Mission statement

Fastmarkets is a leading commodity price reporting agency (PRA) covering the metals, mining, minerals and forest products industries. 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 Ferro-chrome methodology and specifications for the prices it assesses.

If you have any questions, please contact Fastmarkets editorial director Alex Harrison at aharrison@fastmarkets.com.
Price discovery and methodology

Methodology rationale
The primary role of the Fastmarkets MB Ferro-chrome Index is to provide market participants with a fair and robust representation of the physical Ferro-chrome 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 ferro-chrome market’s requirement for a transparent pricing mechanism.

The Index aims to be reflective of the price levels seen during the data collection time period or window and to be a reliable indicator of value of the Ferro-chrome market they relate to. The data collection period taken into consideration to calculate the Index, e.g. 7 days, is determined by Fastmarkets MB 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 index calculation process.

The Ferro-chrome 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 it remains as representative of the market as possible.

The Fastmarkets MB Ferro-chrome Index methodology has been designed to meet the requirements of the financial market as well as the physical market.

Data collection and quality
The basis of all our indices is the data provided by the market. In order 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 Ferro-chrome 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 utilises a number of 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 2pm London time. Data received after this time will not be included in the calculation of the Index. The data collection window runs for the seven days prior to the 2pm data submission deadline. Only price data submitted and communicated to Fastmarkets MB within the seven-day window will be included in the calculation of the Index. The indices are reflective of the price levels seen during this stated collection period.

All the reference units, such as currencies and volumes units used in the Index, are in line with recognised Ferro-chrome market conventions and the reference units used in these markets. All index specifications have a minimum volume size accepted.

All data supplied to Fastmarkets MB Ferro-chrome Index is kept strictly confidential. Fastmarkets MB Index may sign Data Submitter Agreements (DSAs) upon request with any data provider.

Index calculation
The Fastmarkets MB Ferro-chrome 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 assessment 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 Fastmarkets MB Ferro-chrome Index methodology is designed to provide market participants with a fair and robust reflection of the physical Ferro-chrome 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 Fastmarkets MB Ferro-chrome 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 contain data from either the buy side or sell side of the market. Each sub-index is a tonnage-weighted calculation of normalised price data. Only the final Index is published. The use of two sub-Index 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.

Normalisation
Material that differs from the base specification will be normalised back to the base specification grade of smelter/metallurgical grade Ferro-chrome. In addition, trades will be normalised for freight based on port of loading. Trades will be adjusted for loading in regional ports other than the base specification port before normalisation for grade (if required). The freight normalisation will be based on the relevant freight route, with data supplied by a leading global freight broker.

Payment terms are based on typical commercial practice in the Ferro-chrome 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.

Criteria to discard pricing data and 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.

Furthermore the Fastmarkets MB Ferro-chrome Index has been specifically constructed to automatically exclude outlier data. All data points that fall greater than 10% away from an initial calculated Index are automatically excluded, and the index recalculated. Outliers will be investigated, and suspected attempts to unfairly influence the Index may result in the data provider being warned or excluded.

Fastmarkets MB reserves the right to see contracts and signed paperwork before inclusion of the data in the calculation. If this is refused, the data supplied may be excluded from the calculation process. Fastmarkets MB reserves the right to exclude data that is not fairly presented or is believed to be an effort to distort the index.

Index calculation during periods of low liquidity
The Fastmarkets MB Ferro-chrome Index is calculated based on price data collected from the market. The Index is 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 as such will, 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 Index 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 Index as liquidity varies across the Ferro-chrome 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

The Fastmarkets MB Ferro-chrome Index is published Friday at 3pm London time.

Indices are not published on England and Wales bank holidays. England and Wales bank holidays* 2018-2019 are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>1 January</td>
<td>New Year’s Day</td>
</tr>
<tr>
<td></td>
<td>19 April</td>
<td>Good Friday</td>
</tr>
<tr>
<td></td>
<td>22 April</td>
<td>Easter Monday</td>
</tr>
<tr>
<td></td>
<td>6 May</td>
<td>Early May bank holiday</td>
</tr>
<tr>
<td></td>
<td>27 May</td>
<td>Spring bank holiday</td>
</tr>
<tr>
<td></td>
<td>26 August</td>
<td>Summer bank holiday</td>
</tr>
<tr>
<td></td>
<td>25 December</td>
<td>Christmas Day</td>
</tr>
<tr>
<td></td>
<td>26 December</td>
<td>Boxing Day</td>
</tr>
</tbody>
</table>

*source: www.gov.uk

Where public holidays occur on a Friday, the Index will be published on the following working day.

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 a number of procedures and measures to avoid delays in the publication of its Index. However, in the event of a delay occurring, 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 Index 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 specification review process

Fastmarkets MB aims to continually develop and periodically revise 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 Ferro-chrome industry.

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 the Fastmarkets Internal and External Review Process and Fastmarkets MB’s Change to the Methodology Consultation Process documents available on Fastmarkets MB’s website.

Procedure to ensure consistency in the price discovery process

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.

Prior to publication all Index are subject to peer review and are signed off by a senior member of the editorial or index team. 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 with 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 department 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.

**Specification**

**Ferro-chrome Index**

<table>
<thead>
<tr>
<th>Index</th>
<th>Ferro-chrome Index US$ per lb contained Cr, cif Shanghai, duty unpaid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions:</td>
<td>Sizing up to 1mm (95% min)</td>
</tr>
<tr>
<td>Quantity:</td>
<td>1,000 tonnes minimum</td>
</tr>
<tr>
<td>Location:</td>
<td>CIF China</td>
</tr>
<tr>
<td>Origin:</td>
<td>South Africa</td>
</tr>
<tr>
<td>Delivery method:</td>
<td>Seaborne</td>
</tr>
<tr>
<td>Delivery port:</td>
<td>Shanghai (other ports normalised)</td>
</tr>
<tr>
<td>Unit:</td>
<td>USD per lb contained Cr</td>
</tr>
<tr>
<td>Timing:</td>
<td>Within 6 weeks</td>
</tr>
<tr>
<td>Content:</td>
<td>Chrome - base 50%, range 48-52%</td>
</tr>
<tr>
<td></td>
<td>Carbon - base 7%, max 9%</td>
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<tr>
<td></td>
<td>Silicon - base 3% max 6%</td>
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<td></td>
<td>Phosphorous - max 0.03%</td>
</tr>
<tr>
<td></td>
<td>Sulfur - max 0.06%</td>
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<tr>
<td>Form:</td>
<td>Lump</td>
</tr>
<tr>
<td>Packaging:</td>
<td>Bulk (container deals normalised to bulk prices)</td>
</tr>
<tr>
<td>Payment terms:</td>
<td>LC on sight</td>
</tr>
<tr>
<td>Publication:</td>
<td>Friday 3pm London time</td>
</tr>
<tr>
<td>Data history:</td>
<td>May 2012</td>
</tr>
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Contacts

For more information about the Fastmarkets MB Ferrochrome Index please do not hesitate to contact the Fastmarkets MB team:

London

Fleur Ritzema  
+44 20 7827 6460  
fritzema@fastmarkets.com

Charlotte Radford  
+44 20 7827 6463  
charlotte.radford@fastmarkets.com

Jon Stibbs  
+44 20 7827 6447  
jon.stibbs@fastmarkets.com

Shanghai

Anna Xu  
+86 21 5877 0857-54  
anna.xu@fastmarkets.com

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