



argusmedia.com

ARGUS BIOFUELS

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The most up-to-date Argus Biofuels 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 biofuels market, 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, 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 includes 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 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

As insufficient, inadequate, or no transaction information may exist in the biofuels markets, 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 a 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 and varying specifications traded for different European markets, Argus does not establish thresholds on the basis of a count of transactions, or volumes traded in biofuel markets, as this would lead to unreliable and non-representative assessments. Argus will typically use comparative metrics (as defined above) and relative value transactions to determine price assessments in the absence of confirmed transaction data. As no transaction threshold exists, Argus follows the procedures outlined elsewhere in this document regarding the exercise of judgment in the price assessment process.

Swaps and forwards markets

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

Publications and price data

Argus biofuels prices for Europe are published in the Argus Biofuels report. 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 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.

Price assessments — introduction

Argus Biofuels is a daily market report that publishes prices and market commentary on the international bulk spot market for biofuels. Argus Biofuels contains price assessments for different types of spot contracts at specified locations. The market commentary is on the main regional market at Rotterdam.

The assessed prices are based on prices from the open spot market whenever possible.

All assessments and formulas refer to the price of the product on the day of the published report and are expressed in US dollars unless otherwise stated. The prices are for contracts under whatever general terms and conditions are accepted as standard and prevailing in that particular market. Price changes refer to the last published report.

Trades of all main biodiesel grades (on a fob ARA range basis) to be considered in Argus assessments need to be accompanied with a documentation of Proof of Sustainability (POS). Trades need to be accompanied with a POS transfer range of 20 working days (after bill of lading) between participants to be considered for assessment purposes.

For assessment purposes, any POS certificate per badge must stipulate a minimum of 50pc GHG against a fossil fuel comparator of 83.8g CO₂ equivalent/MJ.

Trades on all main biodiesel grades (on a fob ARA range basis) need to be accompanied with terms of barge shipping tolerance of +/- 2pc at buyer's option.

Timing

Price assessment times are as outlined below except on the last publication day before 25 December and 1 January. On those days, biofuels and related feedstock prices are assessed at 12.30pm London time. On those days, the assessment period for biodiesel and ethanol is 12:00-12.30pm London time.

Argus Open Markets

Argus Open Markets (AOM) is a web-based platform enabling market participants to post bids and offers and initiate trade for physical commodities in real time on the spot market.

In biofuels, AOM is available for:

- RED rapeseed OME fob ARA range
- RED Fame 0°C CFPP fob ARA range
- RED UCOME fob ARA range
- RED HVO fob ARA range (Class I)
- RED HVO fob ARA range (Class II)
- RED HVO fob ARA range (Class III)

RED rapeseed OME fob ARA range, RED Fame 0°C CFPP fob ARA range, and RED UCOME fob ARA range price assessments are typically assessed as a volume-weighted average of deals done within Argus criteria and reported on the Argus Open Markets platform.

At times, trade initiated on AOM may occur at a price that is neither the best bid nor best offer available on AOM at the time. This may occur because of credit restrictions, logistics, because of the speed of market activity, or for other reasons.

Such trades are subject to additional scrutiny to determine why they were initiated at a price other than the best bid or best offer on AOM at the time. Argus may, when possible, normalise the price of such transactions using the most competitive bid or offer on AOM at the time when doing so would produce an assessment more reflective of market conditions.

Note, AOM users attempting to initiate trade at a price that is neither the best bid nor the best offer price available on AOM at that time will be alerted to this fact by the platform.

For the avoidance of doubt, all trade is subject to scrutiny before acceptance for inclusion in the relevant assessment.

Assessments are based on information according to the following hierarchy:

1. Confirmed trade conducted via Argus Open Markets that meets the Argus specifications, timing and location criteria
2. Confirmed trade conducted outside of Argus Open Markets that meets the Argus specifications, timing and location criteria that are reported via Argus Open Markets
3. Confirmed bids and offers conducted via Argus Open Markets that meet Argus specifications, timing and location criteria
4. Bids and offers conducted outside of Argus Open Markets that meet the Argus specifications, timing and location criteria
5. Other market information including but not limited to bids, offers and trades for other volumes, timing and locations, forward markets and arbitrage economics

In the event that Argus Open Markets is unavailable, Argus reserves the right to alter the above hierarchy in the interest of producing an accurate price assessment.

Specifications:

RED rapeseed OME fob ARA range

Rapeseed oil methyl ester meeting EN14214 specification

If the EN14214 specification differs from the Argus specification listed below, the Argus specification takes precedence.

Currency/unit: US dollars/tonne

Timing: barges loading 7-28 days forward of the day of assessment

Location: fob ARA range — including Antwerp, Rotterdam, Amsterdam, Dordrecht, Flushing and Ghent

Basis: assessed as a differential to 7-28 day Ice gasoil, calculated on the day of assessment as the average of settlement prices for the first or first and second forward month Ice gasoil contract, weighted by the number of Argus publishing days in the 7-28 day loading period

Size: 1,000t

Cold filter plugging point: -13°C or lower

Pour point: between -9°C and -18°C

Water content: 300ppm

Additives: product must not contain additives with the exception of oxidation stabilisers

Typical properties: the following properties are expected for rapeseed OME

- **Iodine value:** 105-114g iodine/hg
- **Saturate methyl ester:** max 8pc m/m (gram of component per 100g sample)
- FAME composition in which the C18:1/C18:2 ratio is 3 or above and C18:1/C16:0 ratio is 13 or above

Market participants initiating trades on the Argus Open Markets platform acknowledge that small deviations from these standards are possible and that only a combination of test results indicating blended product will be considered as off specification

Certificate of analysis: product must be accompanied by a Certificate of Analysis from accredited inspectors with information including CFPP, pour point, iodine value, saturate methyl ester content and FAME composition

Certification: material must be accompanied with RED-compliant certification issued by a European Commission-approved auditing body

GHG savings: Argus price assessments are of material with qualities that are based on 57pc greenhouse gas savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ. Biodiesel from installations that started operations after 5 October 2015 must have a minimum of 60pc greenhouse gas (GHG) savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ. For the avoidance of doubt, biodiesel from installations that were in operation on or before 5 October 2015 must have a minimum of 50pc GHG savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ.

Assessment time: 4.00pm to 4.30pm London time

Terms and conditions: trades are conducted under standard industry-acceptable terms and conditions (for example those of BP, Shell and Total) or other pre-agreed terms and conditions

Proof of sustainability: trades must include only standard industry-acceptable proof of sustainability clauses (for example, those of BP and Shell) in compliance with the EU RED

Argus reserves the right to exclude from the assessment process trades accompanied by restrictive terms of Proof of Sustainability (POS). For example, a FAME 0 trade requiring an RME POS may be excluded from the assessment process

Payment: must be made within 5 calendar days after the bill of lading

RED Fame 0°C CFPP fob ARA range

Fatty acid methyl ester meeting EN14214 specifications

If the EN14214 specification differs from the Argus specification listed below, the Argus specification takes precedence.

Currency/unit: US dollars/tonne

German-mandate compliant: any feedstock except animal oils and fats in line with § 37b of the “Bundes-Immissionsschutzgesetz” and “Biomasseverordnung”

Timing: barges loading 7-28 days forward of the day of assessment

Location: fob ARA range — including Antwerp, Rotterdam, Amsterdam, Dordrecht, Flushing and Ghent

Basis: assessed as a differential to 7-28 day Ice gasoil, calculated on the day of assessment as the average of settlement prices for the first or first and second forward month Ice gasoil contract, weighted by the number of Argus publishing days in the 7-28 day loading period

Size: 1,000t

Cold filter plugging point: 0°C

Water content: 350ppm

Certification: material must be accompanied with RED-compliant certification issued by a European Commission-approved auditing body

GHG savings: Argus price assessments are of material with qualities that are based on 57pc greenhouse gas savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ. Biodiesel from installations that started operations after 5 October 2015 must have a minimum of 60pc greenhouse gas (GHG) savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ. For the avoidance of doubt, biodiesel from installations that were in operation on or before 5 October 2015 must have a minimum of 50pc GHG savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ.

Assessment time: 4.00pm to 4.30pm London time

Terms and conditions: trades are conducted under standard industry-acceptable terms and conditions (for example those of BP, Shell and Total) or other pre-agreed terms and conditions

Proof of sustainability: trades must include only standard industry-acceptable proof of sustainability clauses (for example, those of BP and Shell) in compliance with the EU RED

Argus reserves the right to exclude from the assessment process trades accompanied by restrictive terms of Proof of Sustainability (POS). For example, a FAME 0 trade requiring an RME POS may be excluded from the assessment process

Payment: must be made within 5 calendar days after the bill of lading

RED UCOME fob ARA range

Used cooking oil methyl ester meeting EN14214

If the EN14214 specification differs from the Argus specification listed below, the Argus specification takes precedence.

Currency/unit: US dollars/tonne

Timing: loading 7-28 days forward of the day of assessment

Location: fob ARA range — including Antwerp, Rotterdam, Amsterdam, Dordrecht, Flushing and Ghent

Basis: assessed as a differential to 7-28 day Ice gasoil, calculated on the day of assessment as the average of settlement prices for the first or first and second forward month Ice gasoil contract, weighted by the number of Argus publishing days in the 7-28 day loading period

Size: 1,000t

Cold filter plugging point: 0°C

Water content: maximum 350ppm

Certification: Sellers must be able to provide all of the below certification criteria and, in addition, buyers must declare the relevant certification scheme when nominating barges

- material must be accompanied with RED-compliant certification issued by a European Commission-approved auditing body
- German mandate compliant — of used cooking oil feedstock and must not include animal oils and fats in line with § 37b of the “Bundes-Immissionsschutzgesetz” and “Biomasseverordnung”
- UK and Netherlands double-counting eligible — qualified to count double under UK and Netherlands renewable energy for transport laws and regulations

Assessment time: 4.00pm to 4.30pm London time

GHG savings: 87pc greenhouse gas (GHG) savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ

The material contained in each 1,000t barge need only meet the required GHG savings requirement on average, and that multiple POS certificates may be attached such that they average to the required GHG savings requirement. All qualities included in a 1,000t barge must be derived from used cooking oil (UCO) feedstock and meet a minimum default GHG savings of 83pc.

RED HVO fob ARA range (Class I)

Hydrotreated vegetable oil (HVO) meeting EN15940 specifications
If the EN15940 specification differs from the Argus specification listed below, the Argus specification takes precedence.

Feedstock: RED-compliant food and feed crops

Currency/unit: US dollars/m³

Prices are assessed as a US dollar/m³ premium to HVO-escalated 7-28 day Ice gasoil. Prices are also converted to a US dollar/t premium to HVO-escalated 7-28 day Ice gasoil and to outright US dollar/t prices for publication.

Market information priced as a US dollar/m³ differential to another basis, including but not limited to HVO-escalated French diesel, will be converted to a differential to HVO-escalated 7-28 day Ice gasoil for consideration for inclusion in the assessment.

HVO escalation: HVO typically trades in volumetric terms and is less dense than diesel and gasoil. Accordingly, Argus adjusts the prices of the underlying diesel or gasoil contracts against which HVO trades to an assumed HVO-equivalent density of 0.78kg/l. For

the purpose of this escalation, Argus assumes both French diesel and Ice gasoil to have a density of 0.845kg/l in a vacuum at 15°C.

Timing: Loading 7-28 days forward of the day of the assessment

Location: fob ARA range — including Antwerp, Rotterdam, Amsterdam, Dordrecht, Flushing and Ghent

Basis: assessed as a differential to HVO-escalated 7-28 day Ice gasoil, calculated on the day of assessment as the average of settlement prices for the first or first and second forward month Ice gasoil contract, weighted by the number of Argus publishing days in the 7-28 day loading period and adjusted as described above.

Size: 1,000-2,000t

Cold filter plugging point: maximum -10°C

Cloud point: maximum -5°C

Water content: 350ppm

Certification: material must be accompanied with RED-compliant certification issued by a European Commission-approved auditing body. In addition, material must be German mandate compliant — must not include animal oils and fats in line with § 37b of the “Bundes-Immissionsschutzgesetz” and “Biomasseverordnung” — and validated against Germany’s biomass web application system Nabisy

GHG savings: minimum 65pc greenhouse gas (GHG) savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ

Assessment time: differentials are assessed at 4.30pm London time on Fridays. Outright prices are published daily using the last assessed differential and the daily price of HVO-escalated 7-28 day Ice gasoil.

RED HVO fob ARA range (Class II)

Hydrotreated vegetable oil (HVO) meeting EN15940 specifications
If the EN15940 specification differs from the Argus specification listed below, the Argus specification takes precedence.

Feedstock: RED-compliant used cooking oil

Currency/unit: US dollars/m³

Prices are assessed as a US dollar/m³ premium to HVO-escalated 7-28 day Ice gasoil. Prices are also converted to a US dollar/t premium to HVO-escalated 7-28 day Ice gasoil and to outright US dollar/t prices for publication.

Market information priced as a US dollar/m³ differential to another basis, including but not limited to HVO-escalated French diesel, will be converted to a differential to HVO-escalated 7-28 day Ice gasoil for consideration for inclusion in the assessment.

HVO escalation: HVO typically trades in volumetric terms and is less dense than diesel and gasoil. Accordingly, Argus adjusts the prices of the underlying diesel or gasoil contracts against which HVO trades to an assumed HVO-equivalent density of 0.78kg/l. For the purpose of this escalation, Argus assumes both French diesel and Ice gasoil to have a density of 0.845kg/l in a vacuum at 15°C.

Timing: Loading 7-28 days forward of the day of the assessment

Location: fob ARA range — including Antwerp, Rotterdam, Amsterdam, Dordrecht, Flushing and Ghent

Basis: assessed as a differential to HVO-escalated 7-28 day Ice gasoil, calculated on the day of assessment as the average of settlement prices for the first or first and second forward month Ice gasoil contract, weighted by the number of Argus publishing days in the 7-28 day loading period and adjusted as described above.

Size: 1,000-2,000t

Cold filter plugging point: maximum -10°C

Cloud point: maximum -5°C

Water content: 350ppm

Certification: material must be accompanied with RED-compliant certification issued by a European Commission-approved auditing body. In addition, material must be German mandate compliant — must not include animal oils and fats in line with § 37b of the “Bundes-Immissionsschutzgesetz” and “Biomasseverordnung” — and validated against Germany’s biomass web application system Nabisy. Sellers must be able to provide Netherlands double-counting certification — qualified to count double under Netherlands renewable energy for transport laws and regulations — and, in addition, buyers must declare this certification scheme when nominating barges.

GHG savings: minimum 85pc greenhouse gas (GHG) savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ

Assessment time: differentials are assessed at 4.30pm London time on Fridays. Outright prices are published daily using the last assessed differential and the daily price of HVO-escalated 7-28 day Ice gasoil.

RED HVO fob ARA range (Class III)

Hydrotreated vegetable oil (HVO) meeting EN15940 specifications. If the EN15940 specification differs from the Argus specification listed below, the Argus specification takes precedence.

Feedstock: RED-compliant tallow (category 3)

Currency/unit: US dollar/m³

Prices are assessed as a US dollar/m³ premium to HVO-escalated 7-28 day Ice gasoil. Prices are also converted to a US dollar/t premium to HVO-escalated 7-28 day Ice gasoil and to outright US dollar/t prices for publication.

Market information priced as a US dollar/m³ differential to another basis, including but not limited to HVO-escalated French diesel, will be converted to a differential to HVO-escalated 7-28 day Ice gasoil for consideration for inclusion in the assessment.

HVO escalation: HVO typically trades in volumetric terms and is less dense than diesel and gasoil. Accordingly, Argus adjusts the prices of the underlying diesel or gasoil contracts against which HVO trades to an assumed HVO-equivalent density of 0.78kg/l. For the purpose of this escalation, Argus assumes both French diesel and Ice gasoil to have a density of 0.845kg/l in a vacuum at 15°C.

Timing: Loading 7-28 days forward of the day of the assessment

Location: fob ARA range — including Antwerp, Rotterdam, Amsterdam, Dordrecht, Flushing and Ghent

Basis: assessed as a differential to HVO-escalated 7-28 day Ice gasoil, calculated on the day of assessment as the average of settlement prices for the first or first and second forward month Ice gasoil contract, weighted by the number of Argus publishing days in the 7-28 day loading period and adjusted as described above.

Size: 1,000-2,000t

Cold filter plugging point: maximum -10°C

Cloud point: maximum -5°C

Water content: 350ppm

Certification: material must be accompanied with RED-compliant certification issued by a European Commission-approved auditing body

GHG savings: minimum 80pc greenhouse gas (GHG) savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ

Assessment time: differentials are assessed at 4.30pm London time on Fridays. Outright prices are published daily using the last assessed differential and the daily price of HVO-escalated 7-28 day Ice gasoil.

Spot price assessments

Europe

Crude rapeseed oil

Fob Dutch Mill

Currency/unit: euros/tonne

Size: minimum 100t

Timing: price assessments are published for prompt loading, and for loading during a named three-month forward period. Prompt assessments are for loading 5-40 days forward of the day of assessment. Prices for forward periods are for the named three-month period:

- February, March, April (FMA)
- May, June, July (MJJ)
- August, September, October (ASO)
- November, December, January (NDJ)

Price assessments for the first three forward three-month periods are published. Forward periods roll on the first working day of the three-month period.

For example, on 15 May, prices are published for the August, September, October (ASO), November, December, January (NDJ) and February, March, April (FMA) contracts. On 1 August, prices are published for November, December, January (NDJ), February, March, April (FMA) and May, June, July (MJJ) contracts.

Assessment time: price assessments include market information from 12:30pm-4:30pm UK time.

RED Palm OME fob ARA range

Palm oil methyl ester meeting EN14214 specifications

If the EN14214 specification differs from the Argus specification listed below, the Argus specification takes precedence.

Currency/unit: US dollars/tonne

Timing: loading 7-28 days forward of the day of assessment

Location: fob ARA range — including Antwerp, Rotterdam, Amsterdam, Dordrecht, Flushing and Ghent

Basis: assessed as a differential to 7-28 day Ice gasoil, calculated on the day of assessment as the average of settlement prices for the first or first and second forward month Ice gasoil contract, weighted by the number of Argus publishing days in the 7-28 day loading period

Size: 1,000t

Cold filter plugging point: 15°C

Certification: material must be accompanied with RED-compliant certification issued by European Commission-approved auditing body

Assessment time: 4.00pm to 4.30pm London time

GHG savings: biodiesel from installations that started operations after 5 October 2015 must have a minimum of 60pc greenhouse gas (GHG) savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ. For the avoidance of doubt, biodiesel from installations that were in operation on or before 5 October 2015 must have a minimum of 50pc GHG savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ.

RED Soya OME fob ARA range

Soya oil methyl ester meeting EN14214 specifications
If the EN14214 specification differs from the Argus specification listed below, the Argus specification takes precedence.

Currency/unit: US dollars/tonne

Timing: loading 7-28 days forward of the day of assessment

Location: fob ARA range — including Antwerp, Rotterdam, Amsterdam, Dordrecht, Flushing and Ghent

Basis: assessed as a differential to 7-28 day Ice gasoil, calculated on the day of assessment as the average of settlement prices for the first or first and second forward month Ice gasoil contract, weighted by the number of Argus publishing days in the 7-28 day loading period

Size: 1,000t

Cold filter plugging point: -4°C

Certification: material must be accompanied with RED-compliant certification issued by European Commission-approved auditing body.

Assessment time: 4.00pm to 4.30pm London time

GHG savings: biodiesel from installations that started operations after 5 October 2015 must have a minimum of 60pc greenhouse gas (GHG) savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ. For the avoidance of doubt, biodiesel from installations that were in operation on or before 5 October 2015 must have a minimum of 50pc GHG savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ

RED Fame -10°C CFPP fob ARA range

Fatty acid methyl ester meeting EN14214 specifications
If the EN14214 specification differs from the Argus specification listed below, the Argus specification takes precedence.
Calculated as the sum of 10pc of the Argus assessment of FAME 0°C CFPP fob ARA range and 90pc of the Argus assessment of RED rapeseed OME fob ARA range.

Currency/unit: US dollars/tonne

Timing: loading 7-28 days forward of the day of assessment

Location: fob ARA range — including Antwerp, Rotterdam, Amsterdam, Dordrecht, Flushing and Ghent

Basis: assessed as a differential to 7-28 day Ice gasoil, calculated on the day of assessment as the average of settlement prices for the first or first and second forward month Ice gasoil contract, weighted by the number of Argus publishing days in the 7-28 day loading period

Size: 1,000t

Cold filter plugging point: -10°C

GHG savings: Argus price assessments are of material with qualities that are based on 57pc greenhouse gas savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ
Biodiesel from installations that started operations after 5 October 2015 must have a minimum of 60pc greenhouse gas (GHG) savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ. For the avoidance of doubt, biodiesel from installations that were in operation on or before 5 October 2015 must have a minimum of 50pc GHG savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ

Assessment time: 4.00pm to 4.30pm London time

RED (EU) TME

Tallow methyl ester meeting EN14214
If the EN14214 specification differs from the Argus specification listed below, the Argus specification takes precedence.

Currency/unit: US dollars/tonne

Timing: loading 7-28 days forward of the day of assessment

Location: fob ARA range — including Antwerp, Rotterdam, Amsterdam, Dordrecht, Flushing and Ghent

Size: 1,000t

Cold filter plugging point: 12-13°C

Water content: maximum 350ppm

Certification: material must be accompanied with RED-compliant certification issued by a European Commission-approved auditing body

Assessment time: 4.00pm to 4.30pm London time

GHG savings: biodiesel from installations that started operations after 5 October 2015 must have a minimum of 60pc greenhouse gas (GHG) savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ. For the avoidance of doubt, biodiesel from installations that were in operation on or before 5 October 2015 must have a minimum of 50pc GHG savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ.

UCO cif ARA

Used cooking oil

RED certified

T1 (EU duties unpaid)

FFA (free fatty acids): 5pc

Moisture and impurities (MIU): maximum 2pc

Iodine value (IV): minimum 80g iodine/hg

Sulphur content: maximum 50ppm

Currency/unit: US dollars/tonne

Timing: delivery 30-45 days forward of the day of assessment

Location: cif ARA

Parcel size: 500-1,000t

Assessment time: 4:30pm London time

UCO ex-works Netherlands

Used cooking oil

RED certified

FFA (free fatty acids): 5pc

Moisture and impurities (MIU): maximum 2pc

Iodine value (IV): minimum 70g iodine/hg

Sulphur content: maximum 50ppm

Currency/unit: euros/tonne

Timing: loading 30-45 days forward of the day of assessment

Location: ex-works Netherlands

Parcel size: 25-500t

Assessment time: 4:30pm London time

Tallow (categories 1 and 2) fca northwest Europe

Animal fats derived from category 1 and category 2 materials as per Regulation (EC) No 1069/2009 (Article 3, No 19) and 142/2011. If the (EC) No 1069/2009 and 142/2011 specifications differ from the Argus specification listed below, the Argus specification takes precedence.

RED certified

T2 (EU duties paid)

FFA (free fatty acids): 20pc

Moisture and impurities (MIU): maximum 1pc

Currency/unit: euros/tonne

Timing: delivery 30-45 days forward of the day of assessment

Location: fca northwest Europe

Parcel size: 100-1,000t

Assessment time: 4:30pm Friday London time

POME cif ARA

Palm oil mill effluent

RED certified

T1 (EU duties unpaid)

Total fatty matter (TFM): minimum 95pc

FFA (free fatty acids): minimum 50pc

Moisture and impurities (MIU): maximum 3pc

Currency/unit: US dollars/tonne

Timing: delivery 30-45 days forward of the day of assessment

Location: cif ARA

Size: 2,000-5,000t

Assessment time: 4.30pm London time

SAF fob ARA range

Sustainable Aviation Fuel (SAF). See the [Argus Jet Fuel methodology](#).

German diesel 10ppm barge

See the [Argus European Products methodology](#).

Asia-Pacific

UCO fob southeast China

Used cooking oil

RED certified

FFA (free fatty acids): maximum 5pc

Moisture and impurities (MIU): maximum 2pc

Iodine value (IV): minimum 80g iodine/hg

Sulphur content: maximum 50ppm

Currency/unit: US dollars/tonne

Timing: loading 30-45 days forward of the day of assessment

Location: fob southeast China

Size: 500-1,000t

Assessment time: 5:30pm Singapore time

UCO fob southeast China bulk

Used cooking oil

RED certified

FFA (free fatty acids): maximum 5pc

Moisture and impurities (MIU): maximum 2pc

Iodine value (IV): minimum 80g iodine/hg

Sulphur content: maximum 50ppm

Currency/unit: US dollars/tonne

Timing: loading 30-45 days forward of the day of assessment

Location: fob southeast China

Size: 3,000-5,000t

Assessment time: 5:30pm Singapore time

UCO fob Malaysia/Indonesia

Used cooking oil

RED certified

FFA (free fatty acids): maximum 5pc

Moisture and impurities (MIU): maximum 2pc

Iodine value (IV): minimum 50g iodine/hg

Sulphur content: maximum 50ppm

Currency/unit: US dollars/tonne

Timing: loading 30-45 days forward of the day of assessment

Location: fob Malaysia (Port Klang/Pasir Gudang/Lahad Datu) or fob Indonesia (Dumai/Belawan/Gresik/Jakarta)

Size: 500-1,000t

Assessment time: 5:30pm Singapore time

UCOME fob southeast China bulk

Used cooking oil methyl ester meeting EN14214

RED certified

GHG savings: default 83pc

Water content: maximum 350ppm

Cold filter plugging point: maximum 5°C

Currency/unit: US dollars/tonne

Timing: loading 30-45 days forward of the day of assessment

Location: fob southeast China

Size: 3,000-5,000t

Assessment time: 5:30pm Singapore time

RED PME fob Malaysia

Palm oil methyl ester meeting European EN14214

Currency/unit: US dollars/tonne

Timing: cargoes loading 2-6 weeks forward of the day of assessment

Location: fob Malaysia (Port Klang/Pasir Gudang)

Size: assessments are standardised to cargoes of 2,000-10,000t

Cold filter plugging point: 15°C

Certification: material must be accompanied with RED-compliant certification issued by European Commission-authorized body

Assessment time: 5.30pm Singapore time

RED PME fob Indonesia

Palm oil methyl ester meeting European EN14214

Currency/unit: US dollars/tonne

Timing: cargoes loading 2-6 weeks forward of the day of assessment

Location: fob Indonesia (Port Dumai)

Size: assessments are standardised to cargoes of 2,000-40,000t

Cold filter plugging point: 15°C

Certification: material must be accompanied with RED-compliant certification issued by European Commission-authorized body

Assessment time: 5.30pm Singapore time

PME ex-works Indonesia

Palm oil methyl ester meeting SNI 7182-2015 specifications.

Currency/unit: US dollars/tonne

Timing: loading 30-45 days forward of the day of assessment

Location: ex-works Dumai/Belawan

Size: 3,000-5,000t

Cold filter plugging point: 15°C

Assessment time: 5:30pm Singapore time

POME fob Malaysia/Indonesia

Palm oil mill effluent

RED certified

Total fatty matter (TFM): minimum 95pc**FFA (free fatty acids):** minimum 50pc**Moisture and impurities (MIU):** maximum 3pc**Currency/unit:** US dollars/tonne**Timing:** loading 30-45 days forward of the day of assessment**Location:** fob Malaysia (Port Klang/Pasir Gudang/Lahad Datu) or fob Indonesia (Dumai/Belawan)**Size:** 2,000-5,000t**Assessment time:** 5:30pm Singapore time**Palm olein fob Malaysia/Indonesia****Currency/unit:** US dollars/tonne**Size:** 500-2,000t bulk**Timing:** loading 2-4 weeks forward of the day of assessment**Fatty acid:** maximum 0.1pc**Moisture and impurities:** maximum 0.1pc**Iodine value:** minimum of 56g iodine/hg**Melting point:** maximum 24°C**Colour:** minimum 3 red**Assessment time:** 6:30pm Singapore time

Prices are published for the first three months trading

RED HVO (Class I) fob Singapore netback

Calculated as the RED HVO fob ARA range (Class I) assessment less the weekly Singapore to ARA region HVO freight assessment.

RED HVO (Class II) fob Singapore netback

Calculated as the RED HVO fob ARA range (Class II) assessment less the weekly Singapore to ARA region HVO freight assessment.

RED HVO (Class III) fob Singapore netback

Calculated as the RED HVO fob ARA range (Class III) assessment less the weekly Singapore to ARA region HVO freight assessment.

SAF fob Singapore netbackSee the [Argus Jet Fuel methodology](#).**Americas****SME fob upriver, Argentina**Published prices are the previous day's close in the US. See the [Argus Americas Biofuels methodology](#).**Argentinian soybean oil**Published prices are the previous day's close in the US. See the [Argus Americas Biofuels methodology](#).**SME fob US Houston B100**Published prices are the previous day's close in the US. See the [Argus Americas Biofuels methodology](#).**SME fob US Houston B100 €/USG**Published prices are the previous day's close in the US. See the [Argus Americas Biofuels methodology](#).**Monthly averages**

Monthly averages are the average of midpoint prices published during the calendar month. The final indexes for a month should be taken as those published in the last Argus Biofuels of the month.

Monthly averages are published in \$/t unless specified.

Monthly indexes are published for:

- RED Palm OME fob ARA range
- RED rapeseed OME fob ARA range
- RED Soya OME fob ARA range
- RED Fame 0°C CFPP fob ARA range
- RED Fame -10°C CFPP fob ARA range
- RED UCOME fob ARA range
- RED (EU) TME
- RED PME fob Malaysia
- RED PME fob Indonesia
- SME fob upriver, Argentina
- RED HVO fob ARA range (Class I)
- RED HVO fob ARA range (Class II)
- RED HVO fob ARA range (Class III)
- Crude rapeseed oil fob Dutch mill prompt (€/t)
- UCO cif ARA
- UCO ex-works Netherlands
- Tallow (categories 1 and 2) fca northwest Europe
- RED (T2) Ethanol fob ARA range 50-60pc GHG savings, inc duty
- RED (T2) Ethanol fob ARA range 50-60pc GHG savings, inc duty (€/m³)
- RED (T2) fob ARA range 50-60pc GHG savings inc duty differential to Eurobob oxy
- RED (T2) Ethanol fob ARA range 68pc GHG savings, inc duty
- RED (T2) Ethanol fob ARA range 68pc GHG savings, inc duty (€/m³)
- RED (T2) fob ARA range 68pc GHG savings inc duty differential to Eurobob oxy
- Ethanol fob Pakistan

Freight

Argus Biofuels contains freight cost assessments. Freight assessments are published weekly on Friday and are the price on the day of publication. Assessments are based on fixtures and market discussions for the relevant cargo, volume, route and timings. Freight assessments are published in US dollars/t.

Freight specifications			
Commodity	Route	Volume	Forward timing
Palm oil	Malaysia to ARA region	15,000-30,000t	15-30 days
Palm oil	Malaysia to Mediterranean region (including Genoa, Barcelona and Huelva)	15,000-30,000t	15-30 days
PME	Malaysia to ARA region	3,000-5,000t	15-30 days
PME	Malaysia to Mediterranean region (including Genoa, Barcelona and Huelva)	3,000-5,000t	15-30 days
HVO	Singapore to ARA region	40,000t	15-30 days
Ethanol	US Gulf Coast to China	40,000-50,000t	15-30 days
UCO	China to ARA region	5,000t	15-30 days
Ucome/HVO	China to ARA region	5,000t	15-30 days

Reference prices

Glycerine fob SE Asia

Currency/unit: US dollars/tonne

Glycerine reference price refers to crude glycerine with at least 80pc glycerol content, fob southeast Asia, based on notional bid/offer levels.

Malaysia, Palm oil futures

Currency/unit: US dollars/tonne, converted from ringgit

Prices for the first three forward month contracts as published by the Bursa Malaysia palm futures exchange. The last day of assessment of the first forward month is the last full day of exchange trading of that month before expiry.

Soybean oil futures

Currency/unit: US dollars/tonne

Cbot futures prices are converted to metric tonnes. The timestamp is 4.30pm London time based on the latest available Cbot prices for the first three forward months.

German biofuel quota (Treibhausgasminderungsquote)

See the [Argus O.M.R. Fuels methodology](#).

UK renewable transport fuel certificate (RTFC)

The price of an RTFC, a certificate acceptable for use in meeting the legally prescribed volumetric obligation for finished transport fuel under the UK Renewable Transport Fuel Obligation (RTFO).

Currency/unit: p/RTFC (p/l)

Timing: prices are assessed for the most recent obligation period that has yet to be surrendered and may also be assessed for forward obligation periods for which Argus has determined that sufficient market liquidity exists to produce a robust assessment.

The obligation period ends on 31 December, and obligations are surrendered on 15 September the following year. Argus ceases the assessment of the obligation year on 15 June of the following year and begins assessing the next obligation period no later than 15 June of the obligation year. For example, Argus will begin publishing a 2020 obliga-

tion period assessment no later than 15 June 2020 but may begin publication earlier than that date should Argus deem market liquidity sufficient to produce a robust assessment. Argus will publish a 2020 obligation period up to and including 15 June 2021.

Prices are assessed and published as a low/high range, based on all price information of the week until 4.00pm London time on Friday, or the last publication day of the week if Friday is a holiday.

UK greenhouse gas (GHG) credit

The price of a UK GHG credit acceptable for use in meeting the legally prescribed GHG savings obligation for finished transport fuel under the UK Motor Fuel Composition and Content Regulations.

Currency/unit: p/kg CO₂e

Timing: prices are assessed for the most recent calendar year that has yet to be surrendered and may also be assessed for forward calendar years for which Argus has determined that sufficient market liquidity exists to produce a robust assessment. The reporting period ends on 31 December, and credits are surrendered on 15 September the following year. Argus ceases the assessment of the reporting year on 15 June of the following year and begins assessing the next reporting period no later than 15 June of the reporting year.

For example, Argus will begin publishing a 2020 GHG credit assessment no later than 15 June 2020 but may begin publication earlier than that date should Argus deem market liquidity sufficient to produce a robust assessment. Argus will publish a 2020 GHG credit assessment up to and including 15 June 2021.

Prices are assessed and published as a low/high range, based on all price information of the week until 4:00pm London time on Friday, or the last publication day of the week if Friday is a holiday.

Netherlands renewable fuel units (HBE)

Netherlands advanced renewable fuel units (Hernieuwbare brandstofeenheden-Geavanceerd)

The price of an advanced renewable fuel unit (HBE-G), acceptable for use in meeting the legally prescribed energetic obligation for finished transport fuel under the Netherlands' Energy for Transport Registry.

Currency/unit: €/GJ

Netherlands conventional renewable fuel units (Hernieuwbare brandstofeenheden-Conventioneel)

The price of a conventional renewable fuel unit (HBE-C), acceptable for use in meeting the legally prescribed energetic obligation for finished transport fuel under the Netherlands' Energy for Transport Registry.

Currency/unit: €/GJ

Netherlands other renewable fuel units (Hernieuwbare brandstofeenheden-Overig)

The price of an 'other' renewable fuel unit (HBE-O), acceptable for use in meeting the legally prescribed energetic obligation for finished transport fuel under the Netherlands' Energy for Transport Registry.

Currency/unit: €/GJ

Timing: All HBE prices are assessed for the most recent obligation period that has yet to be surrendered and may also be assessed for

forward obligation periods for which Argus has determined that sufficient market liquidity exists to produce a robust assessment.

The obligation period ends on 31 December, and obligations are surrendered on 31 March the following year. Argus ceases the assessment of the obligation year on 31 March of the following year and begins assessing the next obligation period no later than 31 March of the obligation year.

For example, Argus will begin publishing a 2020 obligation period assessment no later than 31 March 2020 but may begin publication earlier than that date should Argus deem market liquidity sufficient to produce a robust assessment. Argus will publish a 2020 obligation period up to and including 31 March 2021.

Prices are assessed and published as a low-high range, based on all price information of the week until 4.00pm London time on Friday, or the last publication day of the week if Friday is a holiday.

Ethanol spot price assessments

RED (T2) Ethanol fob ARA range 50-60pc GHG savings, inc duty

Ethanol meeting EN15376 specifications

If the EN15376 specification differs from the Argus specification listed below, the Argus specification takes precedence.

Currency/unit: assessed and published in euros/m³. The assessment is also converted to and published in US dollars/tonne

Timing: loading 5-15 days forward of the day of assessment

Location: fob ARA range — including Antwerp, Rotterdam, Amsterdam, Dordrecht and Ghent

Size: 1,000-2,000m³

GHG savings: to be considered for inclusion in the assessment, material from installations that started operations after 5 October 2015 must have a minimum of 60pc greenhouse gas (GHG) savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ. For the avoidance of doubt, material from installations that were in operation on or before 5 October 2015 must have a minimum of 50pc GHG savings, based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ. Material must be accompanied with RED-compliant certification issued by European Commission-approved auditing body.

Assessment time: 4pm to 4.30pm London time

RED (T2) fob ARA range 50-60pc GHG savings inc duty differential to Eurobob oxy

Argus RED T2 ethanol differentials to Argus Eurobob oxy prices are calculated using the European Central Bank exchange rate and a conversion rate of 1m³ = 0.789t

Currency/unit: US dollars/tonne

Assessment time: 4pm to 4.30pm London time

See the [Argus European Products methodology](#).

RED (T2) Ethanol fob ARA range 68pc GHG savings, inc duty

Ethanol meeting EN15376 specifications

If the EN15376 specification differs from the Argus specification listed below, the Argus specification takes precedence.

Currency/unit: assessed and published in euros/m³. The assessment is also converted to and published in US dollars/tonne

Timing: loading 5-15 days forward of the day of assessment

Location: fob ARA range — including Antwerp, Rotterdam, Amsterdam, Dordrecht and Ghent

Size: 1,000-2,000m³

GHG savings: 68pc greenhouse gas (GHG) savings based on a fossil fuel comparator of 83.8g CO₂ equivalent/MJ. Material must be accompanied with RED-compliant certification issued by European Commission-approved auditing body.

Assessment time: 4pm to 4.30pm London time

RED (T2) fob ARA range 68pc GHG savings inc duty differential to Eurobob oxy

Argus RED T2 ethanol differentials to Argus Eurobob oxy prices are calculated using the European Central Bank exchange rate and a conversion rate of 1m³ = 0.789t

Currency/unit: US dollars/tonne

Assessment time: 4pm to 4.30pm London time

See the [Argus European Products methodology](#).

ETBE fob Rotterdam, ETBE differential to MTBE

See the [Argus European Products methodology](#).

Ethanol fob Pakistan

99.7pc anhydrous fuel-grade ethanol

Currency/unit: US dollars/tonne

Timing: loading 30-60 days forward of the day of assessment

Location: fob Pakistan (Karachi)

Size: assessments are standardised to cargoes of 2,000-5,000t

Assessment time: 5.30pm Singapore time

Ethanol fob Pakistan (hydrous)

96pc extra neutral alcohol (ENA)

Currency/unit: US dollars/tonne

Timing: loading 30-60 days forward of the day of assessment

Location: fob Pakistan (Karachi)

Size: assessments are standardised to cargoes of 2,000-5,000t

Assessment time: 5.30pm Singapore time

Ethanol cfr Mumbai

99pc industrial-grade ethanol

Currency/unit: US dollars/tonne

Timing: delivery 30-60 days forward of the day of assessment

Duties: Prices are exclusive of duties and taxes at destination

Size: assessments are standardised to cargoes of 20,000-30,000t

Assessment time: 5.30pm Singapore time

Ethanol cfr Philippines

99pc anhydrous fuel-grade ethanol

Currency/unit: US dollars/m³

Timing: delivery 30-60 days forward of the day of assessment

Location: cfr Philippines (Subic Bay/Batangas)

Size: assessments are standardised to cargoes of 10,000-20,000m³

Timing: 5.30pm Singapore time

Ethanol cfr China fuel-grade

Currency/unit: US dollars/tonne

Timing: delivery 60-75 days forward of the day of assessment

Location: cfr northeast China including Lianyungang, Rizhao, Tianjin, Dalian, Shanghai, Nanjing and Nantong

Size: assessments are standardised to full MR vessels of 40,000-50,000t

Specification: China GB/T

B-grade cfr northeast Asia

95pc hydrous ethanol

Currency/unit: US dollars/m³

Timing: delivery 60-90 days forward of the day of assessment

Location: cfr northeast Asia (Ulsan/Chiba)

Size: assessments are standardised to cargoes of 5,000-15,000m³

Assessment time: 5.30pm Singapore time

Forward price assessments and swaps

All RED swaps and forward assessments assume product that is accompanied with RED-compliant certification issued by the European Commission-approved auditing body. All RED swaps and forward prices are assessed for three months and three quarters forward. The last day of assessment of the first forward month will be the last full UK day of trading of that month prior to the Ice low-sulphur gasoil last trade date. The last day of assessment of the first forward quarter will be the last full UK day of trading prior to the Ice low-sulphur gasoil last trade date of the month preceding the start of the quarter.

Swap and forward price assessments are published for:

- RME RED swap
- Fame 0°C CFPP RED swap
- RED UCOME fob ARA range swap
- PME RED forward physical
- SME RED forward physical
- Fame -10°C CFPP RED forward physical
- Ethanol NWE T2 RED 50-60pc GHG savings swap

See spot price assessments above for specifications.

Timestamp: 4:30pm London time

Ice gasoil swap

The front-month Ice gasoil swaps price is calculated as the number of working days in the current calendar month including and between the publication date and the last working day of the month pro-rata for the two possible Ice gasoil front-month settles based on the days covered by each contract.

Ice gasoil settle

The official settlement figures published by Ice in London.

7-28 day Ice gasoil

Calculated on the day of assessment as the average of settlement prices for the first or first and second forward month Ice gasoil contract, weighted by the number of Argus publishing days in the 7-28 day loading period.

7-28 day HVO-escalated Ice gasoil

The 7-28 day Ice gasoil price adjusted to an HVO-equivalent density of 0.78kg/l, assuming a gasoil density of 0.845kg/l in a vacuum at 15°C.

Palm oil-gasoil spread (Pogo)

The spread between the third forward month Bursa Malaysia palm oil futures settlement price and the corresponding Ice low sulphur gasoil futures settlement price.

Currency/unit: US dollars/tonne

Conversion and rounding: palm oil futures prices are converted to US dollars and rounded to the nearest \$0.25/t

Assessment time: the timestamp for the spread is 4.30pm London time, based on the latest available Bursa Malaysia and Ice prices. The assessment follows the Argus rolling schedule for Bursa Malaysia futures prices. The palm oil-gasoil spread is published on Argus Biofuels publication dates for which the relevant Bursa Malaysia and Ice futures prices are available.

Beanoil-gasoil spread (Bogo)

The spread between the second forward month Cbot soybean oil futures price and the corresponding Ice low sulphur gasoil futures settlement price.

Currency/unit: US dollars/tonne

Conversion and rounding: soybean oil futures prices are converted to metric tonnes and rounded to the nearest \$0.25/t

Assessment time: the timestamp for the spread is 4.30pm London time, based on the latest available Cbot and Ice prices. The assessment follows the Cbot rolling schedule. The Beanoil-gasoil spread is published only on Argus Biofuels publication dates for which the relevant Cbot and Ice futures prices are available.