

# Cobalt Hydroxide Index



Methodology and price  
specifications – August 2021

## Mission statement

Fastmarkets is a leading commodity price reporting agency (PRA) covering the metals, mining, minerals, agriculture and forest products industries. Our products include Fastmarkets MB, Fastmarkets AMM, Fastmarkets IM, Fastmarkets RISI, Fastmarkets FOEX, Random Lengths, Fastmarkets Agricensus and The Jacobsen. 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 data requirements of the markets we cover honestly and independently, acting with integrity and care to ensure that the trust and confidence placed in the reliability of our pricing methodologies are 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 Cobalt Hydroxide Index methodology and specification.

If you have any questions, please contact Fastmarkets editorial director Alex Harrison at [aharrison@fastmarkets.com](mailto:aharrison@fastmarkets.com).

## Price discovery and methodology

### Methodology rationale

The primary role of the Cobalt Hydroxide Index is to provide market participants with a fair and robust representation of the physical cobalt hydroxide price on a cif China basis.

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 cobalt hydroxide market's requirement for a transparent pricing mechanism.

The index aims to be both reflective of the price levels seen during the data collection time period, or window, and a reliable indicator of value of the market to which it relates.

The cobalt hydroxide 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 Cobalt Hydroxide Index methodology has been designed to meet the requirements of the financial market as well as the physical market.

## 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 cobalt hydroxide spot market may contribute data to the index 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 uses multiple channels to collect data, including phone calls, email, and digital messenger services across our offices in London, Shanghai, Beijing, Singapore and Sao Paulo.

### 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 cobalt hydroxide – once a week – was determined after considering the number of data points that Fastmarkets MB 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 of the physical cobalt hydroxide market.

The index is published between 2pm and 3pm and the deadline for data submission is 2pm London time every Friday.. The data collection window runs for the week prior to the 2pm data submission deadline. Data received after this time will not be included in the calculation of the index. The index will be reflective of the prices collected during the window.

All the reference units used in the index, such as currencies and volumes, are in line with recognised cobalt hydroxide market conventions and the reference units used in these markets. All index specifications have a minimum acceptable volume.

### Data contribution

Any market participant actively involved in the physical cobalt hydroxide 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, traders and distributors who are selling or buying cobalt hydroxide.

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

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 cobalt hydroxide. 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 to crosscheck the pricing information received. All data supplied to Fastmarkets MB is kept strictly confidential and 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, 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 MB follows the procedure for adding new sources into MInD.

### Data analysis

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?

## Index calculation

The Cobalt Hydroxide Index is a tonnage-weighted calculation, 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.

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 Cobalt Hydroxide Index is designed to provide market participants with a fair and robust reflection of the physical cobalt hydroxide spot price level. The methodology incorporates structures and mechanisms to ensure a balanced and consistent calculation, which is able to resist possible undue influences.

The Cobalt Hydroxide Index is 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 index is 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

Some material traded on the cobalt hydroxide spot market differs from the base specification of the indices. If necessary, this price data may require normalization to determine the equivalent price for the base specification of this index. Material that falls within the target specification range is normalized to the index base specification and port of delivery or origin. The base specifications and ranges have been chosen following consultation with the market to reflect the reality of the physical spot market.

If necessary, data may be normalized to the base specifications using in-house models based on regression analysis of the collected data points. The analysis allows Fastmarkets MB to capture the value-in-use applied by the market to different materials, and to normalize to a single specification. This normalization process also allows Fastmarkets MB to capture and normalize variables outside of the chemical and physical properties such as values associated with regional origin and productspecific factors.

Specification payment terms are based on typical commercial practice in the cobalt hydroxide 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.

## Criteria for discarding pricing data and the removal of outlier 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.

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.

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

Fastmarkets MB has constructed its Cobalt Hydroxide Index to exclude outlier data automatically. All data points that fall more than 10% away from the 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 in periods of low data liquidity

The Cobalt Hydroxide Index is 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.

Since Fastmarkets MB aims to calculate each index using a robust data set, it will therefore look to use price data including estimates, indications, offers and bids collected from the market. Data points that do not reflect actual transactions will be inserted into the indices in the same way as transaction data but will be weighted according to the lowest tonnage permissible for the 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 cobalt hydroxide market.

In the event that in a particular pricing session the dataset collected is not considered suitably robust (such as there being too few data points) for the calculation of an index, Fastmarkets 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, the index price will be carried over

The implementation of fall-back procedures does not affect the tonnage weighting of the original data point. In the unlikely situation that more than half of the pricing data collected on one day is provided by a single source, Fastmarkets will use the fall-back procedures 3-7 (see above) to ensure there is not a dependency on a significant proportion of data (of 50% or more) being provided by a single entity.

## Publication

Fastmarkets MB's Cobalt Hydroxide Index is published every Friday between 2pm and 3pm London time (the data collection window closes at 2pm).

Fastmarkets also publishes weekly pricing rationales to explain the data behind the index calculation and editorial judgment. These notes explain, for instance, why price reporters may conclude whether 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.

Where the pricing day falls on a public holiday in England and Wales, the index will be published on the closest working day preceding that date.

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

### Corrections and delays

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

To minimise as much as possible the inconvenience to our subscribers, Fastmarkets MB aims to investigate each error immediately as it becomes aware of it and to publish a correction promptly on its website through a pricing notice that provides the reason for the correction.

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 will publish a correction of a price only where it has established that undeniably there has been an error.

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 specification review process

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

Fastmarkets' editorial teams carry out a formal review and approval of the methodologies at least on an annual basis.

Any change to the methodology and/or price specifications are implemented following a consultation process which starts with Fastmarkets MB 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.

For more details on the formal periodic review of the methodology and details of the consultation process to propose changes to the methodology, refer to Fastmarkets MB's Internal and External Review Process and its Change to the Methodology Consultation Process documents on the [Fastmarkets.com](#) website.

### Procedure to ensure consistency in the price discovery procedures

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

All indices are subject to peer review prior to publication 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 editorial 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 for 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](#) on Fastmarkets.com.

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 Fastmarkets MB editorial director Alex Harrison at [aharrison@fastmarkets.com](mailto:aharrison@fastmarkets.com).

## Specification

# Cobalt hydroxide index

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**CHINA****MB-CO-0020****Cobalt hydroxide index 30% Co min, cif China, \$/lb**

Quality:	Units produced from large-scale mining activity, with the following chemical composition: Co 30% min, Mn 6.5% max, Mg 6.5% max, S 5% max; Cd 100ppm max; limited concentration of natural radioactivity: GB20664-2006 (suitable for customs clearance into China).
Quantity:	Min 50 tonnes (cobalt content)
Location:	cif China (other terms normalized)
Timing:	45 days
Unit:	USD/lb
Payment terms:	Letter of credit at sight, current price month ('M')
Publication time:	Weekly, 2-3pm London time

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