

Alumina indices



Methodology and price
specifications – April 2024

Mission statement

Fastmarkets Metals, Minerals And Mining 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 via Fastmarkets MB and Fastmarkets AMM since 1913 and 1882 respectively.

Fastmarkets Forest Products is the leading global provider of pricing intelligence for the global forest products industry, incorporating Fastmarkets RISI, Fastmarkets FOEX and Random Lengths.

And Fastmarkets Agriculture Products has delivered pricing transparency to opaque agriculture and energy markets in the form of market-moving reporting and commentary, trusted pricing and price forecasting since 1865.

Our mission is to meet our markets' 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' 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 price-reporting team for metals and minerals, agricultural products and forest products. We have hubs in London, New York, Boston, San Francisco, Eugene, Charlottesville, Atlanta, Pittsburgh, Memphis, Sao Paulo, Beijing, Shanghai, Hong Kong, Singapore, Malaysia, Melbourne, Mumbai, Istanbul, Brussels and Helsinki.

The aim of this document is to provide a clear overview of Fastmarkets' methodology and specifications for the prices it assesses. If you have any questions, please contact Global Head of Editorial & Pricing Perrine Faye at perrine.faye@fastmarkets.com for metals and minerals, Forest Products Senior VP of Indices Matt Graves at mgraves@fastmarkets.com for forest products or Editorial Director Tim Worledge at tim.worledge@fastmarkets.com for agricultural products.

Price discovery and methodology

Methodology rationale

The primary role of the Alumina Indices is to provide market participants with a fair and robust representation of the physical alumina spot market price. Fastmarkets MB's rationale for adopting the price-discovery process described in this methodology document is to produce a consistent and representative indicator of market value to suit the alumina market's requirement for a transparent pricing mechanism.

The indices aim to be reflective of the price levels recorded during the data collection time period or window and to be a reliable indicator of value of the alumina market they relate to.

The alumina market is constantly developing. Fastmarkets MB reviews its methodology and specifications, and engages in discussions with market participants on a regular basis, to ensure that they remain as representative of the market as possible.

The Fastmarkets MB Alumina Index methodology has been designed to meet the requirements of the financial market as well as the physical market. The Fastmarkets MB FOB Australia Alumina Index is used in global exchanges as a settlement price.

Data collection

Data collection and quality

The basis of all our Indices is the data provided by the market. To provide a representative price for the market, we aim to collect as many representative data points as possible.

Any market participant involved in the physical alumina spot market may contribute data to the indices following a review by Fastmarkets MB of their 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 MB aims to engage a broad and balanced range of physical market participants in the provision of data.

Fastmarkets MB's Data Submitter Policy provides guidelines to ensure the high level of data quality and

integrity that Fastmarkets MB expects from contributing organisations providing pricing data. The policy can be found on Fastmarkets MB's website or is available upon request.

Fastmarkets MB encourages data sources to provide data on all their concluded transactions and welcomes provision of data from employees in back-office functions.

Fastmarkets MB utilizes multiple methods to collect data. These include phone calls, email, and digital messenger services across our offices in London, Shanghai, Singapore and Sao Paulo.

The deadline for data submission is 3pm London time. For indices calculated daily, the data collection window runs for the 24 hours prior to the 3pm submission deadline. For indices calculated weekly, the window runs for one week prior to the 3pm submission deadline. Only trades concluded and bids and offers submitted and communicated to Fastmarkets MB within the data submission window will be included in the calculation of the index.

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 frequency for alumina – every weekday for the fob Australia index and once a week for the fob Brazil index – 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 index produced is a reliable indicator for the physical market it relates to.

The price assessment for the daily fob Australia alumina index is published at 4pm London time and the price assessment for the weekly fob Brazil (adjustment) is published at 4pm London time. The deadline for data submission for both is 3pm London time. For the daily fob Australia alumina index, the data collection window runs for the 24 hours prior to the 3pm data submission deadline. Data received after this time will not be included in the price assessment. The published prices are reflective of the levels seen during this stated collection period.

All the reference units, such as currencies and volumes units used in the indices, are in line with recognised

alumina market conventions and the reference units used in these markets. All index specifications have a minimum volume size accepted.

Data contribution

Any market participant actively involved in the physical alumina spot market may become a data contributor following a review by Fastmarkets MB 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 MB 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 alumina.

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

Fastmarkets MB'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 MB's website or is available upon request.

Fastmarkets MB 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 alumina. 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, allowing the crosschecking of the pricing information received. All data supplied to Fastmarkets MB is kept strictly confidential; it is stored in our secure online pricing database system, MInD (Metals Information Database). Fastmarkets MB may sign Data Submitter Agreements (DSAs) with any data provider, if requested to do so, 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 MB follows the procedure for adding new sources into MInD.

Data analysis using specifications and expert judgment

Fastmarkets MB uses its expert judgment to exclude prior to inclusion in the model unrepresentative numbers and discard prices that it believes may otherwise be questionable and unreliable and/or when deciding to use fall-back procedures.

In exercising expert judgment, the following guidelines 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 that correctly represents the market?

The Fastmarkets MB's alumina indices have been specifically constructed to automatically exclude outlier data. All data points that fall greater than 4% away from an initial calculated index are automatically excluded; the index is then recalculated. Outliers will be investigated; suspected attempts to influence the index unfairly may result in the data provider being warned or excluded.

Index calculation

The Alumina Indices are tonnage-weighted calculations, where actual transactions carry full weight as reflected by the reported volume, while offers, bids and market participants' own estimates of the market are weighted at the specified minimum tonnage for the respective index.

Fastmarkets MB aims to collect full details of each transaction including brand, commercial terms and any other details relevant to value and pricing.

Market balance

The Alumina Index methodology is designed to provide market participants with a fair and robust reflection of the physical alumina spot price level. The methodology incorporates structures and mechanisms to ensure a balanced and consistent calculation that is able to resist possible undue influences.

The Alumina Indices are structured to balance the influence of both sides of the market. This reduces the potential risk of market distortions and bias in the data and ensures that all parts of the market have the same influence on the final index calculation.

The published Index figure is the straight average of two sub-indices, each of which contains data from either the buy side or sell side of the market. Each sub-index is a tonnage-weighted calculation of normalized price data. Only the final Indices are published. The use of two sub-indices means that each part of the market has a maximum of 50% weighting in the final index. This removes the possibility of bias or any single data provider having an overbearing influence on the final Index.

Normalization

The base specification of the fob Australia index has been developed in consultation with the market to reflect the reality of the physical spot market in the Pacific.

Although Australia-origin alumina is the most commonly traded material in the spot market, trader from other approved location can be used in the index calculation. Currently, we also accept trades from India, Vietnam and Indonesia given the increasing frequency of trades from these countries.

Data relating to spot trades outside the fob Bunbury, Australia base specification is normalized using in-house developed models based on regression analysis of the collected data points.

The normalization coefficients for the daily index are updated every month to reflect the changing relationship of smelter-grade alumina from differing origins.

All normalization coefficients are subject to peer review and are signed off by a senior member of Fastmarkets' editorial or index teams.

Payment terms are based on typical commercial practice in the alumina spot market. Transactions that are conducted on different payment or credit terms can be normalized, taking into account discounts, interest rates and standard commercial terms.

A typical example is a data point that is adjusted due to Incoterms (International Commercial Terms) differing from Fastmarkets MB's specifications. For example, a data contributor will report a transaction done with an aluminium smelter on cif basis, as opposed to the fob incoterm specified in Fastmarkets MB's methodology. In such an instance, Fastmarkets MB will normalize the transaction's value by subtracting the cost of shipping the material to the delivery port. To calculate that cost, Fastmarkets MB will ask the data contributor to net back the transaction to an fob basis as well as using its own cost estimate, which is regularly assessed and reviewed by its dedicated price reporters. Fastmarkets MB reserves the right to exercise editorial judgment to net transactions back to typical commercial terms.

Brazil alumina deal criteria

Deals within the 60-day loading window will receive full tonnage weighting in the index, for example 30,000 tonnes.

Deals loading beyond 60 days but within 90 days will receive minimum tonnage weighting of 5,000 tonnes in the index.

This 60-90 day window only applies for the Brazil alumina index, and does not impact the window for deals on the Australian alumina index, which is 60 days.

This change was implemented from April 2023 following a market consultation.

Criteria for discarding pricing data

Fastmarkets MB uses its expert judgment to exclude prior to inclusion in the model unrepresentative numbers and 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 MB 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 MB will seek to corroborate the information it receives by matching trades. So if, for example, a seller claims to have sold a certain volume of alumina at a certain price, Fastmarkets MB will attempt to speak to the buyer involved in the transaction to confirm that it took place and the terms thereof.

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

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

Additionally, Fastmarkets MB's indices have been specifically constructed to automatically exclude outlier data. All data points that fall greater than 4% away from the initial calculation of the index are automatically excluded. The index is then recalculated.

Index calculation in periods of low data liquidity

All Alumina Indices are calculated based on price data collected from the market. The indices are set up so that actual transactions have the greatest effect on the final calculated price.

Fastmarkets MB aims to calculate each index based on a robust data set and will therefore, where necessary, look to utilise price data including assessments, offers and bids collected from the market. Data points that do not represent actual transactions will be entered into the indices like transaction data but will be weighted according to the lowest tonnage permissible for the respective index.

Fastmarkets MB does not specify a minimum amount of transaction data, or a transaction data threshold, required for the publication of its indices because liquidity can vary in the alumina market.

In the instance that no confirmed transaction data is reported first hand (by either the buyer or seller) on a given day, Fastmarkets MB will carry over data relating to the last confirmed trade in the relevant sub-index.

Having taken the above step, and in the event that in a particular pricing session the dataset collected is not considered suitably robust (such as too few data points on the day) for the calculation of a particular index, Fastmarkets MB will implement the following fall-back procedures (1-7) until a suitable number of data points is reached to calculate the index:

1. Carry over transaction data from other sub-indices in same calculation period.
2. Carry over non-transaction data from other sub-indices in same calculation period.
3. Carry over transaction data from the previous calculation in the appropriate sub-index.
4. Carry over transaction data from the previous calculation from any sub-index .
5. Carry over non-transaction data from the previous calculation in the appropriate sub-index.
6. Carry over non-transaction data from the previous calculation from any sub-index.
7. If no price data can be collected then the index price will be carried over.

Implementation of fall-back procedures does not affect the tonnage weighting of the original data point.

In the unlikely situation that 50% or more of the pricing data collected on a day is provided by a single source, Fastmarkets MB will use the fallback procedures above to ensure there is not dependency on a significant proportion of data being provided by a single entity.

Publication

The fob Bunbury, Australia Index is published Monday to Friday at 4pm, London time. Where public holidays occur, the fob, Bunbury Australia Index will not be published.

The fob Vila do Conde, Brazil (adjustment) Index will be published weekly on a Thursday. The weekly adjustment will be applied daily to the fob Bunbury, Australia index until the adjustment is recalculated.

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

Fastmarkets also publishes daily pricing rationales to explain the data behind the index calculation and editorial judgments. These notes explain, for instance,

why price reporters may conclude that anomalous or suspicious data should be excluded or when judgment has been applied when the dataset collected is not considered suitably robust so that fall-back procedures need to be applied.

Indices are not published on England and Wales public holidays but will be published on the following working day.

Please refer to the [pricing holiday schedule](#) for this year's public holidays

Corrections and delays

If an index is published incorrectly, it will be rectified and republished as soon as possible. A correction notice will be sent to all subscribers.

Fastmarkets MB employs several procedures and measures to avoid delays in the publication of its indices. In the event of a delay, however, Fastmarkets MB will inform subscribers as soon as possible.

In the event of late publication, only data that has been received within the correct standard timeframe will be included in the calculations. No indices will be amended due to the emergence of new data or market activity after the initial publication. Retrospective changes to the published values will only be made in cases of administrative or calculation error.

Methodology and price specifications review process

Fastmarkets' editorial teams carry out a formal review of its methodologies on an annual basis.

The process starts with an open consultation in which feedback is invited from users. Further consultation follows should any material change to the methodology be proposed. Material changes are those that, once implemented, may result in fundamental changes to the published price.

At the end of the consultation process, the editorial teams review any feedback received and decide on whether a change should be made before announcing and explaining that decision to the market via a pricing notice/coverage note.

The editorial teams may also suggest changes or additions to methodologies on an ad-hoc basis to reflect market developments, in which case they will follow the same process as outlined for formal reviews.

For more details, please refer to Fastmarkets' Methodology Review and Change Consultation Process document available on the Fastmarkets website, as well as on divisional websites such as Fastmarkets MB or Fastmarkets FOEX.

Procedure to ensure consistency in the price discovery procedures

Fastmarkets MB aims to maintain the highest standards in the provision of prices to the global metals industry. All Fastmarkets MB pricing employees are required to adhere to Fastmarkets MB's code of conduct and Pricing Guidelines.

Prior to publication all indices are subject to peer review and are signed off by a senior member of Fastmarkets MB's editorial or index teams. This peer-review process 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. Full details of data inputs and calculations are stored in Fastmarkets MB's electronic database and may be accessed at any time for internal review and auditing purposes.

Index-related queries and complaints

Fastmarkets MB encourages engagement from the market on its pricing principles and methodology. The company promotes understanding of its calculation 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 index team including email, telephone and instant messenger services.

If a subscriber has an issue with the published prices, then they may contact the index 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 MB's Complaint Handling Policy available on Fastmarkets MB's website.

Fastmarkets MB 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 calculation models and input data remain confidential and cannot be provided to third parties.

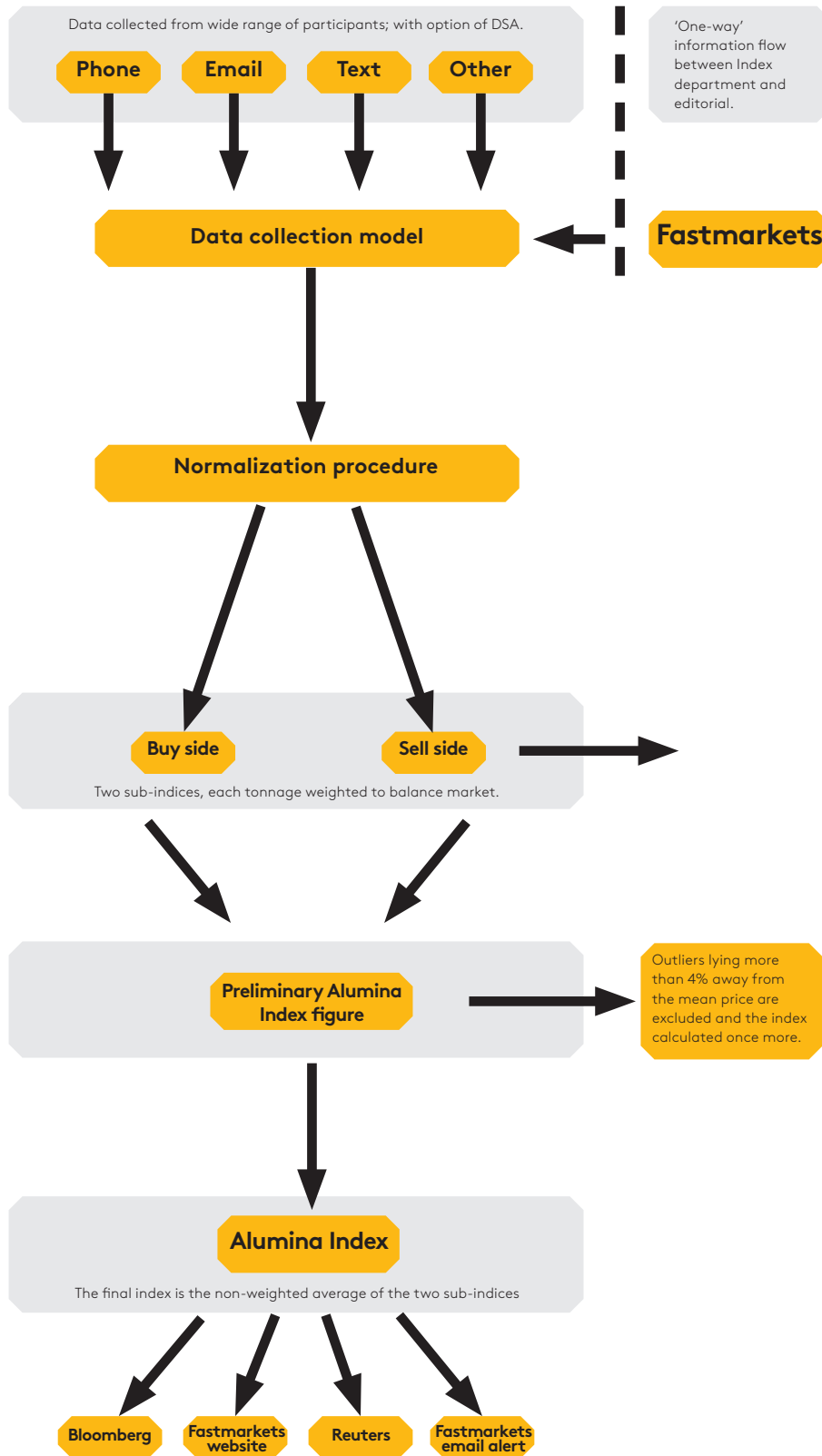
Become a contributor to the price discovery process

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

Fastmarkets MB's Data Submitter Policy provides guidelines defining the high level of data quality and integrity that Fastmarkets MB expects. Market participants that wish to provide pricing data and be part of the price discovery process should first read the Data Submitter Policy, which is 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 MB Alumina team.



Alumina indices

AUSTRALIA

MB-ALU-0002	Alumina index, fob Australia, \$/tonne
Quality:	Smelter-grade alumina, minimum purity of 98.5% Al ₂ O ₃
Quantity:	Min 5,000 tonnes
Location:	fob Bunbury/Kwinana, Australia (other Pacific origins normalized)
Timing:	Within two months
Unit:	US\$ per dry metric tonne (dmt)
Payment terms:	30 days after loading
Publication:	Daily at 4pm London time
Notes:	Bulk carrier. Data history from Augusts 2010

BRAZIL

MB-ALU-0003	Alumina index adjustment to fob Australia index, Brazil, \$/dmt
Quality:	Smelter-grade alumina, minimum purity of 98.5% Al ₂ O ₃
Quantity:	Min 5,000 tonnes
Location:	fob Vila do Conde, Brazil (other Pacific origins normalized)
Timing:	Within two months
Unit:	US\$ per dry metric tonne (dmt)
Payment terms:	30 days after loading
Publication:	Weekly. Thursday, 4pm London time
Notes:	Bulk carrier. Deals concluded for loading within 60-90 days will be given minimum tonnage weighting in the index.

Additionally, the fob Brazil price will be published as an inferred index using the calculated discount (or premium): **MB-ALU-0010 Alumina index inferred, fob Brazil, \$/dmt**

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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.