

Industrial Minerals



Methodology and price
specifications – September 2021

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Mission statement

Fastmarkets Metals and Mining is the leading global provider of pricing intelligence for the non-ferrous metal, steel, steelmaking raw materials, industrial minerals, ferrous and non-ferrous scrap markets, producing price assessments with Fastmarkets MB and Fastmarkets AMM since 1913 and 1882 respectively. Fastmarkets Forest Products meanwhile is the leading global provider of pricing intelligence for the global forest products industry, incorporating Fastmarkets RISI, Fastmarkets FOEX and Random Lengths.

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' reporters are required to abide by a **code of conduct** and clear pricing procedures during their market reporting and pricing activities. Fastmarkets is completely independent and has no vested commercial interest in any of the markets it prices.

We are the world's largest dedicated price reporting teams for both metals and forest products. We have offices in London, New York, Boston, San Francisco, Eugene, Charlottesville, Atlanta, Pittsburgh, Beijing, Shanghai, Hong Kong, Singapore, Melbourne, Sao Paolo, Mumbai, Brussels, Helsinki, Dnipro and Istanbul. The aim of this document is to provide a clear overview of Fastmarkets' methodology and specifications for the prices it assesses. If you have any questions, please contact Fastmarkets Editorial Director Alex Harrison at aharrison@fastmarkets.com for metals, or Fastmarkets Forest Products' Senior VP of Indices, Matt Graves, at mgraves@fastmarkets.com for forest products.

Price discovery and methodology

Methodology rationale

Fastmarkets produces independent, fair and representative price assessments and indices of metals and forest products prices on a daily, bi-weekly, weekly, monthly or quarterly basis. Fastmarkets' rationale for adopting the price-discovery process described in this methodology document is to produce consistent and representative indicators of value for specific markets over defined trading periods.

Assessment objective

The assessor's intended aim is to reflect Fastmarkets' assessment price definition:

'The prevailing level at which a commodity of stated specification has, or could be expected to have transacted over a defined period of time.'

We summarize this for effective use as the prevailing 'tradeable level' of the market.

Time window

The time period, or window, identified to assess a market (e.g., daily, bi-weekly, weekly, fortnightly, monthly) is determined by Fastmarkets after considering the number of data points that Fastmarkets can reasonably expect to collect on a consistent basis over the selected period to support the price assessment process.

Unless otherwise specified, the assessed timeframe will be the period since the conclusion of the previous price quotation. If, for instance, the last price assessment published by Fastmarkets was on Friday 2-3pm London time and our next assessment is due on the following Friday at 2-3pm London time, we will accept price data for business conducted and reported to Fastmarkets between Friday afternoon of the last price assessment and the following Friday afternoon. Where deemed appropriate for a particular market, Fastmarkets may specify a narrower window of time closer to the publication date where activity is given greater consideration in the price assessment, though this is stated in the specifications relating to those prices.

Data contribution

Fastmarkets reporters aim to collect data from a broad sample of market participants specifically involved in the buying and selling of the metal, mineral or forest product of interest, with a good representation of both

sides of the market, including producers and consumers, as well as traders and intermediaries.

Data is collected from industry participants directly involved in the relevant market primarily by telephone but also by email, digital messaging, face-to-face interaction or by direct submission. All data supplied to Fastmarkets is kept confidential and stored in our secure online pricing database system MInD (Market Information Database). Fastmarkets may sign a Data Submitter Agreement (DSA) with any data provider, if requested to do so, to maximize the number of data points collected for inclusion in the assessment process. Any data received subject to a DSA will be used in the pricing assessment but will not be commented on.

Market participants may contribute data following a review by Fastmarkets of their activities. The aim is to ensure that submitters have sufficient visibility and understanding of the market in question to be able to provide reliable price data. We expect that data submitters taking part in the pricing process are authorized to report market data on behalf of their organizations. Fastmarkets encourages organizations to submit all their pricing data, especially all the concluded transactions. Price reporters generally speak to, and collect data from, front office staff directly involved in the commercial activity of buying and selling the relevant product(s). Fastmarkets also welcomes organizations to submit transaction data from authorized back-office functions. Fastmarkets' **Data Submitter Policy** provides guidelines to ensure the high level of data quality and integrity we expect from contributing organizations providing pricing data. The policy can be found on Fastmarkets' website, or is available on request.

Depending on market liquidity, Fastmarkets reserves the right to also base its prices on bids, offers, deals heard and market participant indications of prevailing tradeable values or other indications such as trigger prices that might prompt a sale or purchase.

Price specifications and reference units

Fastmarkets has clear specifications for all the price points that it covers. All the reference units, such as currency and volume, are in line with the trading conventions used in the recognized metals, minerals and forest products markets.

Fastmarkets' specifications detail the material's characteristics or quality, location, incoterm, payment terms and the minimum volume accepted. These specifications are determined in consultation with market participants and follow industry convention. Reporters ensure that the information they receive meet these specifications. Any data that does not fall within the stated ranges of the specification will not be eligible for consideration in the assessment.

Data analysis and producing the price assessment

Establishing a data hierarchy

To produce the price assessment, a consideration hierarchy is established based on an evaluation of first, the reporter's confidence in the data's reliability, and second, the significance of the data.

The confidence level, or trustworthiness, of a data point is generally based on the transparency of the activity, whether it was reported by a party directly involved or was 'heard' activity, corroboration by other market participants and the level of detail provided by the data submitter, although there may be other contributory factors.

For indications of tradeable levels or other indication of willingness to sell or purchase, confidence may be determined based on the justification provided by the submitter, their visibility and activity level in the market, and their prior reliability. Factors that Fastmarkets may consider during times of low liquidity include, but are not limited to: market fundamentals such as changes in inventory levels, shipments, operating rates and export volumes; relative fundamentals of similar commodities in the same region; relative values of the same commodity in different regions; and changes in the value of the commodity's primary feedstock(s) or primary derived product(s).

The significance of a data point is determined based on its effectiveness in identifying the tradeable level of the market under assessment. Transactions are considered highest in the significance hierarchy, 'tight' bids/offers are of secondary importance, followed by data sources' own indications of a tradeable level when they have no business to report. Tight bids/offers are typically defined as those being within the range of transaction and/or indication data points, thereby helping narrow our assessment of the tradeable range. More speculative bids/offers, outside of the range of other data, would typically be of lowest significance. In some circumstances, firm bids higher than transactions or offers lower than transactions may be considered of high significance if deemed to demonstrate a clear directional change in market floor or ceiling levels.

The published assessment will typically be reflective of the highest-confidence and highest-significance data collected in that pricing session. In pricing sessions with little or no data of sufficient quality, extra caution will be applied and reporters may exercise their judgment to keep a price assessment unchanged as a fallback until activity can be confirmed with greater certainty.

All Fastmarkets price specifications define the minimum lot size accepted. When volume information is available, this is also taken into consideration in the assessment process. For instance, a deal with a bigger volume may typically be considered more significant than a smaller-volume transaction. But price reporters will also consider, for instance, normalizing or discarding a reported deal where it is suspected an abnormally large or small volume may have unduly distorted its price.

Fastmarkets will also compare the information received from a single source with the information provided by the same source in the previous pricing cycle. This way, if a source consistently gives lower or higher indications than the consensus, Fastmarkets can still use the data for directional context without it unduly influencing the assessment.

Normalization

Where necessary in certain assessments, data that falls within the stated specification ranges for consideration may be normalized to determine the equivalent price for the respective base specification if one exists. This may include, for instance, variances in material type or quality, delivery terms of location, payment terms or cargo size.

Data may be normalized to the base specification using either a statistical or judgement based method. Where

patterns can be established over time, such as for price differences between product qualities, data may be normalized using in-house developed models based on regression analysis of collected data. The analysis allows Fastmarkets to capture the value-in-use applied by the market to different qualities or terms and to normalize to a single base specification. Where a statistically derived adjustment factor is not possible for a particular variable, editorial judgment may be applied to normalize prices using third party data (such as broker rates for freight adjustments or exchange prices for QP adjustments), or by surveying market participants for an appropriate adjustment.

Where prices cannot be normalized with sufficient confidence or precision, such data may be discarded from the assessment. Fastmarkets' aim is to balance the requirement to keep assessments reflective of their base specifications with the need to source a sufficiently robust data set for consideration.

Minimum data threshold

Since commodity markets differ in liquidity levels at different periods, the methodology does not set any minimum number, or threshold, of transactions to be gathered on which to base the assessment.

In each pricing session, reporters aim to source data from a suitably diverse set of market participants. In the unlikely situation that more than half of the pricing data collected in a session is provided by a single source, the assessor may refer to data collected in the previous pricing session to avoid a dependency on a single entity providing an unacceptably significant (50% or more) proportion of data. In markets where, to satisfy their jurisdictional antitrust guidelines, certain companies require us to adhere to a maximum of 25% data concentration from a single entity, Fastmarkets will comply with this stricter threshold.

Criteria for discarding pricing data and the removal of outliers

Fastmarkets price assessments are intended to reflect the 'open and competitive' market level. Reporters therefore may apply expert judgment to exclude data deemed unrepresentative, questionable or unreliable prior to consideration in the final assessment. Data that falls outside of the respective assessment specifications, or which cannot be normalized to a base specification with sufficient confidence, is also discarded. Decisions to discard data points are recorded in the form of a written rationale in our internal pricing database, where they are reviewed and approved under the two-tier peer review process.

Data may be discarded as outliers based on the identification of external factors that may be distorting the price. Price-affecting side terms, inconsistencies in information reported, or suspected motivation to unfairly influence the price discovery process would typically be grounds for removal of data, as would activity not considered to have taken place at 'arm's length'. Outliers will be investigated; more detail may be requested to determine possible reasons behind an anomalous price, and efforts will be made to identify the counterparty to cross-verify information. Suspected attempts to influence the assessment unfairly may result in the data provider being warned or excluded. Fastmarkets reserves the right to see contracts and signed paperwork before inclusion of the data in the assessment. If this is refused, the data supplied may be excluded from the assessment process.

Data publication

Peer review process

All Fastmarkets' price assessments are set by a first reporter who covers that specific market, peer reviewed by a second reporter, and always signed-off by a senior reporter or editor prior to publication. This peer review process, which takes place in Fastmarkets' MInD system and is fully auditable, 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. Relevant information, including all price inputs and editorial judgements, are securely retained in MInD for at least five years to maintain a full audit trail. Price reporters are formally trained in the price discovery process and must abide by a written Code of Conduct and Pricing Procedures.

For certain prices Fastmarkets also publishes pricing rationales to explain the assessment, describing why a particular price or range was determined based on the market information collected. These notes explain for instance whether any data has been excluded and why, information on the data collected and whether fallback procedures have been applied.

Publication

At the end of the peer review process, Fastmarkets MB and AMM publish their price assessments via MInD and on the Fastmarkets Dashboard and on product-specific websites and in the Price Book. Fastmarkets RISI, FOEX and Random Lengths publish their price assessments on the Intelligence Center, mobile app and in dedicated newsletters.

Most Fastmarkets assessments (aside from a small number of single-figure assessments) are quoted as ranges reflecting Fastmarkets' evaluation of the market's prevailing tradeable level over the observation window.

To enhance market transparency and to provide evidence of data inputs that support the price discovery process, Fastmarkets may publish trade logs in accordance with industry demand (while maintaining full counterparty confidentiality) detailing pricing data and volumes received from data contributors.

Fastmarkets' price assessments are published at the time and frequency stated under each individual specification. The pricing schedules vary according to markets and locations in which they are assessed. For more details on the pricing holiday calendar and alternative pricing dates for each assessment or index, refer to [Fastmarkets' Pricing Holidays](#) schedule on Fastmarkets.com or on the RISI, FOEX and Random Lengths websites.

Corrections and delays

If an assessment is published incorrectly, it will be rectified and republished as soon as possible. A pricing notice explaining the reasons for the correction will also be published promptly.

Fastmarkets uses several procedures and measures to avoid delays in the publication of its assessments. In the event of a delay, however, Fastmarkets 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 assessment. No assessment 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 technical, administrative or interpretation error in line with [Fastmarkets' Correction Policy](#).

Methodology and price specification review process

Methodology review and pricing notices

Fastmarkets aims to continually develop and periodically review its methodologies in consultation with industry participants, with the objective to adopt product specifications, trading terms and conditions that reflect and are representative of typical working practices in the industries it serves.

Fastmarkets carries out a formal review and approval of its methodology and price specifications on an annual basis. The process is initiated by Fastmarkets publishing on its website an open consultation at least one month (or around 20 working days) before the annual methodology review is due, inviting market feedback over the duration of that period. The timeframe for the consultation and method of submission are both clearly stated.

Following a review of market participants' feedback, comments and suggestions, Fastmarkets concludes the consultation by publishing a notice stating whether or not any methodology changes are proposed. If suggested, changes are classified either as 'material' or 'immaterial'. Material changes are those that, once implemented, may result in fundamental changes to the published price. These include specification changes or structural changes to assessments. Immaterial changes are those that will not result in a different price level once they are implemented.

If a material change to the methodology is required, Fastmarkets includes in its pricing notice: the outline of the proposed change; the rationale or motivation for proposing such a change; and a proposed timetable for the date on which, if the change goes ahead, it would be implemented. If received feedback is considered insufficient to support a material change, Fastmarkets publishes a new notice extending the consultation and inviting comments on the new proposal.

A record of the methodology review is sent to the Risk & Compliance team. All comments received from the market are assumed to be confidential and are treated as such unless stated otherwise.

When Fastmarkets proposes a change to the methodology, it should be understood that no decision has yet been made and that the proposal to make a

change should not automatically be understood as confirmation that the change will happen.

For prices subject to EU Benchmark Regulation (BMR), any change to the methodology requires approval from the Managing Director of our benchmark administrator, Fastmarkets Benchmark Administration Oy.

Outside of the formal methodology review process, editors may from time to time suggest changes or additions to reflect market developments. As with the formal review, changes to the existing methodology will either be classed as 'material' or 'immaterial'. The process for implementing the change will be the same as outlined above for formal reviews. The minimum duration of one month (or around 20 working days) for the consultation process normally provides market participants sufficient opportunity to analyze and comment on the impact of the proposed change.

For more details on the formal review of the methodology and the consultation process to propose changes to the methodology, refer to Fastmarkets' [Methodology Review and Change Consultation Process](#) available on the Fastmarkets website.

Queries and complaints

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

If a subscriber has an issue with the published prices, then they may contact the pricing 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' [Complaint Handling Policy](#) available on Fastmarkets' website.

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

Become a contributor to the price discovery process

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

Fastmarkets' Data Submitter Policy provides guidelines defining the high level of data quality and integrity that Fastmarkets expects from contributing organizations providing pricing data. Market participants that wish to provide pricing data and be part of the price discovery process should first read the Data Submitter Policy available on the Fastmarkets website. The Policy is communicated to all data submitters at least on an annual basis.

All data sources are subject to review before their data submitted is fully taken into account in the pricing process. Our Contributor Approval Policy (CAP) requires this review or probation period to last no more than three months. 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.

Alumina

Fused alumina

CHINA

MB-ALU-0006 Alumina, fused brown, min 95% Al₂O₃, refractory sized (0-6mm), fob China, \$/tonne

Quality: Min 95% Al₂O₃. Crushed, sized between 0-1mm, 1-3mm, 3-5mm, generally in one-tonne big bag
 Quantity: Min 20 tonnes
 Location: fob China
 Publication: Fortnightly, Thursday 4pm, London

MB-ALU-0008 Alumina, fused brown, min 95% Al₂O₃, FEPA F8-220 grit, fob China, \$/tonne

Quality: Min 95% Al₂O₃. Crushed, FEPA size
 Quantity: Min 20 tonnes
 Location: fob China
 Publication: Fortnightly, Thursday by 4pm, London

MB-ALU-0009 Alumina, fused white, 25kg bags, cif Europe, €/tonne

Quality: Min 95% Al₂O₃, 0.4% Na₂O. Crushed, sized between 0-1mm, 1-3mm, 3-5mm, in 25kg bag
 Quantity: Min 20 tonnes
 Location: cif Europe
 Publication: Fortnightly, Thursday by 4pm, London

Calcined alumina

US/EUROPE

MB-ALU-0013 Alumina, calcined, ground, 98.5-99.5% Al₂O₃, bulk, exw US/Europe, long-term contract, \$/tonne

Quality: 98.5-99.5% Al₂O₃
 Quantity: Min 20 tonnes
 Location: exw US/Europe
 Payment terms: Long-term contract
 Publication: Monthly, first Thursday by 4pm, London

MB-ALU-0012 Alumina, calcined, ground and unground, min 99.5% Al₂O₃, medium-soda min 0.25% soda, bulk, exw US/Europe, long-term contract, \$/tonne

Quality: Min 99.5% Al₂O₃ medium-soda, min 0.25% soda. Powder.
 Quantity: Min 20 tonnes
 Location: exw US/Europe
 Payment terms: Long-term contract
 Publication: Fortnightly, Thursday by 4pm, London

MB-ALU-0011 Alumina, calcined, unground 98.5-99.5% Al₂O₃, bulk, exw US/Europe, long-term contract, \$/tonne

Quality: 98.5-99.5% Al₂O₃. Powder.
 Quantity: Min 20 tonnes
 Location: exw US/Europe
 Payment terms: Long-term contract
 Publication: Monthly, first Thursday by 4pm, London

Andalusite

SOUTH AFRICA

MB-AND-0001	Andalusite, min. 57% Al₂O₃, fob South Africa, €/tonne
Quality:	0-4 mm, min. 57% Al ₂ O ₃ , packed in bulk, 1 tonne big bags or 25kg bags
Quantity:	Min 1,000 tonnes
Location:	fob South Africa
Unit:	€ per tonne
Publication:	Quarterly, last Thursday of the months of February, May, August and November, 4pm London time
Notes	Micronized grades are not included in this assessment; the low end of the assessed price range is for 1,000-tonne lot sizes; the top end of the price range is for high tonnages

EUROPE

MB-AND-0002	Andalusite, min. 57% Al₂O₃, cif Europe, €/tonne
Quality:	0-4mm, min. 57% Al ₂ O ₃ , packed in bulk, 1 tonne big bags or 25kg bags
Quantity:	Min 1,000 tonnes
Location:	cif Europe
Unit:	€ per tonne
Publication:	Quarterly, last Thursday of the months of February, May, August and November, 4pm London time
Notes	Micronized grades are not included in this assessment; the low end of the assessed price range is for 1,000-tonne lot sizes; the top end of the price range is for high tonnages

Antimony trioxide

CHINA

MB-SB-0006	Antimony trioxide 99.5% Sb₂O₃ min, fob China, \$/tonne
Quality	Min 99.5%, white crystalline powder
Quantity:	Min 20 tonnes
Location:	fob China
Timing:	60 days
Unit:	\$ per tonne
Publication:	Weekly, Tuesday 3-4pm

EUROPE

MB-SB-0004	Antimony trioxide 99.5% Sb₂O₃ min, cif Antwerp/Rotterdam, \$/tonne
Quality	Min 99.5%, white crystalline powder
Quantity:	Min 20 tonnes
Location:	cif Antwerp/Rotterdam (other European ports net back)
Timing:	60 days
Unit:	\$ per tonne
Publication:	Weekly, Tuesday 3-4pm

NORTH AMERICA

MB-SB-0008	Antimony trioxide 99.5% Sb₂O₃ min, cif US East Coast, \$/tonne
Quality	Min 99.5%, white crystalline powder
Quantity:	Min 20 tonnes
Location:	cif East Coast US (other North American ports net back)
Timing:	60 days
Unit:	\$ per tonne
Publication:	Weekly, Tuesday 3-4pm

EUROPE

MB-SB-0009	Antimony trioxide 99.5% Sb₂O₃ min, in-whs Antwerp/Rotterdam, €/kg
Quality	Min 99.5%, white crystalline powder
Quantity:	Min 5 tonnes
Location:	In-warehouse Antwerp/Rotterdam (other European warehouses net back)
Timing:	30 days
Unit:	€ per kg
Publication:	Weekly, Tuesday 3-4pm

NORTH AMERICA

MB-SB-0010	Antimony trioxide 99.5% Sb₂O₃ min, in-whs Baltimore, \$/lb
Quality	Min 99.5%, white crystalline powder
Quantity:	Min 5 tonnes
Location:	In-warehouse Baltimore (other US warehouses net back)
Timing:	30 days
Unit:	\$ per lb
Publication:	Weekly, Tuesday 3-4pm

Barite

MIDDLE EAST

MB-BAR-0004 Barite, API, 1.5t big bags, ground, fob Southern Turkey, \$/tonne

Quality:	API grade, 4.2 SG, ground, 1.5-tonne big bags
Quantity:	Min 20 tonnes
Location:	fob southern Turkey
Timing:	Spot
Unit:	\$/tonne
Payment terms:	Within 30 days
Publication:	Last Thursday of every month

INDIA

MB-BAR-0006 Barite, API, SG 4.2, unground lump, bulk, fob Chennai, \$/tonne

Quality:	API grade, 4.2 SG, unground lump
Quantity:	Min 1,000 tonnes
Location:	fob Chennai, India
Timing:	Spot
Unit:	\$/tonne
Payment terms:	Within 30 days
Publication:	Last Thursday of every month
Notes:	

CHINA

MB-BAR-0007 Barite, API, SG 4.2, unground lump, bulk, fob China, \$/tonne

Quality:	API grade, 4.2 SG, unground lump
Quantity:	Min 1,000 tonnes
Location:	fob China
Timing:	Spot
Unit:	\$/tonne
Payment terms:	Within 30 days
Publication:	Last Thursday of every month

NORTH AFRICA

MB-BAR-0014 Barite, API, SG 4.2, unground lump, bulk, fob Morocco, \$/tonne

Quality:	API grade, 4.2 SG, unground lump
Quantity:	Min 1,000 tonnes
Location:	fob Morocco, India
Timing:	Spot
Unit:	\$/tonne
Payment terms:	Within 30 days
Publication:	Last Thursday of every month

Refractory-grade bauxite

CHINA

MB-BX-0010 Bauxite, refractory-grade, 85%/2.0/3.15-3.2 (0-6mm), fob Xingang, \$/tonne

Quality:	Min 85% Al ₂ O ₃ , 2.0% iron, 3.15-3.2 bulk density. Crushed, sized between 0-1mm, 1-3mm, 3-5mm
Quantity:	Min 20 tonnes
Location:	fob Xingang
Timing:	Spot contract
Unit:	USD/tonne
Publication:	Fortnightly, Thursday 4pm, London
Notes:	Normally in 1-tonne big bag

MB-BX-0011 Bauxite, refractory-grade, 86%/2.0/3.15-3.2 (0-6mm), fob Xingang, \$/tonne

Quality:	Min 86% Al ₂ O ₃ , 2.0% iron, 3.15-3.2 bulk density. Crushed, sized between 0-1mm, 1-3mm, 3-5mm
Quantity:	Min 20 tonnes
Location:	fob Xingang
Timing:	Spot contract
Unit:	USD/tonne
Publication:	Fortnightly, Thursday 4pm, London

MB-BX-0012 **Bauxite, refractory-grade, 87%/2.0/3.15-3.2 (0-6mm), fob Xingang, \$/tonne**

Quality: Min 87% Al₂O₃, 2.0% iron, 3.15-3.2 bulk density. Crushed, sized between 0-1mm, 1-3mm, 3-5mm

Quantity: Min 20 tonnes

Location: fob Xingang

Timing: Spot contract

Unit: USD/tonne

Publication: Fortnightly, Thursday 4pm, London

MB-BX-0013 **Bauxite, refractory-grade, 88%/2.0/3.15-3.2 (0-6mm), fob Xingang, \$/tonne**

Quality: Min 87% Al₂O₃, 2.0% iron, 3.15-3.2 bulk density. Crushed, sized between 0-1mm, 1-3mm, 3-5mm

Quantity: Min 20 tonnes

Timing: Spot contract

Location: fob Xingang

Unit: USD/tonne

Publication: Fortnightly, Thursday 4pm, London

Notes: Normally in 1-tonne big bag

Bentonite

UNITED STATES

MB-BEN-0003 **Bentonite (all grades), crude, bulk, rail hopper cars, exw Wyoming, \$/short ton**

Quality: Crude, bulk

Quantity: Min 100 short tons

Location: Ex-works Wyoming, US

Timing: Spot

Unit: \$/short ton

Payment terms: Within 30 days

Publication: Last Thursday of every month

Notes: Bulk rail hopper cars

Chromite

SOUTH AFRICA

MB-CHR-0004 **Chromite, chemical, 46% Cr₂O₃ min, wet bulk, fob South Africa, \$/tonne**

Quality: Sand, wet bulk; min. 46% Cr₂O₃; max 1% SiO₂

Quantity: Min 1,000 tonnes

Location: fob South Africa

Unit: US\$ per tonne

Publication: Weekly, Tuesday, 4pm London time

MB-CHR-0005 **Chromite, foundry, 46% Cr₂O₃ min, wet bulk, fob South Africa, \$/tonne**

Quality: Sand, wet bulk; min 46% Cr₂O₃; max 1% SiO₂; AFS 45-53, turbidity max 250 NTU

Quantity: Min 1,000 tonnes

Location: fob South Africa

Unit: US\$ per tonne

Publication: Weekly, Tuesday, 4pm London time

MB-CHR-0009 **Chromite, foundry, 46% Cr₂O₃ min, dried and bagged, fob South Africa, \$/tonne**

Quality: Sand, dried, in bags; min 46% Cr₂O₃; max 1% SiO₂; AFS 45-53, turbidity max 250 NTU

Quantity: Min 100 tonnes

Location: fob South Africa

Unit: US\$ per tonne

Publication: Weekly, Tuesday, 4pm London time

MB-CHR-0004 **Chromite, foundry, 45.8% Cr₂O₃ min, wet bulk, fob South Africa, \$/tonne (inferred)**

Quality: Sand, wet bulk; min. 45.8% Cr₂O₃; max 1% SiO₂

Quantity: Min 1,000 tonnes

Location: fob South Africa

Unit: US\$ per tonne

Publication: Weekly, Tuesday, 4pm London time

Notes: This price is inferred by applying the percentage change that is assessed in the wet bulk base grade (Chromite, foundry, min. 46% Cr₂O₃, wet bulk, fob South Africa \$/tonne).

MB-CHR-0006 Chromite, refractory grade, 46% Cr2O3 min, wet bulk, fob South Africa, \$/tonne (inferred)

Quality: Sand, wet bulk; min. 46% Cr2O3; max 1% SiO2
 Quantity: Min 1,000 tonnes
 Location: fob South Africa
 Unit: US\$ per tonne
 Publication: Weekly, Tuesday, 4pm London time
 Notes: This price is inferred by applying the percentage change that is assessed in the wet bulk base grade (Chromite, foundry, min 46% Cr2O3, wet bulk, fob South Africa \$/tonne).

Acid-grade fluorspar

CHINA
MB-FLU-0003 Fluorspar, acidspars, 97% CaF2, wet filtercake, fob China, \$/tonne

Quality: 97% CaF2 wet filtercake. Powder
 Quantity: Min 2,000 tonnes
 Location: fob China
 Unit: USD per tonne
 Publication: Weekly, Thursday by 4pm London

EUROPE
MB-FLU-0001 Fluorspar, acidspars, 97% CaF2, wet filtercake, cif Rotterdam, \$/tonne

Quality: 97% CaF2 wet filtercake. Powder
 Location: cif Netherlands
 Unit: USD per tonne
 Publication: Monthly, final Thursday of the month by 4pm London time

NORTH AMERICA
MB-FLU-0006 Acidspars, 97% CaF2, Wet Filtercake, CIF, US Gulf Port, US, \$/tonne

Quality: 97% CaF2 wet filtercake. Powder
 Location: cif United States
 Unit: USD per tonne
 Publication: Monthly, final Thursday of the month by 4pm London time

MB-FLU-0004 Fluorspar, acidspars, 97% CaF2, wet filtercake, fob Tampico, \$/tonne

Quality: 97% CaF2 wet filtercake. Powder
 Location: fob Mexico
 Unit: USD per tonne
 Publication: Monthly, final Thursday of the month by 4pm London time

AFRICA
MB-FLU-0005 Fluorspar, acidspars, 97% CaF2, wet filtercake, fob Durban, \$/tonne

Quality: 97% CaF2 wet filtercake. Powder
 Location: fob South Africa
 Unit: USD per tonne
 Form: Powder
 Publication: Monthly, final Thursday of each month, by 4pm London time

Metallurgical-grade fluorspar

CHINA
MB-FLU-0016 Fluorspar, metspars, min 90% CaF2, fob China, \$/tonne

Quality: Min 90% CaF2
 Min lot size: 2,000 tonnes
 Location: fob China
 Unit: USD per tonne
 Publication: Weekly, Thursday by 4pm London

MB-FLU-0015 Fluorspar, metspars, min 85% CaF2, fob China, \$/tonne

Quality: Min 85% CaF2
 Min lot size: Min 2,000 tonnes
 Location: fob China
 Unit: USD per tonne
 Publication: Weekly, Thursday by 4pm London

NORTH AMERICA

MB-FLU-0017	Fluorspar, metspar, min 85% CaF₂, fob Tampico, \$/tonne
Quality:	Min 85% CaF ₂
Location:	fob Mexico
Unit:	USD per tonne
Form:	Powder
Publication:	Monthly, final Thursday of each month, by 4pm London time

Frac Sand

UNITED STATES

MB-FA-0001	Frac sand, northern white, 20/40 mesh, API, exw Wisconsin, \$/short ton
Quality:	20/40 mesh
Quantity:	Min 100 short tons
Location:	Ex-works Wisconsin
Timing:	Spot
Unit:	USD per short ton
Payment terms:	30 days
Publication:	Monthly, third Thursday of every month by 4pm UK
Notes:	Northern White sand, API grade

MB-FA-0004	Frac sand, northern white, 30/50 mesh, API, exw Wisconsin, \$/short ton
Quality:	30/50 mesh
Quantity:	Min 100 short tons
Location:	Ex-works Wisconsin
Timing:	Spot
Unit:	USD per short ton
Payment terms:	30 days
Publication:	Monthly, third Thursday of every month by 4pm UK
Notes:	Northern White sand, API grade

MB-FA-0002	Frac sand, northern white, 40/70 mesh, API, exw Wisconsin, \$/short ton
quality:	40/70 mesh
Quantity:	Min 100 short tons
Location:	Ex-works Wisconsin
Timing:	Spot
Unit:	USD per short ton
Payment terms:	30 days
Publication:	Monthly, third Thursday of every month by 4pm UK
Notes:	Northern White sand, API grade

MB-FA-0003	Frac sand, northern white, 100 mesh, API, exw Wisconsin, \$/short ton
Quality:	100 mesh
Quantity:	Min 100 short tons
Location:	Ex-works Wisconsin
Timing:	Spot
Unit:	USD per short ton
Payment terms:	30 days
Publication:	Monthly, third Thursday of every month by 4pm UK
Notes:	Northern White sand, API grade

Graphite spherical

CHINA

MB-GRA-0036	Graphite spherical 99.95% C, 15 microns, fob China, \$/tonne
Quality:	99.95% C, 15 microns, uncoated
Quantity:	Min 20 tonnes
Location:	fob China
Unit:	US\$ per tonne
Publication:	Weekly, Thursday by 4pm London

Graphite flake

EUROPE
MB-GRA-0037 Graphite flake 94% C, +100 mesh, cif Europe, \$/tonne

Quality: Flake 94% C, +100 Mesh
 Quantity: Min 20 tonnes
 Location: cif Europe, full container load (FCL)
 Unit: US\$ per tonne
 Publication: Weekly, Thursday by 4pm, London

MB-GRA-0038 Graphite flake 94% C, +80 mesh, cif Europe, \$/tonne

Quality: Flake 94% C, +80 Mesh
 Quantity: Min 20 tonnes
 Location: cif Europe, FCL
 Unit: US\$ per tonne
 Publication: Weekly, Thursday by 4pm, London

MB-GRA-0039 Graphite flake 94% C, -100 mesh, cif Europe, \$/tonne

Quality: Flake 94% C, -100 Mesh
 Quantity: Min 20 tonnes
 Location: cif Europe, FCL
 Unit: US\$ per tonne
 Publication: Weekly, Thursday by 4pm, London

CHINA
MB-GRA-0040 Graphite flake 94% C, +100 mesh, fob China, \$/tonne

Quality: Flake 94% C, +100 Mesh, -80 Mesh
 Quantity: Min 20 tonnes
 Location: fob Qingdao, FCL
 Unit: US\$ per tonne
 Publication: Weekly, Thursday by 4pm, London

MB-GRA-0041 Graphite flake 94% C, +80 mesh, fob China, \$/tonne

Quality: Flake 94% C, +80 Mesh
 Quantity: Min 20 tonnes
 Location: fob China, FCL
 Unit: US\$ per tonne
 Publication: Weekly, Thursday by 4pm, London

MB-GRA-0042 Graphite flake 94% C, -100 mesh, fob China, \$/tonne

Quality: Flake 94% C, -100 Mesh
 Quantity: Min 20 tonnes
 Location: fob China, FCL
 Unit: US\$ per tonne
 Publication: Weekly, Thursday by 4pm, London

Amorphous graphite

EUROPE
MB-GRA-0016 Graphite amorphous 80-85% C, -200 mesh, FCL, cif China to Europe, \$/tonne

Quality: 80-85% C, -200 Mesh
 Quantity: Min 20 tonnes
 Location: cif Europe, FCL, port of origin China
 Unit: US\$ per tonne
 Publication: Weekly, Thursday by 4pm, London

CHINA
MB-GRA-0035 Graphite amorphous 80% C, -200 mesh, fob China, \$/tonne

Quality: 80% C, -200 Mesh
 Quantity: Min 20 tonnes
 Location: fob China
 Unit: US\$ per tonne
 Publication: Weekly, Thursday by 4pm, London

Iodine

GLOBAL

MB-I-0003 **Iodine 99.5% min, contract, delivered US/Europe, cif Asia, \$/kg**

Quality	Min 99.5% prill and crystal (other iodine forms reaching min 99.5% will also be accepted)
Quantity:	Min 5 tonnes
Location:	Delivered US/Europe, cif Asia
Timing:	Yearly (quarterly, biannual and yearly contracts will be included)
Unit:	USD/kg
Publication	Monthly, last Thursday of every month between 3pm and 4pm London time

MB-I-0002 **Iodine 99.5% min, spot, delivered US/Europe, cif Asia, \$/kg**

Quality	Min 99.5% prill and crystal (other iodine forms reaching min 99.5% will also be accepted)
Quantity:	Min 5 tonnes
Location:	Delivered US/Europe, cif Asia
Unit:	USD/kg
Timing:	60 days, spot
Publication	Weekly, Thursday between 3pm and 4pm London time

Calcined magnesia

CHINA

MB-MAG-0006 **Magnesia, calcined, 94% MgO lump, fob China, \$/tonne**

Quality:	Calcined 94% MgO lump, bulk
Quantity:	Min 1,000 tonnes
Location:	fob China
Timing:	Spot
Unit:	\$/tonne
Publication:	Weekly. Tuesday, 4pm London time

MB-MAG-0011 **Magnesia, calcined, 96% MgO lump, fob China, \$/tonne**

Quality:	Calcined 96% MgO lump, bulk
Quantity:	Min 1,000 tonnes
Location:	fob China
Timing:	Spot
Unit:	\$/tonne
Publication:	Weekly. Tuesday, 4pm London time

MB-MAG-0004 **Magnesia, calcined, 90-92% MgO, fob China, \$/tonne**

Quality:	Calcined 90-92% MgO
Quantity:	minimum 1,000 tonnes
Location:	fob China
Timing:	Spot
Unit:	\$/tonne
Publication:	Weekly. Tuesday, 4pm London time

EUROPE

MB-MAG-0012 **Magnesia, European calcined, agricultural, cif Europe, €/tonne**

Quality:	Calcined, agricultural, bulk
Quantity:	Min 1,000 tonnes
Location:	cif Europe
Timing:	Spot
Unit:	€/tonne
Publication:	third Tuesday of the month, 4pm London time

Dead burned magnesia

CHINA

MB-MAG-0003 **Magnesia, dead burned, 92% MgO, lump, fob China, \$/tonne**

Quality:	Dead burned 92% MgO lump, bulk
Quantity:	Min 1,000 tonnes
Location:	fob China
Timing:	Spot
Unit:	\$/tonne
Publication:	Weekly. Tuesday, 4pm London time

MB-MAG-0005 **Magnesia, dead burned, 97.5% MgO, lump, fob China, \$/tonne**

Quality: Dead burned 97.5% MgO lump, bulk
Quantity: Min 1,000 tonnes
Location: fob China
Timing: Spot
Unit: \$/tonne
Publication: Weekly. Tuesday, 4pm London time

MB-MAG-0002 **Magnesia, dead burned, 90% MgO, lump, fob China, \$/tonne**

Quality: Dead burned 90% MgO lump, bulk
Quantity: Min 1,000 tonnes
Location: fob China
Timing: Spot
Unit: \$/tonne
Publication: Weekly. Tuesday, 4pm London time

MB-MAG-0001 **Magnesia, dead burned, 94-95% MgO, lump, fob China, \$/tonne**

Quality: Dead-burned 94-95% MgO lump, bulk
Quantity: Minimum 1,000 tonnes
Location: fob China
Timing: Spot
Unit: \$/tonne
Publication: Weekly. Tuesday, 4pm London time

EUROPE

MB-MAG-0018 **Magnesia, dead burned, 95% MgO, fob Europe, \$/tonne**

Quality: Dead burned 95% MgO, bulk
Quantity: Min 1,000 tonnes
Location: fob Europe
Timing: Spot
Unit: \$/tonne
Payment terms: Within 30 days
Publication: Third Tuesday of the month, 4pm London time

Fused magnesia

CHINA

MB-MAG-0010 **Magnesia, fused, 96% MgO lump, fob China, \$/tonne**

Quality: Fused 96% MgO lump, bulk
Quantity: Min 1,000 tonnes
Location: fob China
Timing: Spot
Unit: \$/tonne
Publication: Weekly. Tuesday, 4pm London time

MB-MAG-0008 **Magnesia, fused, 97% MgO, Ca:Si 1:1, lump, fob China, \$/tonne**

Quality: Fused 97% MgO, 1:1 Ca:Si, bulk
Quantity: Min 1,000 tonnes
Location: fob China
Timing: Spot
Unit: \$/tonne
Publication: Weekly. Tuesday, 4pm London time

MB-MAG-0009 **Magnesia, fused, 97% MgO, Ca:Si 2:1, lump, fob China, \$/tonne**

Quality: Fused 97% MgO, 2:1 Ca:Si, bulk
Quantity: Min 1,000 tonnes
Location: fob China
Timing: Spot
Unit: \$/tonne
Publication: Weekly. Tuesday, 4pm London time

MB-MAG-0007 **Magnesia, fused, 98% MgO, lump, fob China, \$/tonne**

Quality: Fused 98% MgO lump, bulk
Quantity: minimum 1,000 tonnes
Location: fob China
Timing: spot
Unit: \$/tonne
Publication: Weekly. Tuesday, 4pm London time

EUROPE

MB-MAG-0019 **Magnesia, fused, 97% MgO, cif Europe, \$/tonne**

Quality: Fused 97% MgO, bulk
Quantity: Min 1,000 tonnes
Location: cif Europe
Timing: Spot
Unit: \$/tonne
Publication: Third Tuesday of the month, 4pm London time

Magnesite

EUROPE

MB-MAG-0013 **Magnesite, Greek, raw, max 3.5% SiO₂, fob East Mediterranean, €/tonne**

Quality: Magnesite, max 3.5% SiO₂, bulk
 Quantity: Min 1,000 tonnes
 Location: fob East Mediterranean
 Timing: Spot
 Unit: \$/tonne
 Payment terms: Within 30 days
 Publication: Third Tuesday of the month, 4pm London time

Mineral sands

CHINA

MB-ZIR-0014 **Zircon premium grade min 66.5% ZrO₂ min, bulk, cif China, \$/tonne**

Quality: Premium grade, 66.5% ZrO₂ min
 Quantity: Min 1,000 tonnes
 Location: cif China
 Timing: Spot
 Unit: \$/tonne
 Payment terms: Within 30 days
 Publication: Weekly. Thursday 4pm London time

MB-ZIR-0015 **Zircon standard grade min 65.5% ZrO₂ min, bulk, cif China, \$/tonne**

Quality: Standard grade min 65.5% ZrO₂
 Quantity: Min 1,000 tonnes
 Location: cif China
 Timing: Spot
 Unit: \$/tonne
 Payment terms: Within 30 days
 Publication: Weekly, Thursday 4pm London time

MB-RUT-0003 **Rutile concentrate 95% TiO₂ min, bulk, cif China \$/tonne**

Quality: 95% TiO₂ min, bulk
 Quantity: Min 1,000 tonnes
 Location: cif China
 Timing: Spot
 Unit: \$/tonne
 Payment terms: Within 30 days
 Publication: Weekly. Thursday 4pm London time

MB-ILM-0004 **Ilmenite concentrate, 47-49% TiO₂, cif China, \$/tonne**

Quality: 47-49% TiO₂
 Quantity: Min 1,000 tonnes
 Location: cif China
 Timing: Spot
 Unit: \$/tonne
 Payment terms: Within 30 days
 Publication: Weekly. Thursday 4pm London time

AUSTRALIA

MB-RUT-0001 **Rutile concentrate 95% TiO₂ min, large volumes for pigment, fob Australia, \$/tonne**

Quality: 95% TiO₂, for pigment
 Quantity: Min 1,000 tonnes
 Location: fob Australia
 Timing: Spot
 Unit: \$/tonne
 Payment terms: Within 30 days
 Publication: Weekly. Thursday 4pm London time

MB-RUT-0002 **Rutile concentrate 95% TiO₂ min, bagged, fob Australia, \$/tonne**

Quality: 95% TiO₂, bagged
 Quantity: Min 1,000 tonnes
 Location: fob Australia
 Timing: Spot
 Unit: \$/tonne
 Payment terms: within 30 days
 Publication: Weekly. Thursday 4pm London time

SPAIN

MB-ZIR-0022 **MB-ZIR-0022 Zircon premium grade min 66.5% ZrO₂, cif Spain**

Quality: Premium grade, 66.5% ZrO₂ min
 Quantity: Min 1,000 tonnes
 Location: cif Spain
 Timing: Spot
 Unit: \$/tonne
 Payment terms: Within 30 days
 Publication: Weekly. Thursday 4pm London time

Silicon Carbide

EUROPE

MB-SIC-0008 Silicon carbide, FEPA 8-220 black about 99% SiC acid wash, ddp Europe, €/tonne

Quality: FEPA 8-220 Black, min 99% acid wash
 Quantity: Minimum 20 tonnes
 Location: Delivered Duty Paid Europe
 Timing: Contract delivered within a year
 Unit: €/tonne
 Publication: Monthly, last Tuesday of month between 3pm and 4pm London time

MB-SIC-0009 Silicon carbide, FEPA 8-220 black about 99% SiC water wash, ddp Europe €/tonne

Quality: FEPA 8-220 Black, 99% Water Wash
 Quantity: Minimum 20 tonnes
 Location: Delivered Duty Paid Europe
 Timing: Contract delivered within a year
 Unit: €/tonne
 Publication: Monthly, last Tuesday of month between 3pm and 4pm London time

MB-SIC-0010 Silicon carbide, green, over 99.5% SiC, FEPA 8-220, ddp Europe, €/tonne

Quality: FEPA 8-220 Green, min 99.5%
 Quantity: Minimum 20 tonnes
 Location: Delivered Duty Paid Europe
 Timing: Contract delivered within a year
 Unit: €/tonne
 Publication: Monthly, last Tuesday of month between 3pm and 4pm London time

MB-SIC-0011 Silicon carbide, refractory grade 95% SiC min, ddp Europe, €/tonne

Quality: Min 95%
 Quantity: Min 20 tonnes
 Location: Delivered Duty Paid Europe
 Timing: Contract delivered within a year
 Unit: €/tonne
 Publication: Monthly, last Tuesday of month between 3pm and 4pm London time

MB-SIC-0012

Silicon carbide, refractory grade 98% SiC min, ddp Europe, €/tonne

Quality: Min 98%
 Quantity: Min 20 tonnes
 Location: Delivered Duty Paid Europe
 Timing: Contract delivered within a year
 Unit: €/tonne
 Publication: Monthly, last Tuesday of month between 3pm and 4pm London time

Soda Ash

EUROPE

MB-SOA-0002 Soda ash, natural and synthetic, dense and light, small contracts, delivered Europe, €/tonne

Quality: White salt, Na₂CO₃
 Quantity: Less than 10,000 tonnes
 Location: dap Europe
 Timing: Monthly, quarterly, biannual, yearly and multi-year contracts will be included
 Unit: EU€/tonne
 Payment terms: N/A
 Publication: Monthly, last Thursday of every month by 4pm UK time

MB-SOA-0006 Soda ash, natural and synthetic, dense and light, large contracts, delivered Europe, €/tonne

Quality: White salt, Na₂CO₃
 Quantity: Minimum 10,000 tonnes
 Location: dap Europe
 Timing: Monthly, quarterly, biannual, yearly and multi-year contracts will be included
 Unit: EU€/tonne
 Payment terms: N/A
 Publication: Monthly, last Thursday of every month by 4pm UK time

UNITED STATES
MB-SOA-0001 Soda ash, natural, dense, small contracts, fob Wyoming, \$/tonne

Quality:	White salt, Na ₂ CO ₃
Quantity:	Less than 10,000 tonnes
Location:	fob Wyoming
Timing:	Monthly, quarterly, biannual, yearly and multi-year contracts will be included
Unit:	US\$/tonne
Payment terms:	N/A
Publication:	Monthly, last Thursday of every month by 4pm UK time

MB-SOA-0005 Soda ash, natural, dense, large contracts, fob Wyoming, \$/tonne

Quality:	White salt, Na ₂ CO ₃
Quantity:	Minimum 10,000 tonnes
Location:	fob Wyoming, US
Timing:	Monthly, quarterly, biannual, yearly and multi-year contracts will be included
Unit:	US\$/tonne
Payment terms:	N/A
Publication:	Monthly, last Thursday of every month by 4pm UK Time

INDIA
MB-SOA-0009 Soda ash, synthetic, dense and light, domestic, exw India, \$/tonne

Quality:	White salt, Na ₂ CO ₃
Quantity:	No minimum
Location:	Ex-works India
Timing:	Spot
Unit:	US\$/tonne
Payment terms:	N/A
Publication:	Weekly, every Thursday by 4pm UK time.

CHINA
MB-SOA-0007 Soda ash, synthetic, dense and light, fob China, \$/tonne

Quality:	White salt, Na ₂ CO ₃
Quantity:	No minimum
Location:	fob China
Timing:	Spot
Unit:	\$/tonne
Payment terms:	N/A
Publication:	Weekly, every Thursday by 4pm UK time.

Titanium dioxide

EUROPE
MB-TI-0010 Titanium dioxide pigment, chloride grade, ddp Europe, € per tonne

Quality:	Chloride grade
Quantity:	Min 20 tonnes
Location:	ddp Europe
Timing:	Spot
Unit:	€ per tonne
Payment terms:	30 days
Publication:	Weekly. Thursday, 4pm London time

UNITED STATES
MB-TI-0011 Titanium dioxide pigment, chloride grade, ddp North America, \$ per tonne

Quality:	Chloride grade
Quantity:	Min 20 tonnes
Location:	ddp North America
Timing:	Spot
Unit:	\$ per tonne
Payment terms:	30 days
Publication:	Weekly. Thursday, 4pm London time

CHINA**MB-TI-0009 Titanium dioxide pigment, sulfite grade, fob China, \$ per tonne**

Quality:	Sulfite grade
Quantity:	Min 20 tonnes
Location:	fob China
Timing:	Spot
Unit:	\$ per tonne
Payment terms:	30 days
Publication:	Weekly. Thursday, 4pm London time

Contacts

For more information about the Industrial Mineral prices, please do not hesitate to contact the Fastmarkets team:

Davide Ghilotti

Industrial Minerals Editor

+44 207 827 6444

davide.ghilotti@fastmarkets.com

Risk & Compliance Team

T: +44 20 7827 5264 or

T: +44 20 7779 8519

riskandcompliance@fastmarkets.com

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