

Coking coal indices



Methodology and price
specifications – November 2018

Mission statement

Fastmarkets is a leading commodity price reporting agency (PRA) covering the metals, mining, minerals and forestry products industries. Our products include Fastmarkets MB, Fastmarkets AMM, Fastmarkets IM, RISI, 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 ferrous 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

The primary role of the Fastmarkets MB Coking Coal Indices is to provide market participants with a fair and robust representation of the physical coking coal spot price across various markets. 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 coking coal market's requirement for a transparent pricing mechanism.

The indices aim 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 coking coal market. Fastmarkets MB determined the data collection window it uses to calculate the indices 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 coking coal 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 Coking Coal Indices methodology has been designed to meet the requirements of the financial market as well as the physical market.

Data collection

Data provision and quality

Our Indices are based on 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 coking coal 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 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 data sources to provide data on all their concluded transactions and welcomes provision of data from employees in back-office functions.

Our price reporters use several channels to collect data, including phone calls, email, and digital messenger services across our offices in Singapore, Shanghai, London and Sao Paulo.

The deadline for data submission is 6pm Singapore time. Data received after this time will not be included in the calculation of the indices. The data collection window runs for the 24-hour period prior to the 6pm data submission deadline. Only price data submitted and communicated to Fastmarkets MB within the 24-hour window will be included in the calculation of that day's indices. The indices are reflective of the price levels seen during this stated collection period.

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

All data supplied to Fastmarkets MB Coking Coal Indices is kept strictly confidential. Fastmarkets MB may sign a Data Submitter Agreement (DSA) with any data provider, if requested to do so.

Index calculation

The Fastmarkets MB Coking Coal Indices are 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 index.

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

Market balance

The Fastmarkets MB Coking Coal Indices methodology is designed to provide market participants with a fair and robust reflection of the physical coking coal 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 Coking Coal Indices are structured to balance the market. This reduces the risk of market distortions and bias in the data and ensures that all parts of the market have the same influence on the final calculation.

The published index figures are 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 normalised price data. Only the final indices are published. The use of two sub-indices means that each part of the market has a maximum 50% weighting in the final indices. This removes the possibility of bias or any single data provider having an overbearing influence on any final index.

Normalisation

Nearly all material traded on the coking coal spot market differs from the base specification of the indices. 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 normalized to the base specifications using in-house developed 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 normalise to a single specification.

This normalization process allows Fastmarkets MB to capture and normalize factors outside of the chemical and physical properties such as values associated with individual brands. The normalisation coefficients for the indices are updated every month to reflect the constantly changing value-in-use relationship of different products and grades.

Our aim is to balance the requirement to keep the value-in-use calculations reflective of the market as well as to provide a statistically robust data set for analysis.

Specification payment terms are based on typical commercial practice in the coking coal spot market. Transactions that are conducted on different payment or credit terms can be normalised, taking into account discounts, interest rate 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.

Fastmarkets MB has also specifically constructed the Coking Coal Indices to exclude outlier data automatically. All data points that fall more than 4% away from an initial calculation of the Index are automatically excluded – the index is then recalculated. Outliers will be investigated; suspected attempts to influence the indices unfairly 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.

Fastmarkets MB updates relativities for its premium hard coking coal and hard coking coal indices at the beginning of every month. The relativities are calculated using a regression analysis of transaction prices for the various brands as well as assessments provided by and collected from market participants where appropriate over the preceding two months. They are expressed as a percentage relative to the Fastmarkets MB indices.

Index calculation in periods of low liquidity

All Fastmarkets MB Coking Coal 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.

In the absence of transactions, offers at lower levels or bids at higher prices, the index prices will reflect the stability of the market by being flat if participants' feedback has been little changed.

When assessments, offers and bids collected from the market are included into index calculation to maintain a robust data set, they will be weighted according to the lowest tonnage permissible for the respective index.

Fastmarkets does not specify a minimum amount of transaction data, or a transaction data threshold, required for the publication of its index given that liquidity varies across the chrome ore 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.

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 being provided by a single entity.

Publication

The Fastmarkets MB Coking Coal Indices are published at 6.30pm Singapore local time.

Indices are not published on Singapore public holidays, which are as follows:

2018

Tues 25 December: Christmas Day

2019

Tues 1 January:	New Year's Day
Tues-Weds 5-6 February:	Chinese New Year
Fri 19 April:	Good Friday
Weds 1 May:	Labor Day
Sun 19 May:*	Vesak Day
Weds 5 June:	Hari Raya Puasa
Fri 9 August:	National Day
Sun 11 August:*	Hari Raya Haji
Sun 27 October:*	Deepavali
Weds 25 Dec 2019:	Christmas Day

*Where the national holiday is on a Sunday the public holiday will take place on the following working day.

Source: www.mom.gov.sg

Corrections and delays

If the index is published incorrectly, the error will be rectified and the the index will be 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 index. 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 specifications review process

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

Fastmarkets MB reviews methodologies every six months. If market changes necessitate more frequent changes, Fastmarkets MB will implement its formal review process in line with its published consultation process.

Any change to the methodology and/or price specifications are implemented following a consultation process that 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.

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

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 Methodology Review & Change Consultation Process available on the Fastmarkets MB 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 pricing employees are required to adhere to Fastmarkets MB's Code of Conduct and Pricing Procedure guidelines.

All indices are subject to peer review prior to publication and are signed off by a senior member of Fastmarkets' 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 the 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.

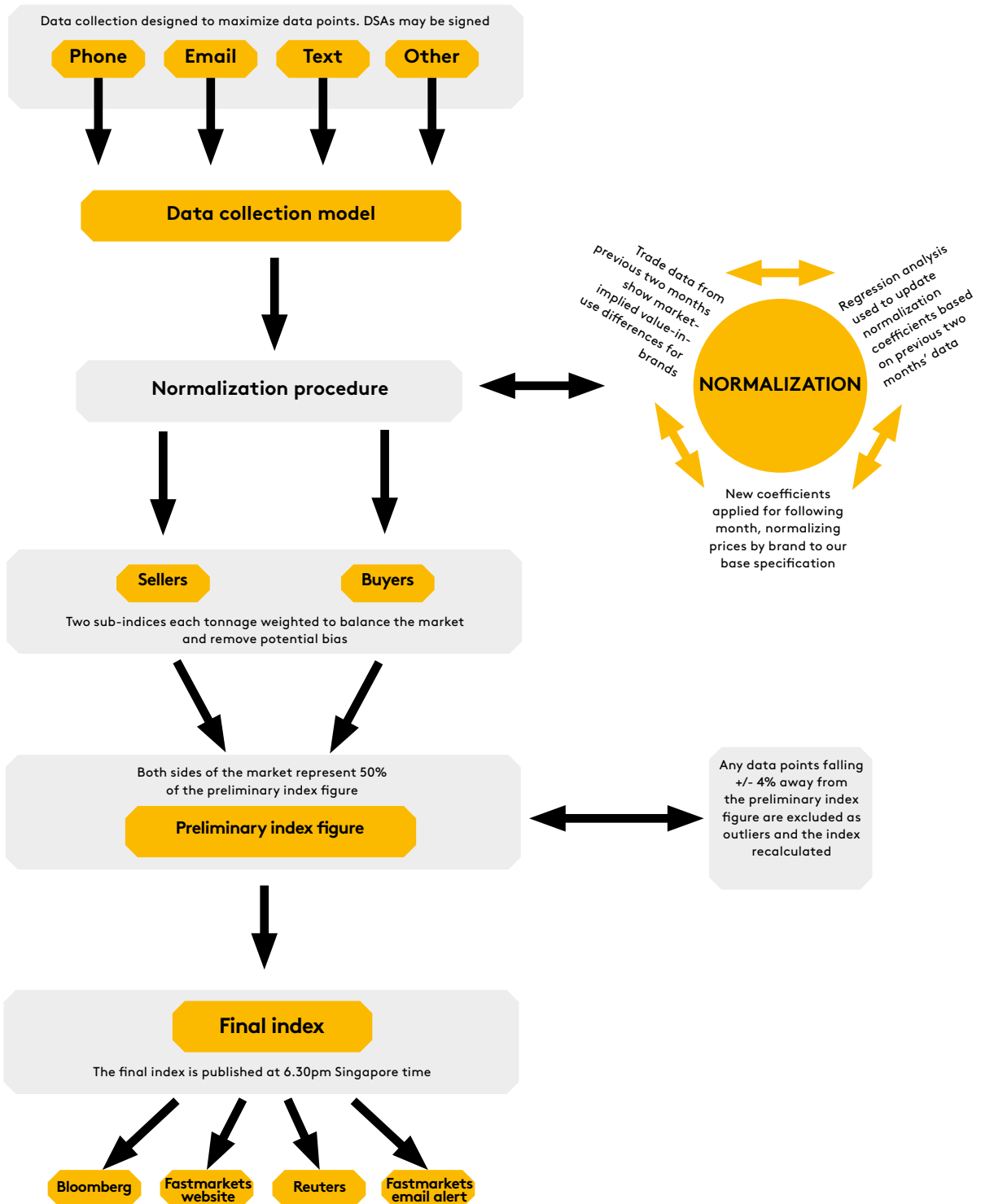
Index-related queries and complaints

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 pricing teams, including email, telephone and instant messenger services.

If a subscriber has an issue with published prices, 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 our 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.



Price specifications

Premium hard coking coal

The Fastmarkets MB Premium Hard Coking Coal Indices are benchmark prices representing the top-quality coking coal market. All transaction data within the specified ranges below are normalised to the base specification based on the value-in-use implied by the market. The indices are rounded to two decimal places.

CHINA

Assessment:	Premium hard coking coal, US\$ per metric tonne, CFR China
Origins:	All origins
CSR:	Base 71%, Minimum 67%
Volatile matter (ad):	Base 21%, Range 18-25%
Ash (ad):	Base 9.50%, Maximum 11%
Sulphur (ad):	Base 0.50%, Maximum 1.10%
CSN/FSI:	Base 8, Minimum 7
Total Moisture (ar):	Base 10%
Mean Max	
Reflectance:	Base 1.35%, Range 1.10-1.60%
Maximum Fluidity:	Base 500ddpm, minimum 40ddpm
Physical Size:	<50mm
Delivery:	Seaborne, laycan within 60 days
Trade size:	Minimum 10,000 tonnes
Payment terms:	Letters of Credit on sight
Publication:	Daily at 6.30pm Singapore time

The CFR China and FOB Australia indices are calculated separately. They reflect outright CFR and FOB values and are not based on net-back or net-forward calculations.

AUSTRALIA

Assessment:	Premium hard coking coal, US\$ per metric tonne, FOB Australia
Origins:	All origins
CSR:	Base 71%, Minimum 67%
Volatile Matter (ad):	Base 21%, Range 18-25%
Ash (ad):	Base 9.50%, Maximum 11%
Sulphur (ad):	Base 0.50%, Maximum 1.10%
CSN/FSI:	Base 8, Minimum 7
Total Moisture (ar):	Base 10%
Mean Max	
Reflectance:	Base 1.35%, Range 1.10-1.60%
Maximum Fluidity:	Base 500ddpm, minimum 40ddpm
Physical Size:	<50mm
Delivery:	Seaborne, laycan within 60 days
Trade size:	Minimum 10,000 tonnes
Payment terms:	Letters of Credit on sight
Publication:	Daily at 6.30pm Singapore time

Index material inclusion

The following brands will be included and normalised in the premium hard coking coal indices, as well as other materials falling within the specified ranges:

- German Creek
- Goonyella
- Hail Creek
- Illawarra
- Moranbah North
- North Goonyella
- Oaky Creek
- Oaky North
- Peak Downs
- Peak Downs North
- Premium
- Premium Low Vol
- Riverside
- Saraji
- Standard
- Wollombi

Hard coking coal

The Fastmarkets MB Hard Coking Coal Indices are benchmark prices representing the hard coking coal market with lower CSR properties. All transaction data within the specified ranges below are normalised to the base specification based on the value-in-use implied by the market. The indices are rounded to two decimal places.

CHINA

Assessment:	Hard coking coal, US\$ per metric tonne, CFR China
Origins:	All origins
CSR:	Base 64%, Minimum 57%
Volatile Matter (ad)	Base 25%, Range 19.50-27%
Ash (ad):	Base 9.50%, Maximum 11%
Sulphur (ad):	Base 0.60%, Maximum 1.50
CSN/FSI:	Base 7, Minimum 6
Total Moisture (ar):	Base 10%
Mean Max	
Reflectance:	Base 1.20%, Range 1.00-1.50%
Maximum Fluidity:	Base 500ddpm, Minimum 40ddpm
Physical Size:	<50mm
Delivery:	Seaborne, laycan within 60 days
Trade size:	Minimum 10,000 tonnes
Payment terms:	Letters of Credit on sight
Publication:	Daily at 6.30pm Singapore time

The CFR China and FOB Australia indices are calculated separately. They reflect outright CFR and FOB values and are not based on net-back or net-forward calculations.

AUSTRALIA

Assessment: **Hard coking coal, US\$ per metric tonne, FOB Australia**

Origins:	Australia
CSR:	Base 64%, Minimum 57%
Volatile Matter (ad):	Base 25%, Range 19.50-27%
Ash (ad):	Base 9.50%, Maximum 11%
Sulphur (ad):	Base 0.60%, Maximum 1.50
CSN/FSI:	Base 7, Minimum 6
Total Moisture (ar):	Base 10%
Mean Max	
Reflectance:	Base 1.20%, Range 1.00-1.50%
Maximum Fluidity:	Base 500ddpm, Minimum 40ddpm
Physical Size:	<50mm
Delivery:	Seaborne, laycan within 60 days
Trade size:	Minimum 10,000 tonnes
Payment terms:	Letters of Credit on sight
Publication:	Daily at 6.30pm Singapore time

Index material inclusion

The following brands will be included and normalised in the hard coking coal indices, as well as other materials falling within the specified ranges:

- Carborough Downs
- Curragh
- Lake Vermont
- Low Ash Coking Coal
- Mavis Downs
- Metropolitan
- Mid Vol Coking Coal
- Middlemount
- Tahmoor
- Tuhup

Chemistry adjustments

Fastmarkets MB's chemistry adjustments represent the market-implied value of individual attributes, measuring the impact on price of one unit change in a coking coal variable.

The value-in-use (VIU) adjustments are calculated using the extensive data collected by Fastmarkets MB on coking coal prices for different brands and statistical regression models. Regression analysis of the large amount of data gathered by Fastmarkets MB allows us to calculate the VIUs applied by the market to different coking coal attributes. Tests are applied to make sure data is consistent, robust and that results are statistically significant.

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

The VIU 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. and VIU adjustments for the following variables have been calculated:

- CSR (Coke strength after reaction)
- VM (Volatile matter)
- Ash
- CSN (Crucible swelling number)
- TM (Total moisture)
- Sulphur

Pulverized Coal Injection (PCI)

The Fastmarkets MB PCI indices are benchmark prices representing the pulverized coal injection market, normalized to a low volatile matter base specification. All transaction data within the specified ranges below are normalized to the base specification based on the value-in-use implied by the market. The indices are rounded to two decimal places. The CFR China and FOB Australia indices are calculated separately. They reflect outright CFR and FOB values and are not based on net-back or net-forward calculations.

CHINA

Assessment:	Low-vol PCI, US\$ per metric tonne, CFR China
Origins:	All origins
Volatile Matter (ad):	Base 13%
Ash (ad):	Base 9%
Sulphur (ad):	Base 0.5%
Phosphorus (ad):	Base 0.1%
Total Moisture (ar):	Base 10%
Delivery:	Seaborne, laycan within 60 days
Trade Size:	Minimum 10,000 tonnes
Payment Terms:	Letters of Credit on sight
Publication:	Daily at 6.30pm Singapore time

AUSTRALIA

Assessment:	Low-vol PCI, US\$ per metric tonne, FOB Australia
Origin:	Australia
Volatile Matter (ad):	Base 13%
Ash (ad):	Base 9%
Sulphur (ad)	Base 0.5%
Phosphorus (ad):	Base 0.1%
Total Moisture (ar):	Base 10%
Delivery:	Seaborne, laycan within 60 days
Trade Size:	Minimum 10,000 tonnes
Payment Terms:	Letters of Credit on sight
Publication:	Daily at 6.30pm Singapore time

Index material inclusion

The following brands will be included and normalised in the PCI indices, as well as other materials falling within the specified ranges:

- Brule
- Carborough Downs
- Coppabella
- Curragh
- Foxleigh
- Jellinbah
- Lake Vermont
- Middlemount
- Peak Downs North
- Poitrel
- South Walker Creek
- Yarrabee

Contacts

Singapore

Deepali Sharma

Steel Raw Materials Editor

+65 6238 2118

deepali.sharma@fastmarkets.com**Sophie Zhao**

Price Reporter

+65 6238 2133

sophie.zhao@fastmarkets.com**Peter Hannah**

Index Manager

+65 6238 2113

phannah@fastmarkets.com

Shanghai

July Zhang

Price Reporter

+86 21 5877 0857 21

july.zhang@fastmarkets.com**DISCLAIMER - IMPORTANT PLEASE READ CAREFULLY**

This Disclaimer is in addition to our Terms and Conditions as available on our website and shall not supersede or otherwise affect these Terms and Conditions. Prices and other information contained in this publication have been obtained by us from various sources believed to be reliable. This information has not been independently verified by us. Those prices and price indices that are evaluated or calculated by us represent an approximate evaluation of current levels based upon dealings (if any) that may have been disclosed prior to publication to us. Such prices are collated through regular contact with producers, traders, dealers, brokers and purchasers although not all market segments may be contacted prior to the evaluation, calculation, or publication of any specific price or index. Actual transaction prices will reflect quantities, grades and qualities, credit terms, and many other parameters. The prices are in no sense comparable to the quoted prices of commodities in which a formal futures market exists.

Evaluations or calculations of prices and price indices by us are based upon certain market assumptions and evaluation methodologies, and may not conform to prices or information available from third parties. There may be errors or defects in such assumptions or methodologies that cause resultant evaluations to be inappropriate for use.

Your use or reliance on any prices or other information published by us is at your sole risk. Neither we nor any of our providers of information make any representations or warranties, express or implied as to the accuracy, completeness or reliability of any advice, opinion, statement or other information forming any part of the published information or its fitness or suitability for a particular purpose or use. Neither we, nor any of our officers, employees or representatives shall be liable to any person for any losses or damages incurred, suffered or arising as a result of use or reliance on the prices or other information contained in this publication, howsoever arising, including but not limited to any direct, indirect, consequential, punitive, incidental, special or similar damage, losses or expenses.

We are not an investment adviser, a financial advisor or a securities broker. The information published has been prepared solely for informational and educational purposes and is not intended for trading purposes or to address your particular requirements. The information provided is not an offer to buy or sell or a solicitation of an offer to buy or sell any security, commodity, financial product, instrument or other investment or to participate in any particular trading strategy. Such information is intended to be available for your general information and is not intended to be relied upon by users in making (or refraining from making) any specific investment or other decisions.

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.