

# Metal Bulletin Iron Ore Index



## Metal Bulletin Iron Ore Index Guide

Methodology, Specifications and Usage

September 2015

Revised and Updated



# Metal Bulletin Iron Ore Index Guide

## Methodology, Specifications and Usage - September 2015

This guide is intended to introduce market participants to the Iron Ore Indices provided by Metal Bulletin.

### About Metal Bulletin

Metal Bulletin is the premier global intelligence service for metals and steel professionals. It was founded in 1913 with the mission to provide must-have timely information, including price indications, for the global metals markets. Metal Bulletin covers all global metals and steel markets and provides a comprehensive package of the latest news, pricing information, expert market commentary and statistics.

Metal Bulletin is wholly owned by Euromoney Institutional Investor PLC, a constituent of the FTSE 250 Index, and itself majority owned by Daily Mail and General Trust. The Metal Bulletin Group, which today incorporates **Metal Bulletin, Steel First and American Metal Market** has been reporting on iron ore transactions since 1915 and were instrumental in the development of the annual benchmark system. Metal Bulletin has been tracking the Chinese iron ore spot market since its creation in 2004. As the market developed and liquidity increased, Metal Bulletin responded to market demands for a more robust pricing methodology, and led the development of index pricing.

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This document dated September 2015 supersedes all previous Metal Bulletin iron ore index methodology documents. The most up-to-date methodology will always be available to download at: [www.mbioi.com](http://www.mbioi.com)

# Metal Bulletin Iron Ore Index

This updated edition of Metal Bulletin's Iron Ore Index Guide contains a number of new developments in Metal Bulletin's Iron Ore Index offering. The guide has also been updated to provide improved clarity on the methodology and processes involved in the calculation of the indices. New additions to the guide are:

1. **Increase in phosphorus base specification in the 62% Fe Fines Index (MBIOI-62) to 0.10% Phosphorus.** This has been done following a period of market feedback on the proposal dated 10th July 2015 and an updated proposal dated 29th July 2015.

Due to changes over time in the composition of the iron ore market, and the chemistry of key products, Metal Bulletin proposed to adjust the phosphorous base specification of the MBIOI-62 benchmark. This was primarily due to product quality deterioration, particularly in Australia, where typical phosphorous levels have risen across most of the key products. Compounding this, the arrival of new high-phosphorous products to the market has further elevated the average phosphorous levels observed in the data that makes up the index.

2. **Increase in phosphorus base specification in the 62% Fe Port Stock Price (MBIOI-CPS) to 0.10% Phosphorus.** This has been done to mirror the change in the 62% Fe Fines Index. The normalised chemistry specification is identical to the benchmark 62% Fe CFR fines index in order to provide the best possible opportunity for comparison.
3. **Introduction of a deadline for data submission for inclusion in the indices.** This has been set at 6.45pm Singapore time. Any data received after this time will be included in the next publication of the Index.
4. **Update of publication schedule for indices.** Introduction to calendar of new public holidays in Singapore.

Metal Bulletin publishes twelve individual iron ore indices, each representing different parts of, and values in, the iron ore market.

1. 62% Fe Fines (MBIOI-62)
2. 58% Fe Fines (MBIOI-58)
3. 58% Fe Fines High Specification Premium (MBIOI-58P)
4. 65% Fe Fines Brazilian Origin Index (MBIOI-65-BZ)
5. 63% Fe Australian Lump Premium (MBIOI-LP)
6. 65% Fe Blast Furnace Pellet (MBIOI-PT)
7. 66% Fe Concentrate (MBIOI-CO)
8. 62% Fe China Port Stock Index (MBIOI-CPS)

#### Four Value-in-Use Indices:

9. 62% Fe (Fe-VIU)
10. 65% Fe (65Fe-VIU)
11. % Silica (Si-VIU)
12. % Alumina (Al-VIU)



# Metal Bulletin Iron Ore Index

## MBIOI Usage Guide

### Physical Market

Metal Bulletin Iron Ore Indices are widely used in the physical market as benchmark prices for a number of prominent iron ore products. The MBIOI-58 Premium and the MBIOI-65-BZ are also routinely applied in transactions concluded on the GlobalORE and COREX trading platforms.

The primary role of the Metal Bulletin Iron Ore Indices is to provide market participants with a fair and robust representation of the physical iron ore spot market.

All of the Metal Bulletin Iron Ore Indices are calculated separately as stand-alone indices and reflect the market-implied value of the published specifications.

The global benchmark pricing system for iron ore ended in 2009 and since then the vast majority of transactions have been linked to spot prices. Metal Bulletin supports the process of price discovery through its established and independent position in the metals market.

The iron ore market is constantly developing. Metal Bulletin 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.

Metal Bulletin will look to develop and introduce new indices in response to market demands and changes in pricing dynamics with respect to different types and grades of iron ore.

### Financial Market

The Metal Bulletin 58% Fe Premium Index is used by the Singapore Exchange (SGX) as the settlement price for 58% Fe iron ore derivatives.

The Metal Bulletin Iron Ore Index methodology has been designed to meet the requirements of the financial market as well as the physical market.

There are a number of key requirements that the Metal Bulletin Iron Ore Indices satisfy for use in the financial market.

These include the need for the index calculation to be a repeatable, mechanistic process with the removal of human judgment, and one that it is fully auditable.

The volatility that now exists in iron ore spot prices has led to the development of a financial market in iron ore, which continues to see rapid growth in both liquidity and breadth of use, and permits hedging and risk management.

## Methodology

### DATA PROVISION AND QUALITY

The basis of all our Indices is the data provided by the market. In order to provide the most representative pricing for the market, it is essential we are able to collect as many representative data points as possible.

Any market participant involved in the physical iron ore market may be able to contribute data to the Indices following a review by Metal Bulletin of their activities. Metal Bulletin aims to engage a broad and balanced range of physical market participants in the provision of data.

All data sources are subject to review before being able to submit price data to the Indices. The aim is to make sure that submitters have sufficient visibility and understanding of the market to be able to provide reliable price data.

Metal Bulletin encourages provision of data from employees in back office functions. Data may be provided from anyone authorised by the company to submit data and details of the submitter are recorded for contact and clarification purposes.

### Data Sources

Metal Bulletin utilises a number of methods to collect data. These include phone calls, email, website input and messenger services across our offices in Singapore, Shanghai, London and Sao Paulo. The deadline for data submission is 6.45pm Singapore time. Any data received after this time will be included in the next publication of the Index.

The Metal Bulletin Iron Ore Indices are tonnage-weighted calculations, based on actual transactions.

# Metal Bulletin Iron Ore Index

Metal Bulletin will also collect assessments, offers and bids from the market to supplement transaction data. If included, this non-transaction price data will be weighted at the specified minimum tonnage for the respective Index. Metal Bulletin aims to collect full details of each transaction including brand, commercial terms and any other details relevant to value and pricing.

In China, Metal Bulletin has partnered with Shanghai Steelhome, a leading independent market intelligence, data and consultancy company covering the Chinese steel industry. Steelhome supplies daily transaction price data from its widespread contact base of steel producers and iron ore traders within China. This price data is integrated into the Metal Bulletin Index model.

The development of electronic trading platforms has led to a number of changes in the iron ore spot market. Metal Bulletin will include price data from both GlobalORE and COREX in Index calculations.

## Confidentiality and Data Protection

The primary channel for data provision to the Metal Bulletin Iron Ore Indices is from market participants by email to a single mailbox accessible only to our index analysts.

All data supplied to Metal Bulletin Iron Ore Indices is strictly confidential and access is restricted to our Index analysts. Metal Bulletin Iron Ore Indices will sign Non-Disclosure Agreements (NDA) upon request with any data provider. All data is stored on secure servers.

## INDEX CALCULATION

The Metal Bulletin Iron Ore Index methodology is designed to provide market participants with a fair and robust reflection of the physical iron ore spot price level. The methodology incorporates structures and mechanisms to ensure a balanced and consistent calculation, which is able to resist possible undue influences.

## Market Balance

The Metal Bulletin Iron Ore Indices\* are structured to balance the influence of all 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 three sub-indices, each of which contain data from a single part of the market; producers (miners), consumers (mills) and traders. Each sub-index is a tonnage-weighted calculation of price data normalised for product specification and freight. Only the final Indices are published. The use of three sub-indices means that each part of the market has exactly the same influence on the final price as any other therefore removing the possibility of bias or any single data provider having an overbearing influence on the final Index.

Transaction data received via GlobalORE and COREX will be entered into each sub-index. This reflects the balanced nature of ownership of the platforms.

## Normalisation

Nearly all material traded on the iron ore spot market differs from the base specification of the Indices. This price data requires normalisation in order to determine the equivalent price for the respective Index base specification.

Material that falls within the target specification range is normalised to the Index base specification and port of delivery. The base specifications and ranges have been chosen following consultation with the market to reflect the reality of the physical spot market.

Data is normalised to the base specifications using in-house developed models based on regression analysis of the collected data points. The analysis allows Metal Bulletin to capture the value-in-use applied by the market to different materials, and normalise to a single specification. This normalisation process allows Metal Bulletin to capture and normalise factors outside of the chemical and physical properties such as values associated with individual brands.

The normalisation coefficients for the daily Indices are updated every month to reflect the constantly changing value-in-use relationship of different products and grades. Weekly iron ore Indices have their normalisation coefficients updated every quarter. This reflects different levels of data liquidity between the markets. Our aim is to balance the requirement to keep the value-in-use calculations reflective of the market, and also provide a statistically robust data set for analysis.

\*Exception being China Port Stock Index - see page 12

# MetalBulletin



## Iron Ore Index

Payment terms are based on typical commercial practice in the iron ore 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.

Material in different physical forms is excluded as appropriate from the index in question. Domestic Chinese material, and material imported by routes other than by sea, for example by train or truck, is also excluded. Material that has been delivered and is held on stockpile at the dock is also excluded except in the China Port Stock Index.

### Removal of Outlier Data

The Metal Bulletin Iron Ore Indices have been specifically constructed to automatically exclude outlier data. All data points that fall greater than 4% away from the 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.

Metal Bulletin reserves the right to see contracts and signed paperwork before inclusion of the data in the calculation. If this is refused, then the data, and the data supplier, may be excluded from the data collection process. Metal Bulletin reserves the right to exclude data that is not fairly presented or is believed may be an effort to distort the Index.

### Index Calculation During Periods of Low Data Liquidity

All Metal Bulletin Iron Ore 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.

Metal Bulletin 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 Indices like transaction data but will be weighted according to the lowest tonnage permissible for the respective index.

Metal Bulletin does not specify a minimum amount of transaction data, or a transaction data threshold, required for the publication of its Indices as liquidity varies across the iron ore markets.

In the event that a data set is not considered suitably robust for the calculation of a particular index, Metal Bulletin will use the following methods in order, to calculate the Index:

1. Carry over verified transaction data from other sub-indices on the day.
2. Carry over assessment data from other sub-indices on the day.
3. Carry over verified transaction data from the previous day in the appropriate sub-index.
4. Carry over verified transaction data from the previous day from any sub-index.
5. Carry over assessment data from the previous day in the appropriate sub-index.
6. Carry over offer/bid data from the previous day in the appropriate sub-index.
7. Carry over assessment data from the previous day from any sub-index.
8. Carry over offer/bid data from the previous day from any sub-index.
9. If no price data can be collected then the index price will be carried over.

### PUBLICATION

Daily indices are published at 7pm Singapore local time. Weekly indices are published Friday 7pm Singapore local time. Monthly Value in Use indices are published at 7pm on the first working day of the month.

Indices are not published on Singapore public holidays.

Singapore public holidays 2015\* are as follows:

- 1st January 2015 - New Year's Day
- 19th February 2015 - Chinese New Year
- 20th February 2015 - Chinese New Year
- 3rd April 2015 - Good Friday
- 1st May 2015 - Labour Day
- 1st June 2015 - Vesak Day
- 17th July 2015 - Hari Raya Puasa
- 7th August 2015 - SG50 Public Holiday
- 10th August 2015 - National Day
- 11th September 2015 - Polling Day
- 24th September 2015 - Hari Raya Haji
- 10th November 2015 - Deepavali
- 25th December 2015 - Christmas Day

\*source: [www.mom.gov.sg](http://www.mom.gov.sg)

# Metal Bulletin Iron Ore Index

Where public holidays occur on a Friday, the weekly indices will be published on the preceding working day and will reflect price data from that week's working days.

## 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.

Metal Bulletin employs a number of procedures and measures to avoid delays in the publication of its Indices. However, in the event of a delay occurring, Metal Bulletin will inform subscribers as soon as possible.

In the event of late publication only data that has been received within the correct standard time frame 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.

## Changes to the Methodology

Changes to the methodology and/or index specification may be implemented following a formal consultation process, which starts with Metal Bulletin 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 feedbacks and views about the change proposed.

Once a change has been confirmed Metal Bulletin will issue an updated pricing notice to the market, notifying them of the decision and specifying the date from which any change will become effective.

## CORPORATE STRUCTURE AND COMPLIANCE OVERSIGHT

Metal Bulletin aims to maintain the highest standards in the provision of prices to those involved in the global metals industry. All employees are required to adhere to Metal Bulletin's code of conduct and pricing guidelines.

All prices are subject to formal peer review and signed off by a senior employee before publication. Full details of data inputs and calculations are stored in Metal Bulletin's electronic database and

may be accessed at any time for internal review and auditing purposes.

All Metal Bulletin employees must state that they have no external involvement in any of the markets covered that may influence or be perceived to influence their work. Metal Bulletin has no financial interest in the level or direction of the Indices.

## Index Related Queries and Complaints

Metal Bulletin 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.

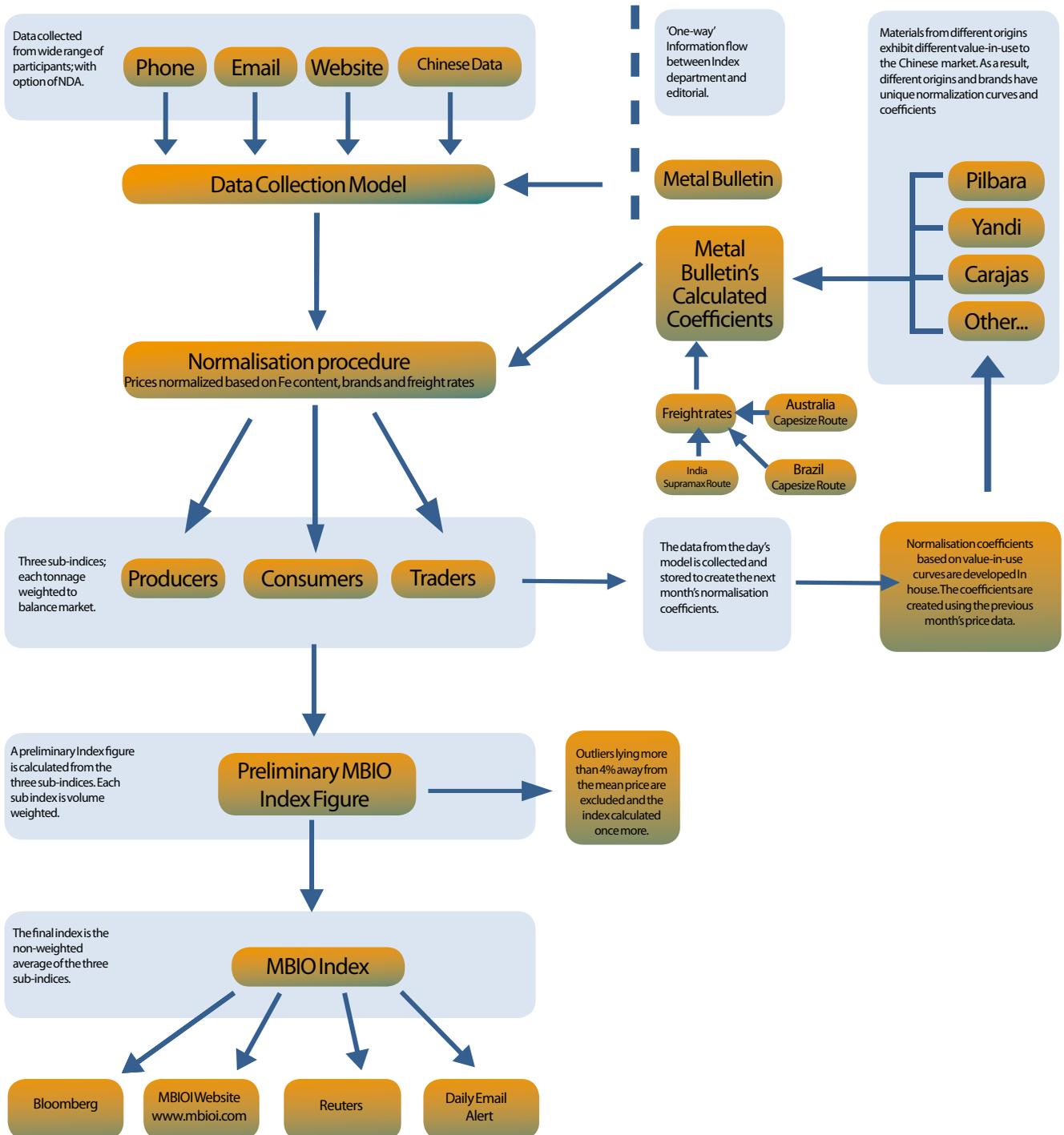
There are multiple channels for interaction with the Index department including email, telephone and instant messenger services.

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.

Metal Bulletin 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.

# Metal Bulletin Iron Ore Index

## Metal Bulletin Iron Ore Index: Capturing the relationship between different materials



# MetalBulletin Iron Ore Index

## 62%, 58% and 58% Premium, Fe Fines CFR Qingdao

The MBIOI-62 is a benchmark price representing the iron ore fines market. All transaction data within the specification ranges below, are normalised to the base specification based on the value-in-use implied by the market. The index is rounded to two decimal places. The MBIOI-62 is a daily index published at 7pm Singapore time.

The MBIOI-58 is a price representing the lower grade iron ore fines market. All prices within the specification maximums below are normalised to the base specification based on the value-in-use

implied by the market. The index is rounded to two decimal places. The MBIOI-58 is a daily index published at 7pm Singapore time.

In addition to the MBIOI-58, Metal Bulletin publishes a daily differential premium for 58% Fe high specification; low alumina and phosphorous material (MBIOI-58P). The MBIOI-62 and MBIOI-58 are rounded to two decimal places. The premium is rounded to the nearest \$0.50. The figure representing the combined MBIOI-58 and High Specification Premium is the **58% Fe Premium Index**.

### MBIOI - 62

#### Price

US\$ per dry metric tonne, CFR China

#### Material Origin

All Origins

#### Fe Content

Base 62%, Range 56% to 66%

#### Silica

Base 3.5%, Maximum 8.0%

#### Alumina

Base 2.0%, Maximum 4.0%

#### Phosphorus

Base 0.10%, Maximum 0.15%

#### Sulphur

Base 0.02%, Maximum 0.06%

#### Loss on Ignition (%DW)

Base 4.7%, Maximum 11.0%

#### Moisture

Base 8.0%, Maximum 10.0%

#### Granularity

Base Size >90% < 6.3mm, at least 90% <10.0mm, at most 40% <0.15mm

#### Trade Size

Minimum 30,000 tonnes

#### Payment Terms

Payment at sight, other terms normalised to base

#### Delivery Port

Base Qingdao, normalized for any Chinese mainland sea port

#### Delivery period

Within 8 weeks

#### Publication

Daily at 7pm Singapore time

#### Data History From:

May 2008

### MBIOI - 58

#### Price

US\$ per dry metric tonne, CFR China

#### Material Origin

All Origins

#### Fe Content

Base 58%, Range 56% to 60%

#### Silica

Base 5.5%, Maximum 9.0%

#### Alumina

Base 3.5%, Maximum 5.0%

#### Phosphorus

Base 0.08%, Maximum 0.15%

#### Sulphur

Base 0.04%, Maximum 0.07%

#### Moisture

Base 8.0%, Maximum 10.0%

#### Granularity

Base Size >90% < 6.3mm, at least 90% <10.0mm, at most 40% <0.15mm

#### Trade Size

Minimum 30,000 tonnes

#### Payment Terms

Payment at sight, other terms normalised to base

#### Delivery Port

Base Qingdao, normalized for any Chinese mainland sea port

#### Delivery period

Within 8 weeks

#### Publication

Daily at 7pm Singapore time

#### Data History From:

August 2011

### MBIOI - 58P (High Specification)

#### Price

US\$ per dry metric tonne, CFR China

#### Material Origin

All Origins

#### Fe Content

Base 58%

#### Silica

Base 5.5%

#### Alumina

Base 1.5%

#### Phosphorus

Base 0.05%

#### Sulphur

Base 0.01%

#### Moisture

Base 8.0%

#### Granularity

>90% <10.0mm

#### Trade Size

Minimum 30,000 tonnes

#### Payment Terms

Payment at sight

#### Delivery Port

Qingdao

#### Delivery period

Within 8 weeks

#### Publication

Daily at 7pm Singapore time

#### Data History From:

August 2011

# MetalBulletin



# Iron Ore Index

## 65% Fe Brazilian Fines Index, CFR Qingdao

The MBIOI-65-BZ is a price representing the Brazilian origin iron ore fines market. All transaction data within the specification maximums below, are normalised to the base specification based on the value-in-use implied by the market. The index is rounded to the nearest \$0.50. The MBIOI-65-BZ is a daily index published at 7pm Singapore time.

### MBIOI-65-BZ

**Price**

US\$ per dry metric tonne, CFR China

**Material Origin**

Brazil

**Fe Content**

Base 65.0%, Range 63.5% to 66.0%

**Silica**

Base 2.7%, Maximum 3.7%

**Alumina**

Base 1.2%, Maximum 1.6%

**Phosphorus**

Base 0.045%, Maximum 0.060%

**Sulphur**

Base 0.01%, Maximum 0.05%

**Moisture**

Base 9.0%, Maximum 10.0%

**Granularity**

>90%<10.0mm, <40%<0.15mm

**Trade Size**

Minimum 30,000 tonnes

**Payment Terms**

Payment at sight

**Delivery Port**

Qingdao

**Delivery period**

Within 10 weeks

**Publication**

Daily at 7pm Singapore time

**Data History From:**

August 2013

## 63% Fe Australian Lump Premium, CFR Qingdao

The MBIOI-LP reflects the premium, in US\$/dry metric tonne units, that Australian origin lump within the specifications defined below, commands on a spot basis over the benchmark 62% Fe Fines Index (MBIOI-62). The premium is rounded to the nearest 0.50¢. The MBIOI-LP is a daily index published at 7pm Singapore time.

### MBIOI-LP

**Price**

US\$/dry metric tonne units (dmtu)

**Material Origin**

Australia

**Fe Content**

Base 63%, Range 61% to 65%

**Silica**

Base 3.5%, Maximum 5.0%

**Alumina**

Base 1.5%, Maximum 2.0%

**Phosphorus**

Base 0.08%, Maximum 0.10%

**Sulphur**

Base 0.02%, Maximum 0.04%

**Loss on Ignition (%DW)**

Base 5.0%

**Moisture**

Base 4.0%, Maximum 6.5%

**Granularity**

Max 13.5%<6.3mm Max 25%>31.5mm

**Trade Size**

Minimum 30,000 tonnes

**Payment Terms**

LC on sight, other terms normalised to base

**Delivery Port**

CFR Qingdao, normalized for any Chinese mainland sea port

**Delivery period**

Within 8 weeks

**Publication**

Daily at 7pm Singapore time

**Data History From:**

May 2013

# MetalBulletin Iron Ore Index

## 65% Fe Blast Furnace Pellet, CFR Qingdao

The MBIOI-PT is a price representing the iron ore blast furnace pellet market. All transaction data within the specification maximums below, are normalised to the base specification based on the value-in-use implied by the market. The index is rounded to two decimal places. The MBIOI-PT is a weekly index published Friday at 7pm Singapore time.

### MBIOI-PT

**Price**

US\$ per dry metric tonne, CFR China

**Fe Content**

Base 65%, Range 60% to 70%

**Origins**

All Origins

**Silica**

Base: 4.5%, Maximum: 6.0%

**Alumina**

Base: 0.4%, Maximum: 0.8%

**Phosphorus**

Base: 0.03%, Maximum: 0.05%

**Sulphur**

Base 0.01%, Maximum 0.02%

**Moisture**

Base 2.0%/DW, Max 3.0%/DW

**Granularity**

Maximum Size >90% >10.0mm

**Compression Strength**

Base 250daN, min 200daN

**Trade Size**

Minimum 10,000 tonnes

**Payment Terms**

LC on sight- other payment terms normalised

**Delivery Port**

Base Qingdao - normalized for any Chinese mainland sea port

**Delivery**

Seaborne Imports- within 8 weeks

**Publication**

Weekly. Friday at 7pm Singapore time

**Data History From:**

April 2012

## 66% Fe Concentrate, CFR Qingdao

The MBIOI-CO is a price representing the iron ore concentrate market. All transaction data within the specification maximums below, are normalised to the base specification based on the value-in-use implied by the market. The index is rounded to two decimal places. The MBIOI-CO is a weekly index published Friday at 7pm Singapore time.

### MBIOI-CO

**Price**

US\$ per dry metric tonne, CFR China

**Fe Content**

Base 66%, Range 63% to 70%

**Origins**

All Origins

**Silica**

Base: 4.5%, Maximum: 9.0%

**Alumina**

Base: 0.5%, Maximum: 2.0%

**Phosphorus**

Base: 0.02%, Maximum: 0.06%

**Sulphur**

Base 0.03%, Maximum 0.10%

**Titanium**

Base 0.05%, Maximum 0.30%

**Moisture**

Base 8.0%/DW, Max 11.0%/DW

**Granularity**

Maximum Size >80% <0.15mm. Undersize maximum 20% <0.05mm

**Trade Size**

Minimum 10,000 tonnes

**Payment Terms**

LC on sight- other payment terms normalised

**Delivery Port**

Base Qingdao - normalized for any Chinese mainland sea port

**Delivery**

Seaborne Imports- within 8 weeks

**Publication**

Weekly. Friday at 7pm Singapore time

**Data History From:**

September 2012

# Metal Bulletin Iron Ore Index

## 62% Fe Port Stock Price

The China Port Stock Index represents the market for imported iron ore sold at main Chinese ports.

The MBIO China Port Stocks Index (MBIOI – CPS) is based on a tonnage-weighted calculation of actual transactions of imported material conducted at main Chinese ports. The prices of material included in the specified range are normalised to the base specification based on the value-in-use implied by the market. An additional adjustment is applied to normalise the port of sale to the base location, Qingdao, based on the prior month's relative prices.

The price is quoted in RMB per wet metric tonne, and includes 17% VAT and port fees. The index is rounded to the nearest Yuan.

Due to the nature of participants in the port market, the index is a tonnage weighted average of all transactions. They are not split into sub-indices as is the case in the rest of Metal Bulletin's indices.

The normalised chemistry specification is identical to the benchmark 62% Fe CFR fines index in order to provide to best possible opportunity for comparison.

### MBIOI-CPS

#### Price

RMB per wet metric tonne, Free-on-truck

#### Fe Content

Base 62%, Range 56% to 66%

#### Origins

All Origins

#### Silica

Base 3.5%, Maximum 8.0%

#### Alumina

Base 2.0%, Maximum 4.0%

#### Phosphorus

Base 0.10%, Maximum 0.15%

#### Sulphur

Base 0.02%, Maximum 0.06%

#### Moisture

Base 8.0%, Maximum 10.0%

#### Granularity

Base Size >90% < 6.3mm, at least 90% <10.0mm, at most 40% <0.15mm

#### Trade Size

Minimum 500 tonnes

#### Payment Terms

Payment at sight, other terms normalised to base

#### Delivery Port

Base Qingdao, normalized for any Chinese mainland sea port

#### Delivery period

Within two weeks

#### Publication

Daily at 7pm Singapore time

#### Data History From:

January 2014

# Metal Bulletin Iron Ore Index

## Value-In-Use Indices

### Adjusting Prices for Iron, Silica, and Alumina

Metal Bulletin's chemistry adjustments represent the market implied value of individual chemistries based on regression analysis of actual transaction data.

Analysis of spot market data shows that linear relationships between price and selected individual chemistries can be applied within certain ranges whilst maintaining statistical validity.

The value-in-use adjustments are intended as a tool for price adjustments, all other factors being equal.

They should be used as a differential from their respective reference indices. Note that these VIU-indices measure the price impact of a specified percentage point of that chemistry, all other factors being equal.

**The chemistry adjustment factors are published on the first working day of the month and are based on a regression analysis of the previous month's transaction data.**

#### Application of MB Value-In-Use indices

##### Iron Value In Use Adjustment (Fe -VIU)

Value of Iron Ore at X% Iron  
= MBIOI62 + (% Fe difference from 62% \* Fe-VIU Index)

Calculated from data in the 60.0% -63.5% Fe range  
Optimised range: 60-63.5% Fe  
Data history from July 2012

##### Silica Value In Use Adjustment (Si-VIU )

Value of Iron Ore at X% Silica  
= MBIOI62 + (% Si difference from 3.5% \* Si-VIU Index)

Calculated from data in the 60.0% -63.5% Fe range  
Optimised range: 3.5-9.0%  
Data history from December 2013

##### Iron Value In Use Adjustment (Fe-65VIU)

Value of Iron Ore at X% Iron  
= MBIOI65-BZ + (% Fe difference from 65% \* 65Fe -VIU Index)

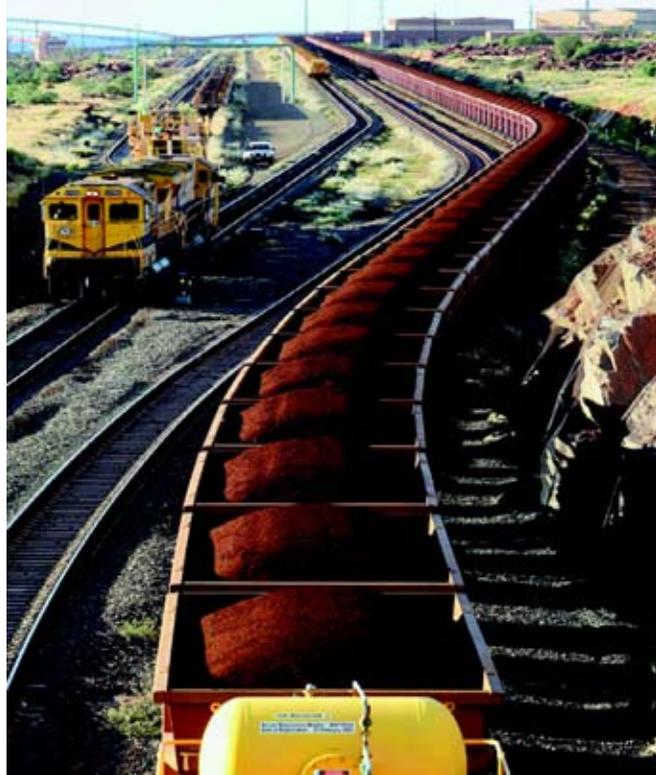
Calculated from data in the 63.5% -66.0% Fe range  
Optimised range: 63.5-66%Fe  
Data history from January 2015

##### Alumina Value In Use Adjustment (Al-VIU )

Value of Iron Ore at X% Alumina  
= MBIOI62 + (% Al difference from 2.0% \* Al-VIU Index)

Calculated from data in the 60.0% -63.5% Fe range  
Optimised range: 2.0-3.5%  
Data history from November 2014

# Metal Bulletin Iron Ore Index



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