methodology](#) for details of the Ice Brent 1 minute marker price. Argus reserves the right to determine which Ice Brent contract month is used as the basis for the calculation, in line with market conditions.

Unit: US dollars/tonne

Period: loading 5-15 days forward

Size: standardised to 25,000-30,000t

Basis: fob Rotterdam area

Specifications: are maximum 2% sulphur, less than 1ppm sodium, nickel, less than 2ppm vanadium, iron, typical 75-80°C aniline, typical 0.925 density, maximum 0.5% CCR, maximum 1,700ppm nitrogen, maximum 700ppm asphaltenes

Assessment time: 8.30am to 5.30pm London time.

Fuel oil 1%S cif northwest Europe cargo

Fuel oil 1% sulphur

The price is calculated by adding a cross UK-Continent freight cost assessment to the fuel oil 1pc fob northwest Europe price assessment.

The UK-Continent freight cost is based on current spot freight (WS100 rates) as they apply to an average of specific routes - Brofjorden to Rotterdam, Coryton to Le Havre, and Le Havre to Hamburg for 30,000t vessels.

Unit: US dollars/tonne

Period: delivery 10-25 days forward

Size: standardised to 25,000-30,000t

Basis: cif northwest Europe standardised to Rotterdam

Specifications: maximum 1% sulphur, cracked, 380cst, 0.991 specific gravity, minimum 65°C flash

Assessment time: 8.30am to 5.30pm London time.

Fuel oil 3.5%S cif northwest Europe cargo

Fuel oil 3.5% sulphur

In the absence of trade, talked differentials to the published volume-weighted average of 3.5pc barge values are used to assess values.

Unit: US dollars/tonne

Period: delivery 10-25 days forward

Size: standardised to 25,000-30,000t

Basis: cif northwest Europe standardised to Rotterdam/UK Thames Estuary

Specifications: maximum 3.5% sulphur, 380cst, 0.991 specific gravity, 300ppm maximum vanadium, H2S 2ppm

Assessment time: 8.30am to 5.30pm London time

Fuel oil straight-run M-100 fuel oil cif NWE cargo

Russian straight run M-100 fuel oil

The price differential for Russian straight run M-100 fuel oil is assessed at a differential to the volume-weighted average of Rotterdam barges.

Unit: US dollars/tonne

Period: delivery 5-15 days forward

Size: standardised to 25,000-30,000t

Basis: cif northwest Europe standardised to Rotterdam

Specifications: Russian high-sulphur straight-run fuel oil, typically maximum 3% sulphur, maximum viscosity 12°Engler at 80°C, xylene 26/30 maximum, toluene 30 maximum, pvalue 1.9/2.0 minimum, bromine 6 maximum

Assessment time: 8.30am to 5.30pm London time.

VGO 0.5%S cif northwest Europe cargo

Vacuum gasoil 0.5% sulphur

Unit: US dollars/tonne

Period: delivery 5-15 days forward

Size: standardised to 25,000-30,000t

Basis: cif northwest Europe standardised to southern UK

Specifications: maximum 0.5% sulphur, less than 1ppm sodium, nickel, vanadium, less than 2ppm iron, typical 80-85°C aniline, typical 0.915 density, maximum 0.5% CCR, maximum 1,500ppm nitrogen

Assessment time: is 8.30am to 5.30pm London time

VGO 2%S cif northwest Europe cargo

Vacuum gasoil 2% sulphur

Unit: US dollars/tonne

Period: delivery 5-15 days forward

Size: standardised to 25,000-30,000t

Basis: cif northwest Europe standardised to southern UK

Specifications: maximum 2.0% sulphur, less than 1ppm sodium, nickel, less than 2ppm vanadium, iron, typical 75-80°C aniline, typical 0.925 density, maximum 0.5% CCR, maximum 1,700ppm nitrogen, maximum 700ppm asphaltene

Assessment time: 8.30am to 5.30pm London time.

Barges

Fuel oil 1%S fob northwest Europe barge

Fuel oil 1% sulphur

In the absence of trade, talked differentials to the published volume-weighted average of 3.5pc barge values are used to assess values.

Unit: US dollars/tonne

Period: loading 3-15 days forward (Monday-Tuesday) and 5-15 days forward (Wednesday-Friday)

Basis: fob Rotterdam/Antwerp

Size: standardised to 1,000-2,000t

Specifications: maximum 1% sulphur, 380cst at 50°C, 0.991 specific gravity, minimum 65°C flash

Assessment time: 8.30am to 5.30pm London time

Fuel oil 3.5%S RMG fob northwest Europe barge

Fuel oil 3.5% sulphur

Unit: US dollars/tonne

Period: loading 3-15 days forward (Monday-Tuesday) and 5-15 days forward (Wednesday-Friday)

Basis: fob Rotterdam

Size: standardised to 1,000-2,000t

Specifications: maximum 3.5% sulphur, 380cst at 50°C, 0.991 specific gravity, 50ppm silicon, 30ppm aluminium, 300ppm maximum vanadium, H₂S 2ppm

Assessment time: is 8.30am to 5.30pm London time

Fuel oil VWA fob northwest Europe barge

The Argus Rotterdam high-sulphur fuel oil barge fob trade volume-weighted average (Argus HSFO VWA) is calculated from transactions reported to Argus for publication on the Argus Fuel Oil Bulletin Board.

The Argus HSFO VWA will be constructed from transactions concluded between 11.00am and 11.30am London time and 3.45pm and 4.45pm London time and reported to Argus by 11.30am and 4.45pm, respectively, for publication on the Argus Fuel Oil Bulletin Board. It is an arithmetic average of transactions that meet the specifications and requirements listed under Fuel oil 3.5% (see above).

Argus reserves the right not to include transactions reported to Argus within the Argus HSFO VWA at its discretion. Argus has an 11.30am and a 4.45pm London time cut-off point for the receipt of information. Argus reserves the right to discard any transaction for inclusion in the Argus HSFO VWA received after the cut-off points. Information received after the cut-off point for each time period will not be included in the Argus HSFO VWA unless Argus decides there are circumstances that warrant the information's inclusion.

Responsibility for submitting information submitted to Argus for inclusion in the Argus HSFO VWA is held by the submitting party.

The Argus HSFO VWA will be constructed on the basis of the combined transactional information from both time periods.

The location of Rotterdam includes Europoort.

It is assumed that transactions have a nomination process that gives the buyer the right to nominate the laycan and that the buyer must give the seller 48 working hours notice of the dates required. Material is bunker quality for supply into the shipping market. In the event of there being no reported transactions the Argus HSFO VWA will be the mid-point of the Argus range for 3.5% high sulphur fuel oil barges.

Fuel oil 3.5%S RMK fob northwest Europe barge

Fuel oil 3.5% sulphur RMK

The RMK 500cst differential barge price will be assessed as a differential to the mean of the RMG 3.5% sulphur 380cst barge quote, as assessed at 4.30pm London time. This differential will typically be the volume-weighted average of deals conducted during the trading period.

The RMK outright barge price will be calculated using the volume-weighted average of the RMK differential to the RMG 3.5% sulphur 380cst barge quote, as assessed at 4.30pm London time. In the event of there being no reported RMK transactions, the RMK differential barge price assessment will be based on bids and offers in the market during the assessment time.

Unit: US dollars/tonne

Period: loading 5-15 days forward

Size: standardised to 2,000-5,000t. Trades for other qualities and quantities may be adjusted to reflect values for 2,000-5,000t

Basis: fob Rotterdam/Antwerp/Amsterdam, standardised to Rotterdam
Specifications: ISO 8217:2010 RMK, maximum 3.5% sulphur, 500cst at 50°C, 1.010 specific gravity, 60ppm aluminium plus silicon, 450ppm vanadium, H₂S 2ppm

Assessment time: is 8.30am to 4.30pm London time

VGO 0.5%S fob northwest Europe barge

Vacuum gasoil 0.5% sulphur.

Unit: US dollars/tonne

Period: loading 2-8 days forward

Size: standardised to 1,000-2,000t

Basis: fob Rotterdam

Specifications: maximum 0.5% sulphur, less than 1ppm sodium, nickel, vanadium, less than 2ppm iron, typical 80-85°C aniline, typical 0.915 density, maximum 0.5% CCR, maximum 1,500ppm nitrogen

Assessment time: 8.30am to 5.30pm London time

VGO 2%S fob northwest Europe barge

Vacuum gasoil 2% sulphur

Unit: US dollars/tonne

Period: loading 2-8 days forward

Size: standardised to 1,000-2,000t

Basis: fob Rotterdam area

Specifications: maximum 2% sulphur, less than 1ppm sodium, nickel, less than 2ppm vanadium, iron, typical 75-80°C aniline, typical 0.925 density, maximum 0.5% CCR, maximum 1,700ppm nitrogen, maximum 700ppm asphaltenes

Assessment time: is 8.30am to 5.30pm London time

West Mediterranean

Fuel oil 1%S fob west Mediterranean

Fuel oil 1% sulphur

The price will usually be netted back from the Argus 1% cif Mediterranean price assessment using an Argus assessment of cross-Mediterranean freight modified by regional market conditions.

The cross-Mediterranean freight cost will be based on current spot freight rates (WS100 rates) as they apply to an average of specific routes. These routes are Santa Panagia Bay to Lavera, Zawia to Gibraltar and Marsa el-Brega to Genoa for 30,000t vessels.

Unit: US dollars/tonne

Period: loading 10-25 days forward

Size: standardised to 30,000-35,000t

Basis: fob Italian Isles

Specifications: maximum 1% sulphur, cracked, 380cst, 0.991 specific gravity, minimum 65°C flash

Assessment time: 8.30am to 5.30pm London time

Fuel oil 3.5%S fob west Mediterranean

Fuel oil 3.5% sulphur

The price will be calculated by taking the 3.5% cif west Mediterranean price assessment and subtracting from it cross-Mediterranean spot freight. The cross-Mediterranean spot freight will be based on current spot freight rates (WS100 rates) as they apply to an average of specific routes. These are Santa Panagia Bay to Lavera, Zawia to Gibraltar and Marsa el-Brega to Genoa for 30,000t vessels.

Unit: US dollars/tonne

Period: loading 10-25 days forward

Size: standardised to 30,000-35,000t

Basis: fob Italian Isles

Specifications: maximum 3.5% sulphur, maximum viscosity 380cst, 0.991 specific gravity, maximum 0.15% ash, maximum 0.5% water, maximum CCR 18%, flash point 60°C minimum, combined aluminium and silicon 80ppm

Assessment time: 8.30am to 5.30pm London time

Fuel oil 1%S cif west Mediterranean

Fuel oil 1% sulphur

The price is a net-forward from the fob northwest Europe 1% cargoes assessment, adding on the Argus assessment of Baltic-Mediterranean freight, modified by regional market conditions. The Baltic to Mediterranean freight cost will be based on current spot freight rates (WS100 rates) as they apply to an average of specific routes. These routes are Tallinn to Genoa, Ventspils to Lavera

and Tallinn to Malta for 30,000t vessels.

Unit: US dollars/tonne

Period: delivery 10-25 days forward

Size: standardised to 30,000-35,000t

Basis: the price is representative of basis cif Milazzo

Specifications: maximum 1% sulphur, cracked, 380cst, 0.991 specific gravity, minimum 65°C flash

Assessment time: 8.30am to 5.30pm London time

Fuel oil 3.5%S cif west Mediterranean

Fuel oil 3.5% sulphur

Unit: US dollars/tonne

Period: delivery 10-25 days forward

Size: standardised to 30,000-35,000t

Basis: cif Lavera/Genoa

Specifications: maximum 3.5% sulphur, maximum viscosity 380cst, 0.991 specific gravity, maximum 0.15% ash, maximum 0.5% water, maximum CCR 18%, flash point 60°C minimum, combined aluminium and silicon 80ppm

Assessment time: 8.30am to 5.30pm London time

VGO 0.5%S cif west Mediterranean

Vacuum gasoil 0.5% sulphur

Prices will also be published as a \$/bl differential to the Ice Brent 1 minute marker at 4.30pm London time and converted to US dollars/tonne at a rate of 6.88853 bl/t. See the [Argus Crude methodology](#) for details of the Ice Brent 1 minute marker price. Argus reserves the right to determine which Ice Brent contract month is used as the basis for the calculation, in line with market conditions.

Unit: US dollars/tonne

Period: delivery 5-15 days forward

Size: standardized to 25,000-30,000t

Basis: cif western Mediterranean

Specifications: maximum 0.5% sulphur, less than 1ppm sodium, nickel, vanadium, less than 2ppm iron, typical 80-85°C aniline, typical 0.915 density, maximum 0.5% CCR, maximum 1,500ppm nitrogen

Assessment time: 8.30am to 5.30pm London time

VGO 2%S cif west Mediterranean

Vacuum gasoil 2% sulphur

Prices will also be published as a \$/bl differential to the Ice Brent 1 minute marker at 4.30pm London time and converted to US dollars/tonne at a rate of 6.81405 bl/t. See the [Argus Crude methodology](#) for details of the Ice Brent 1 minute marker price. Argus reserves the right to determine which Ice Brent contract month is used as the basis for the calculation, in line with market conditions.

Unit: US dollars/tonne

Period: delivering 5-15 days forward

Size: standardized to 25,000-30,000t

Basis: cif western Mediterranean

Specifications: maximum 2% sulphur, less than 1ppm sodium, nickel, less than 2ppm vanadium, iron, typical 75-80°C aniline, typical 0.925 density, maximum 0.5% CCR, maximum 1,700ppm nitrogen, maximum 700ppm asphaltenes.

Assessment time: is 8.30am to 5.30pm London time

Black Sea

VGO 0.5%S fob Black Sea

Vacuum gasoil 0.5% sulphur

The price is a netback from the mean of the cif Mediterranean cargoes assessment, based on the Argus assessment of Black Sea-Mediterranean freight, modified by regional market conditions. The Black Sea-Mediterranean freight cost will be based on current spot freight rates (WS100 rates) as they apply to an average of specific routes - Novorossiysk to Genoa, Tuapse to Malta and Novorossiysk to Lavera for 30,000t vessels.

Prices will also be published as a \$/bl differential to the Ice Brent 1 minute marker at 4.30pm London time and converted to US dollars/tonne at a rate of 6.88853 bl/t. See the [Argus Crude methodology](#) for details of the Ice Brent 1 minute marker price. Argus reserves the right to determine which Ice Brent contract month is used as the basis for the calculation, in line with market conditions.

Unit: US dollars/tonne

Period: loading 5-15 days forward

Size: standardised to 30,000-35,000t

Basis: fob Black Sea

Specifications: maximum 0.5% sulphur, less than 1ppm sodium, nickel, vanadium, less than 2ppm iron, typical 80-85°C aniline, typical 0.915 density, maximum 0.5% CCR, maximum 1,500ppm nitrogen

Assessment time: 8.30am to 5.30pm London time

VGO 2%S fob Black Sea

Vacuum gasoil 2% sulphur

The price is a net-back from the mean of the cif Mediterranean cargoes assessment, based on the Argus assessment of Black Sea-Mediterranean freight, modified by regional market conditions. The Black Sea-Mediterranean freight cost will be based on current spot freight rates (WS100 rates) as they apply to an average of specific routes - Novorossiysk to Genoa, Tuapse to Malta and Novorossiysk to Lavera for 30,000t vessels.

Prices will also be published as a \$/bl differential to the Ice Brent 1 minute marker at 4.30pm London time and converted to US dollars/tonne at a rate of 6.81405 bl/t. See the [Argus Crude methodology](#) for details of the Ice Brent 1 minute marker price. Argus reserves the right to determine which Ice Brent contract month is used as the basis for the calculation, in line with market conditions.

Unit: US dollars/tonne

Period: loading 5-15 days forward

Size: standardised to 30,000-35,000t

Basis: fob Black Sea

Specifications: maximum 2% sulphur, less than 1ppm sodium, nickel, less than 2ppm vanadium, iron, typical 75-80°C aniline, typical 0.925 density, maximum 0.5% CCR, maximum 1,700ppm nitrogen, maximum 700ppm asphaltenes.

Assessment time: is 8.30am to 5.30pm London time

Monthly averages

Month-to-date averages are the running average of daily low and high prices. The final monthly averages are those published on the last publication date of the calendar month. Monthly averages are published for all products in northwest Europe and the Mediterranean.

IMO 2020-compliant fuels

Northwest Europe

Barges

Fuel oil 0.5%S fob northwest Europe barge

Unit: US dollars/tonne

Period: loading 3-15 days forward

Size: 2,000-5,000t

Basis: fob Amsterdam/Rotterdam/Antwerp

Assessment time: 3.15pm to 4.30pm London time

Published as an outright price and a \$/t differential to the front-month Ice gasoil futures contract.

Specifications		
Sulphur	% mass	Max 0.5
Viscosity	at 50°C mm ² /s	Max 380
Density	at 15°C kg/m ³	Max 991
CCAI		Max 870
Flash point	°C	Min 60
Hydrogen sulphide	mg/kg	Max 2
Acid number	mg KOH/g	Max 2.5
Total sediment	aged - % mass	Max 0.1
Carbon residue	micro method - % mass	Max 18
Pour point	upper - °C	Max 30
Water	% volume	Max 0.5
Ash	% mass	Max 0.1
Vanadium	mg/kg	Max 350
Sodium	mg/kg	Max 100
Aluminium plus silicon	mg/kg	Max 60
Free from used lubricating oil (UKO)		

Forward prices

Forward price assessments are published for up to three months and two quarters forward. Monthly price assessments roll forward on the first publication day after the 15th of the month. Quarterly price assessments roll forward on the first publication day after the 15th day of the month before the start of the quarter.

Prices are published for

- **Gasoline:** Argus Eurobob oxy fob ARA barge swaps
- **Naphtha:** 65 para cif northwest Europe cargo
- **Jet:** cif northwest Europe cargo differential to Ice gasoil
- **Gasoil:** heating oil German 0.1%S fob northwest Europe barge differential to Ice gasoil
- **Diesel:** French 10ppm cif northwest Europe cargo differential to Ice gasoil
- **High-sulphur fuel oil cargo:** 3.5%S cif northwest Europe cargo
- **High-sulphur fuel oil barge:** fuel oil 3.5%S RMG fob northwest Europe barge
- **Low-sulphur fuel oil:** 1%S fob northwest Europe cargo