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ARGUS GLOBAL WAXES

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The most up-to-date Argus Global Waxes Methodology is available on www.argusmedia.com

Introduction

Argus Global Waxes is a monthly report on the global wax markets. It includes price assessments, customs data, news, commentary, and analysis. The report is published on the last working day of the month, with the exception of some public holidays. For a full publication schedule, see Argus' [publication schedule](#).

Methodology rationale

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

In order to inform an assessment, transactional data must meet the delivery, timing and quality parameters set out in this document. 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 data 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 will accept market data by telephone, instant messenger, email or other means.

Argus encourages sources to submit all market data to which they are a party that falls within Argus' stated methodological parameters.

Argus constantly seeks 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, Argus' methodology will assign a higher importance to transactions than to bids and offers, and a higher importance to bids and offers than to other market information. Certain markets exist for which such a hierarchy would produce unreliable and non-representative price assessments, and so the relevant Argus methodology assigns a different relative importance in order to ensure the quality and integrity of the price assessment. Even in markets for which the hierarchy normally applies, certain market situations may emerge for which the strict hierarchy would produce non-representative prices, requiring Argus to adapt in order to publish representative prices.

Verification of transaction data

Reporters carefully analyse all data submitted to the price assessment process. These data include transactions, bids, offers, volumes, counterparties, specifications and any other information that contributes materially to the determination of price. This high level of care described applies regardless of the methodology employed. Specific to transactions, bids, and offers, reporters seek to verify the price, the volume, the specifications and location basis.

Reporters apply several tests to determine whether transactional data 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 arms length, including deals between related parties or affiliates.
- Transaction prices that deviate significantly from the mean of all transactions submitted for that day.
- Transaction prices that fall outside of the generally observed lows and highs that operated throughout the trading day.
- Transactions that are suspected to be a leg of another transaction or in some way contingent on an unknown transaction.
- Single deal volumes that significantly exceed the typical transaction volume for that market.
- Transaction details that are identified by other market participants as being for any reason potentially anomalous and perceived by Argus to be as such.
- Transaction details that are reported by one counterparty differently than the other counterparty.
- Any transaction details that appear to the reporter to be illogical or to stray from the norms of trading behaviour. This could include but is not limited to divergent specifications, unusual delivery location and counterparties not typically seen.
- Transactions that involve the same counterparties, the same price and delivery dates are checked to see that they are separate deals and not one deal duplicated in Argus records.

Secondary tests applied by editors for transactions identified for further scrutiny

Transaction tests

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

Source tests

- The credibility of the explanation provided for the outlying nature of the transaction.
- The track record of the source. Sources will be deemed more credible if they:
 - Regularly provide transaction data with few errors.
 - Provide data by Argus' established deadline.
 - Quickly respond to queries from Argus reporters.
 - Have staff designated to respond to such queries.
- How close the information receipt is to the deadline for information, and the impact of that proximity on the confirmation 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 confirming all market data used in determining price assessments, a degree of care equal to that applying to gathering and confirming transactions. The information used to form an assessment could include deals done, bids, offers, tenders, spread trades, exchange trades, fundamental supply and demand information and other inputs.

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

Relative value transactions

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

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

Bids and offers

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

Comparative metrics

The relative values between compared commodities are readily discussed in the market and can be discovered through dialogue with market participants. These discussions are the precursor to negotiation and conclusion of transactions.

- Comparison to the same commodity in another market centre.
- Comparison to a more actively traded but slightly different specification commodity in the same market centre.
- Comparison to the same commodity traded for a different delivery timing.
- Comparison to the commodity's primary feedstock or primary derived product(s).
- Comparison to trade in the same commodity but in a different modality (as in barge versus oceangoing vessel) or in a different total volume (as in full cargo load versus partial cargo load).

Publications and price data

Subsets of these prices appear in other Argus market reports and newsletters. 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.

Argus reviews corrections for material effect on price data and the amount of time that has elapsed from the date of published price data before deciding whether to issue a correction. After 30 days, Argus is unlikely to make a correction to published data. Argus will not retroactively assess markets based on information learned after the assessments are published.

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 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 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 qualita-

tive 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
- 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 types

Low

The lowest price that traded, or could have traded, during the month of publication.

High

The highest price that traded, or could have traded, during the month of publication.

Midpoint

The average of the low and the high.

VWA

A volume-weighted average of prices reported in US census data for imports and exports during the named period.

Spot market assessments

Asia Pacific

Fully-refined paraffin wax, North China, liquid

Basis: bulk liquid, fob any north China port

Timing: 1-30 days from the date of transaction

Volume: at least 1,000t

Unit: US dollars/tonne

Fully-refined paraffin wax, North China, slab

Basis: solid, fob any north China port

Timing: 1-30 days from the date of transaction

Volume: up to 100t

Unit: US dollars/tonne

Semi-refined paraffin wax, North China, slab

Basis: solid, fob any north China port

Timing: 1-30 days from the date of transaction

Volume: up to 100t

Unit: US dollars/tonne

Fully-refined paraffin wax, South China, slab

Basis: solid, fob any south China port

Timing: 1-30 days from the date of transaction

Volume: up to 100t

Unit: US dollars/tonne

Semi-refined paraffin wax, South China, slab

Basis: solid, fob any south China port

Timing: 1-30 days from the date of transaction

Volume: up to 100t

Unit: US dollars/tonne

Feedstock slack wax, Thailand, bulk

Basis: liquid, fob any port in Thailand

Timing: 1-30 days from the date of transaction

Volume: at least 1,000t

Unit: US dollars/tonne

Asia-Pacific paraffin wax quality specifications

| Grade | Melting point | Congeeing point | Oil content |
|--|---------------|-----------------|-------------|
| Fully-refined (FR), North China liquid | 58-60° C | N/A | < 0.5% |
| Fully-refined (FR), North China slab | 58-60° C | N/A | < 0.5% |
| Semi-refined (SR), North China slab | 58-60° C | N/A | < 1.5% |
| Fully-refined (FR), South China slab | 58-60° C | N/A | < 0.5% |
| Semi-refined (FR), South China slab | 58-60° C | N/A | < 1.5% |
| Feedstock Slack Wax, Thailand | N/A | 50-80° C | < 8% |

US

Paraffin wax, US Gulf, bulk

Basis: liquid, fob truck or railcar any US Gulf coast location

Timing: 2-20 days from the date of transaction

Volume: at least 40,000lb of wax

Unit: US cents/lb.

US paraffin wax quality specifications

| Grade | Melting point | Oil content |
|---------------------------------------|---------------------|-------------|
| Fully-refined, low-melt, fob US Gulf | < 133° Fahrenheit | < 0.5% |
| Fully-refined, mid-meld, fob US Gulf | 133-144° Fahrenheit | < 0.5% |
| Fully-refined, high-melt, fob US Gulf | >144° Fahrenheit | < 0.5% |
| Slack wax, 15-25%, fob US Gulf | 120-170° Fahrenheit | 15-25% |

Europe

Paraffin wax, delivered northwest Europe,

Basis: liquid, delivered by truck to any location in northwest Europe

Timing: 1-30 days from the date of transaction

Volume: 20,000-24,000t

Unit: euro/tonne

Prices are published monthly and are an average of market information received throughout the month

Northwest Europe paraffin wax quality specifications

| Grade | Melting point | Oil content |
|--------------------------|---------------------|-------------|
| Fully-refined, low-melt | 50-52°C | ≤ 0.5% |
| Fully-refined, mid-meld | 56-58°C | ≤ 0.5% |
| Fully-refined, high-melt | 60-62°C | ≤ 0.5% |
| Slack wax, 15-25% | 120-170° Fahrenheit | 10-20% |

Reference prices

Crude oil

For crude methodologies, see [Argus Crude methodology](#).

Feedstocks

For feedstock methodologies, see [Argus US Products methodology](#) or [Argus European Products methodology](#).

Base oils

For base oils methodologies, see [Argus Base Oils methodology](#).

Oil products

For oil product methodologies, see [Argus US Products methodology](#), [Argus European Products methodology](#), or [Argus Asia-Pacific Products methodology](#).

Manufacturers' shipments, inventories and order surveys

For details, see www.census.gov/manufacturing/m3/about_the_surveys/index.html

US import and export VWAs

Argus calculates a volume-weighted average (VWA) of import and export prices for certain waxes, based on US census data. The price is calculated by dividing the total import/export dollar value reported for relevant US census categories (see table 2) during the named time period by the total import/export weight for the same categories during the same period. Prices are published in ¢/lb.

Currency conversions

Currencies are converted on the basis of the most recent spot foreign exchange rate on the day of publication.

| US census categories used in Argus import and export VWAs | |
|---|---|
| Assessment | US census category |
| Petroleum wax | |
| Paraffin wax, < 0.75% oil | Paraffin wax containing less than 0.75% oil |
| Micro, slack, misc. wax | Microcrystalline, petroleum wax, slack wax, ozokerite, lignite wax, peat wax, other mineral waxes and similar products, NESOI |
| Total petroleum wax | All listed under "Paraffin wax, < 0.75% oil" and "micro, slack, misc wax" above |
| Non-petroleum wax | |
| Carnauba wax | Vegetable waxes, Carnauba |
| Candelilla wax | Vegetable waxes, Candelilla |
| Vegetable wax, other than TG | Vegetable waxes (other than triglycerides) NESOI |
| Beeswax | Beeswax, unbleached and other insect waxes and spermaceti, whether or not refined or colored |
| Montan wax | Montan wax |
| Total non-petroleum wax | All listed under "Carnauba Wax", "Candelilla wax", "Vegetable wax, other than TG", "Beeswax", and "Montan wax" above |
| Candles | |
| Candles | Candles, tapers and the like |