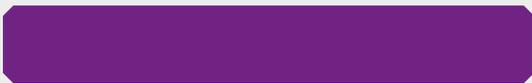


Aluminium P1020A Rotterdam Duty-Unpaid and Duty-Paid Premiums



Methodology and price
specifications – January 2019

Mission statement

Fastmarkets is a leading commodity price reporting agency (PRA) covering the metals, mining, minerals and forestry products industries. Our products include Our products include Fastmarkets MB, Fastmarkets AMM, Fastmarkets IM, Fastmarkets RISI, Fastmarkets FOEX and Random Lengths. For more than 100 years we have been providing commodities price reporting services for use by market participants in their day-to-day commercial activities. These services include assessments and indices of commodity prices as well as news, research and commentary on the underlying markets.

Our mission is to meet the market's data requirements honestly and independently, acting with integrity and care to ensure that the trust and confidence placed in the reliability of our pricing methodologies is maintained. We do not have a vested interest in the markets on which we report.

Introduction

Fastmarkets MB is the leading global provider of pricing intelligence for the non-ferrous metal, steel, steelmaking raw materials, industrial minerals, ferrous and non-ferrous scrap markets, producing price assessments since 1913.

Fastmarkets MB reporters are required to abide by a code of conduct and clear pricing procedures during their market reporting and pricing activities. Fastmarkets is completely independent and has no vested commercial interest in any of the markets it prices.

We are the world's largest dedicated metals price reporting team. We have offices in London, New York, Pittsburgh, Shanghai, Hong Kong, Sao Paulo, Melbourne, Singapore, Mumbai, Dnepr, Istanbul and five other US locations.

The aim of this document is to provide a clear overview of Fastmarkets MB's Rotterdam aluminium methodology and specifications for the prices it assesses.

If you have any questions, please contact the Fastmarkets editorial director Alex Harrison at aharrison@fastmarkets.com.

Price discovery and methodology

Methodology rationale

Fastmarkets' base metal pricing team aims to produce independent, transparent, fair and representative price assessments.

Fastmarkets has adopted and developed a clear and rigorous price discovery process and methodology, as described in the present guide, to produce assessments that are a consistent and representative indicator of the value of the market to which they relate for the trading period they measure.

In the case of aluminium, the Rotterdam P1020A duty unpaid daily premium assessment and the Rotterdam P1020A duty paid twice-weekly premium assessment are the industry's benchmarks and thus subject to even stricter and meticulous price discovery process and methodology.

Fastmarkets supports the process of price discovery through its established and independent position in the metals market. Fastmarkets also employs price reporters that are trained to abide by its methodology and code of conduct, and are dedicated to specific markets and regions. In the case of the Rotterdam aluminium premiums, assessments are done by a dedicated primary aluminium price reporter and when not available, by a back-up reporter within the aluminium team. There are also two back-up reporters from other base metals who are trained to be able to price these aluminium premiums.

Before being able to properly assess the market, we must ensure that we understand exactly what information we are trying to collect. The granularity of a price is essential to defining the market and we must therefore be sure that we are clear on our price specifications and the market trends before gathering any pricing data.

Because the aluminium market is constantly developing, Fastmarkets reviews its methodology and specifications, and engages in discussions with market participants at least every six months to ensure that its price specifications and assessment techniques remain relevant and as representative of the market as possible.

The Rotterdam P1020A duty unpaid and duty paid price assessments have been designed to meet the

requirements of the financial market, as well as the physical market. They are used in global exchanges, such as the Chicago Mercantile Exchange, as settlement prices..

Price specifications and reference units

Fastmarkets has defined clear specifications for its Rotterdam aluminium premium assessments, as outlined below, to match the industry standard.

These specifications have been determined in consultation with market participants and are regularly reviewed. All the reference units, such as currencies and volumes used in the assessments, are in line with recognised aluminium market conventions and trading practices. The specifications also have a published minimum volume size accepted.

Fastmarkets aims to collect full details of each transaction, bid and offers, including brand, commercial terms and any other details relevant to value and pricing. The price reporter ensures that the information they collect matches – or can be normalised to – the price specifications.

Data collection

Collection window

During the price discovery process, the price reporter aims to discover at what representative level market participants have concluded business, made offers or received bids over a defined time period, or window.

The window for the Rotterdam aluminium P1020A premiums – daily for the duty unpaid price and twice weekly for the duty paid price – was determined after considering the number of data points that Fastmarkets can reasonably expect to collect on a consistent basis over the selected period to support the price assessment process, ensuring that the assessments produced is a reliable indicator for the physical market they relate to.

The price assessments are published between 3pm and 4pm London time and the deadline for data submission is 3pm London time. Data received after this time will not be included in the price assessment.

For the daily duty-unpaid Rotterdam P1020A price, the data collection window runs for the 24 hours prior to the 3pm data submission deadline. For the twice-weekly duty-paid Rotterdam P1020A price, the data collection window runs from the time of publication of the last price assessment to 3pm on the day of the

next assessment. Only data points communicated to Fastmarkets within the data collection window will be included in the price discovery process. The published prices are reflective of the levels seen during this stated collection period.

Minimum data threshold

In order to provide a representative price for the market, the price reporter aims to collect as many representative data points as possible within the defined window.

As commodity markets differ in liquidity level at different periods, Fastmarkets typically does not set a minimum number, or threshold, of price points to be gathered on which to base the assessment.

However, since its Rotterdam aluminium P1020A duty unpaid and duty paid premiums are used by the financial market as settlement prices, Fastmarkets has set an informal threshold of six data points per price assessment for these two markets to ensure they are as robust, consistent, accurate and reliable as possible.

A pricing session typically includes concluded transactions, bids and offers, contributors' market assessments or deals heard. Several separate sources from a cross section of the market (producers, consumers, traders) will typically contribute to a price assessment and Fastmarkets ensures that there is no key submitter dependency.

This means one contributor cannot account for a significant proportion of the data, defined as 50% or more of the six data points collected during a pricing session. Should 50% or more of the data on which to base the assessment be provided by a single source, the price reporter will continue to collect data points from market participants until the minimum threshold is reached. There have been no instances in which Fastmarkets has not been able to reach the minimum data threshold – however, more than six data points would be difficult to achieve on a daily or twice-weekly basis.

The threshold of six data points applies to all types of data including transactions, bids/ offers and assessments. Fastmarkets cannot guarantee a minimum threshold for actual transactions as the market can be very illiquid at times, but every effort is made to collect as many transactions as possible.

Data contribution

Any market participant actively involved in the physical aluminium spot market may become a data contributor

following a review by Fastmarkets of its activities. The aim is to ensure that submitters have sufficient visibility and understanding of the market to be able to provide reliable price data.

Fastmarkets aims to engage a broad and balanced range of physical market participants in the provision of data, including producers, consumers and traders who are selling or buying aluminium.

We expect that data submitters taking part in the pricing process are authorised to report market data on behalf of their organisations.

Fastmarkets's Data Submitter Policy provides guidelines to ensure the high level of data quality and integrity that we expect from contributing organisations providing pricing data. The Policy can be found on Fastmarkets's website or is available upon request.

Fastmarkets encourages contributors to submit all their pricing data, especially all their concluded transactions, and not be selective. Only transactions that have been concluded at arm's length and data that match the price specifications – or can be calculated back to meet the specifications – will be included in the assessment.

Price reporters generally speak to, and collect data from, front office staff directly involved in the commercial buying and selling of aluminium. But they also welcome organisations to submit pricing data from authorised back office functions.

The price reporter collects data primarily by telephone, but also by email, digital messenger services or face-to-face.

The key to good price discovery is to speak whenever possible to sources on both sides of a transaction in order to cross-check the pricing information received. All data supplied to Fastmarkets is kept strictly confidential and stored in our secure online pricing database system MInD (Metals Information Database).

Data can also be collected on Tradecloud, a software platform where market participants can submit data on concluded business directly to Fastmarkets.

Data collected from Tradecloud will be treated the same as data collected using other means. Fastmarkets reserves the right to discard data points collected from Tradecloud.

Fastmarkets may sign Data Submitter Agreements

(DSAs) with any data provider, if requested to do so, in order to maximise the number of data points collected for inclusion in the assessment process. Any data received subject to DSAs will be used in the pricing assessment but not be published.

For new data submitters, Fastmarkets follows the procedure for adding new sources into Fastmarkets's price database system (MInD).

Data analysis

Assessment using specifications and expert judgment

Once data collection is complete, Fastmarkets reviews the data points applying its methodology and its expert judgment to set the price range to reflect the representative spread of prices at which business has been transacted, offered or bid, or indicated in the absence of business.

Before making an assessment, the following factors must be considered:

- Is the information received credible? If questionable: have we seen signed contracts (preferable), or has it been confirmed on both sides of the deal?
- If credible: were all the prices in a similar range?
- Were all the deals reported of a similar size?
- Do the reported deals all have the same terms and specifications?
- Did all the sources indicate the market was headed in the same direction? If not, why not?
- It is not unusual for different sources to report slightly different numbers but it is important, as far as possible, to understand why they are different.
- In the absence of trade, what are the prevailing bids/offers in the market? Did the source provide firm bids/offers or indicative numbers?
- What are the positions of the contributors?
- Are we confident about the freight or free-on-charge costs?
- Has an adequate sample been obtained which correctly represents the market?

Once the above factors have been considered, Fastmarkets will produce a price assessment and set the price following the guidelines below.

Fastmarkets does not treat all collected information equally, but has a justification and rationale for how each piece of information obtained has been used. Greater weighting is given to actual concluded

transaction data, but other data is also used: bids and offers are second behind transactions in order of importance, followed by deals indirectly reported to Fastmarkets (referred to as deals heard) and lastly by data sources' own assessments of the market when they have no business to report.

Depending on market liquidity, Fastmarkets also reserves the right to use pricing data that has been submitted during the collection window, but transacted up to two working days prior, in an effort to increase liquidity and capture the spot market trend while avoiding the unnecessary volatility that could emanate from daily pricing. For instance, in a stable premium market, Fastmarkets may include in its assessment a transaction done up to two days before the collection window. However, in a fast-moving premium market, Fastmarkets would be more likely to discard such a transaction.

Other considerations might also intervene in the price assessment such as, the trustworthiness of a data source based on past data submissions, or their willingness to provide data on a consistent basis.

When no actual transactions can be collected, extra caution is applied during the price assessment process. Price reporters are encouraged to keep the price unchanged until actual transactions back up a change. However, should all bids, offers and assessments fall outside the existing price range for at least two consecutive pricing sessions, price reporters can move the price to reflect the levels where business would take place if transactions were to actually take place.

As a general rule, larger deals carry more weight, but Fastmarkets tries and ascertains what sort of discount a large lot size carries or what sort of premium a smaller deal would carry.

Fastmarkets will compare the information received from a single source with the information provided by the same source in the previous pricing cycle. This way, if a source consistently gives low or high numbers, Fastmarkets can still use the data without it unduly influencing its assessment.

Data normalisation

Occasionally, Fastmarkets receives price data for material with different specifications – for instance, different material quality, delivery terms or delivery location, different cargo size or payment terms. In such cases, when appropriate, Fastmarkets normalises data to its typical specifications.

A typical example is a data point that is adjusted due to Incoterms (International Commercial Terms) being different from Fastmarkets's specifications. For example, a data contributor will report a transaction done with an aluminium consumer on a free carrier (fca) basis in Rotterdam as opposed to the in-warehouse Incoterm specified in Fastmarkets's methodology. In which case Fastmarkets will normalise the transaction's value by subtracting the cost of moving material from inside a warehouse to an fca basis. To calculate that cost, Fastmarkets will ask the data contributor to net back the transaction to an in-warehouse basis as well as using its own cost estimate, which is regularly assessed and reviewed by its dedicated price reporters. Due to a disparity of fca costs charged by various warehouse companies, Metal Bulletin reserves the right to exercise editorial judgment to net transactions back to typical commercial terms.

Another example is a price that is either net-back or net-forward due to payment terms different from Fastmarkets's specifications. Payment terms are based on typical commercial practice in the aluminium spot market. Transactions that are conducted on different payment or credit terms can be normalised, taking into account discounts, interest rates and standard commercial terms. Metal Bulletin will use its editorial judgment to determine whether payment terms reported for specific deals match typical commercial terms and adjust the normalisation accordingly. Editorial judgment will also apply when treating transactions reported inclusively of offsets generated by London Metal Exchange spread trading – one party may take a spread position on the forward curve (contango or backwardation) that enables it to sell below market premiums or buy above market premiums.

Fastmarkets's price specifications also define the minimum lot size accepted. When volume information is available, this is also taken into consideration in the assessment process. For instance, typically a deal with a bigger volume will carry more weight in the price reporter judgement than a smaller volume transaction. However, price reporters will also consider, for instance, to normalise or discard a price reported for a deal with an abnormally large or small volume.

Normalisation also allows Fastmarkets to capture and normalise factors other than chemical and physical properties, such as values associated with individual brands or material with higher or lower purity, such as P0610, P0406, A8, A5 or A7.

Full details of data inputs prior and post normalisation

are stored in Fastmarkets's electronic database MInD and may be accessed at any time for internal review and auditing purposes.

Criteria for discarding pricing data

Fastmarkets will use its expert judgment to exclude outlying or unrepresentative numbers, and discount or discard prices that it believes may otherwise be questionable and unreliable.

Outliers will be investigated, and suspected attempts to unfairly influence the price assessments may result in the data provider being warned or excluded.

When a transaction appears questionable or well outside the range reported by other market participants, Fastmarkets may seek confirmation of the claimed deal by requesting to see contracts or other signed paperwork before inclusion of the data in the price assessments. If this is refused, Fastmarkets will seek to corroborate the information it receives by matching trades. So if a seller tells us he has sold a certain amount at a certain level, we then try to speak to the buyer involved in the transaction to confirm the transaction.

If this is not possible, the data supplied may be excluded from the assessment process.

Fastmarkets reserves the right to exclude data that is not fairly presented or is believed may be an effort to distort the price assessments.

Data publication

Peer review process

All Fastmarkets's price assessments are set by a first reporter who covers that specific market, peer reviewed by a second reporter, and always signed-off and approved by a senior reporter or editor prior to publication.

This peer review process, which takes place in MInD is fully auditable and is in place to make sure that pricing procedures and methodologies are correctly and consistently applied and to ensure integrity and quality of the published prices.

Price reporters are formally trained in the price discovery process and must abide by a written Code of Conduct and pricing procedures.

Publication

At the end of the peer review process, Fastmarkets publishes its price assessments via MInD and onto its website and price book.

The Rotterdam P1020A duty unpaid price assessments are reported as a premium range.
 The Rotterdam P1020A duty paid price is published as a premium range.

To enhance market transparency and to provide evidence of data inputs that support the price discovery process, Fastmarkets may publish trade logs for its Rotterdam aluminium prices, while maintaining full counterparty confidentiality, pricing data and volume received from data contributors.

Fastmarkets also publishes daily pricing rationales to explain price settlement and editorial judgement. These notes explain, for instance, why price reporters may conclude whether anomalous or suspicious data should be excluded; when reporters determine a price and a price range based on market information; or when judgement is applied when the dataset collected is not considered suitably robust so that fall-back procedures need to be applied.

Fastmarkets's base metals price assessments are published between 3-4pm London local time. They are not published on England and Wales public holidays, in accordance with the London Metal Exchange (LME) holiday calendar.

Price assessments that are due to be published on UK public holidays will instead be published on the closest working day that precedes or follows that date.

2019	1 January	New Year's Day
	19 April	Good Friday
	22 April	Easter Monday
	6 May	Early May bank holiday
	27 May	Spring bank holiday
	26 August	Summer bank holiday
	25 December	Christmas Day
	26 December	Boxing Day

*source: www.gov.uk

Price correction policy

Publication of price errors can occasionally happen for reasons that may include technical, input errors or incorrect application of the methodology.

To minimise the inconvenience to our subscribers,

Fastmarkets aims to investigate each error as soon as it becomes aware of it and to publish a correction promptly on its website through a pricing notice with an explanation of the reason for the correction.

Fastmarkets will publish a correction of a price only where it has established undeniably that there has been an error. Fastmarkets's price assessments are produced based on the best data available at the time of the assessment. It will not retroactively change a price based on new information or additional submission of data received after a respective pricing session has closed.

Methodology and price specification review process

Methodology review and pricing notices

Fastmarkets aims to continually develop and periodically review its methodologies in consultation with industry participants, with the objective to adopt product specifications and trading terms and conditions that reflect and are representative of typical working practices in the metals industry.

For the Rotterdam aluminium price assessments, Fastmarkets is committed to review its methodology and price specifications at least every six months.

Any change to the methodology and/or price specifications are implemented following a consultation process which starts with Fastmarkets posting on its website an advance pricing notice providing clear details and a timeframe for the change proposed. The objective of the consultation process is to give market participants sufficient time and opportunity to provide feedback and views about the change proposed.

A Pricing Notice will include the outline of the proposed change; the rationale, motivation, for proposing such a change; a clear timeframe; the date by which any feedback must be submitted and the method for submission; the date on which, if the change goes ahead, it will be implemented.

At the conclusion of the consultation process, Fastmarkets will publish a Pricing Notice to communicate its decision and to provide also a summary of the comments received (maintaining

confidentiality where it was requested) and our responses to those comments. Market participants who provide feedback on the proposed change should ensure they clearly state if their comments are intended to be confidential.

The minimum required time to allow for feedback will vary depending on what Fastmarkets believes the impact of the considered change would be for the market.

Changes to the existing methodology will either be classed as 'material' or 'immaterial'. 'Material' changes are those that may result in fundamental changes to the published price once implemented. These include specification changes or index structural changes. 'Immaterial' changes are those that will not result in a different price level once implemented. Typically a material change will require a three-month consultation period.

For more details on the formal review of the methodology and the consultation process to propose changes to the methodology, refer to the Methodology Review and Change Consultation Process available on Fastmarkets's website.

The evolution of pricing

Fastmarkets develops and adjusts its pricing mechanisms in response to changing market conditions. The evolution of long-term contracts to index-linked pricing often occurs as industry players seek to link their pricing to market fundamentals and spot market activity. This trend has been seen clearly in the aluminium market. While Fastmarkets does not seek to drive the direction of the markets it covers, it aims to identify opportunities where spot market activity can be captured, and greater transparency provided through new price assessments.

The development of a pricing mechanism is a process, and as liquidity increases, the sophistication of the pricing methodology can be increased.

Queries and complaints

Fastmarkets encourages engagement from the market on its pricing principles and methodology. The company promotes understanding of its pricing procedures and is committed to responding to requests for further information and clarification on a timely basis.

There are multiple channels for interaction with the pricing team including email, telephone and instant messenger services.

If a subscriber has an issue with the published prices, then they may contact the pricing team. In the event that the response is not satisfactory the issue may be escalated to the internal compliance department. For more details refer to Fastmarkets's Complaint Handling Policy available on Fastmarkets's website.

Fastmarkets takes all queries and complaints seriously and will seek to provide an explanation of the prices wherever possible. It is important to note, however, that input data remain confidential and cannot be provided to third parties.

Calculation of average prices

There is a monthly average high price and average low price. The LME monthly averages are calculated by dividing the sum of the daily bid/ask mean by the number of trading days during the month.

Become a contributor to the price discovery process

Fastmarkets continually seeks to increase the number of market sources willing to take part in the price discovery process. The main condition Fastmarkets requires from contributors is for them to be active participants in the spot market.

Fastmarkets's Data Submitter Policy provides guidelines defining the high level of data quality and integrity that Fastmarkets expects. Market participants that wish to provide pricing data and be part of the price discovery process should first read the Data Submitter Policy available on the website.

All data sources are subject to review before data submitted is fully taken into account in the pricing process. The aim is to make sure that submitters are trustworthy and have sufficient visibility and understanding of the market to be able to provide viable price data.

To become a contributor, or if you have questions or comments about the methodology and price specifications, please contact the Fastmarkets aluminium team.

Specifications

EUROPE

Assessment:	Aluminium P1020A in-warehouse Rotterdam duty-unpaid
Grade:	P1020A or 99.7 % Minimum Al purity (Si 0.10% max, Fe 0.20% max)
Quantity:	Min 100 tonnes
Location:	In-warehouse Rotterdam duty- unpaid, premium on top of LME cash prices
Timing:	Within 4 weeks
Form:	Ingot
Unit:	USD/tonne
Payment terms:	Cash against documents (7 days after bill of lading date); other terms normalised
Publication:	Daily. Between 3pm and 4pm London time
Notes:	MB pricing bureau: London

Assessment:	Aluminium P1020A in-warehouse Rotterdam duty-paid
Grade:	P1020A or 99.7 % Minimum Al purity (Si 0.10% max, Fe 0.20% max)
Quantity:	Min 100 tonnes
Location:	In-warehouse Rotterdam duty-paid, premium on top of LME cash prices
Timing:	Within 4 weeks
Form:	Ingot
Unit:	USD/tonne
Payment terms:	Cash against documents (7 days after bill of lading date); other terms normalised
Publication:	Twice-weekly. Between 3pm and 4pm London time on Tuesday and Friday
Notes:	MB pricing bureau: London

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Your investment actions should be solely based upon your own decisions and research and appropriate independent advice should be obtained from a suitably qualified independent adviser before any such decision is made.