

Ores and alloys forecasts



Methodology and price
specifications – August 2022

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. The research arm of Fastmarkets Metals and Mining provides forecasts and analysis based on price assessments from Fastmarkets MB and Fastmarkets AMM. Established in 1991, we have provided regular, insightful analysis and forecasts to businesses around the world to help them make informed and strategic decisions and recommendations. 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 methodologies is maintained. We do not have a vested interest in the markets on which we report. Within the research function of Fastmarkets, we stress our ability to operate independently of the rest of the Group, and the existence of formal rules of confidentiality that exist between the pricing and news providers within the Group and the research and consulting functions.

Introduction

Fastmarkets' reporters and analysts 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 Paulo, Mumbai, Brussels, Helsinki, Dnipro and Istanbul. The aim of this document is to provide a clear overview of Fastmarkets' forecasting methodology and specifications for the prices forecast. If you have any questions, please contact Fastmarkets Executive VP Analytics Dan Klein at dan.klein@fastmarkets.com for metals, Fastmarkets Metals and Mining research leader, Kim Leppold, at kim.leppold@fastmarkets.com about our forecast products.

Fastmarkets' forecasting methodology

Ores and alloys

Fastmarkets provides a dynamic, bottom-up and unbiased approach to short-term (<2-year) monthly and quarterly price forecasting.

The methodological model takes a three-way approach to account for:

1. supply-demand fundamentals
2. underlying costs & implied margins
3. market sentiment

This framework enables the analysts to determine the key but changing drivers of price movements in the past and future.

To source the information to prepare our price forecasts, forecasters conduct both extensive desk-based research as well as primary research; the latter being more heavily weighted toward our near-term (<3 month) view.

Fastmarkets' forecasting methodology includes drawing on expertise from our in-house analysts with forecasting experience of up to 20-25 years who rely heavily on the intelligence gathering and data analytics insight of our extensive editorial teams.

We supplement this valuable network with our proprietary databases, which focus on the underlying physical market movements that drive prices and the archive of spreads between price series that instruct and contextualize our understanding of margins.

These are supported by exhaustive third-party data and economic forecasting services, which help us to build the fundamental drivers of the future.

Our analysts access extensive existing relationships across the industry through face time and written interviews, and take into account the opinions provided to our price reporters and data analytics team. This cross-referencing approach helps us to value the intelligence, generate insight and help in our mission to illuminate markets.

Modeling Fastmarkets' forecasts

Generating our forecasts is an involved process that combines macroeconomic theory, market insight,

statistical modeling and machine learning. It is this combination of expert knowledge and cutting-edge data modeling which generates our trusted forecasts. They also allow deeper insight into the fundamental workings of a market and elicit data patterns that give insight and relative weighting of key market factors that drive price direction, such as the Chinese Purchasing Manager's Index. These insights and their statistical robustness allow our expert analysts to improve forecast accuracy and reliability and to inform their commentary along with traditional macro-economic and sentiment analysis.

Our data collection and process:

- Include price benchmarks - which refer to prices used in industrial contracts - and prices that are viewed as trendsetters for a particular region or a product group
- Bespoke approach to each price forecast
- Draw on a comprehensive set of macro-economic data
- Machine learning approach to find the best model candidate and predictions with rigorous checks on model approach and output
- Models undergo periodical review
- Rigorous approval process

Ores and alloys price forecasts

Crucial to the results of ores and alloys price forecasts is a detailed analysis of distinct product-specific factors

- Fastmarkets' internal forecasts for ores and alloys production and consumption in individual countries or regions
- Estimated inventory levels in the supply chain
- Net trade position, expected price levels at main foreign suppliers or buyers, trade policy changes
- Projected performance of major ores and alloys users, such as construction, automotive and other transport, mechanical engineering, metal goods, domestic appliances and the energy sectors, taking into account the share of a particular sector
- Fastmarkets' expertise in the raw materials sector enables an examination of production costs and operating margins, as we cross-reference predicted metal spreads against the fundamental backdrop and take into account the prevailing route for ores and alloys production in the country (blast or electric arc furnace method)
- Market sentiment, including price trends of benchmark feedstock prices

Forecast list

MB-CHO-0003 Chrome ore South Africa UG2 concentrates index basis 42%, cif China, \$/tonne

Quality: Up to 1mm (95% min); Cr base 42%, range 40-43%; Silica max 6%; Alumina max 18%; MgO max 15%; P max 0.01%; S max 0.01%; chrome-iron ratio 1.2:1 min

Quantity: Min 2,000 tonnes

Location: cif China

Unit: USD per tonne

Payment terms: Payment at sight

Publication: Weekly. Tuesday 3pm London time

Notes: Bulk (container deals normalized)

MB-FEC-0004 Ferro-chrome high carbon 6-8.5% C, basis 60-70% Cr, max 1.5% Si, delivered Europe, \$/lb Cr

Quality: Lump. Cr 60-70%, C 6-8.5%, Si 1.5%. High-carbon ferro-chrome of the following brands and origins: Kazakhstan (Kazchrome); Russia (Tikhvin, Chelyabinsk); Turkey (Eti Krom); Sweden (Vargon Alloys); Albania (Albchrome)

Quantity: Min 24 tonnes

Location: Delivered consumer works Europe

Unit: USD per lb of chrome contained

Payment terms: 30 days, other payment terms normalized

Publication: Weekly. Tuesday between 2pm and 3pm London time

Notes: This price will be discontinued at the end of 2021

MB-FEC-0011

Ferro-chrome 50% Cr import, cif main Chinese ports, \$/lb contained Cr

Quality: 10-100mm lump. Chrome base 50%, range 48-52%; carbon base 7%, max 9%; silicon base 3%, max 6%; phosphorous max 0.03%; sulphur max 0.06%.

Quantity: Min 1,000 tonnes

Location: cif main Chinese ports

Timing: Within 6 weeks

Unit: USD per lb

Payment terms: LC at sight

Publication: Weekly. Tuesday 3pm London time

Notes: Seaborne, all origins. Data history from May 2012

MB-FEC-0012

Ferro-chrome high carbon 6-8% C, basis 60-65% Cr, max 2% Si, in-whs Pittsburgh, \$/lb

Quality: Chromium min. 62.00%, silicon max.3.00%, carbon 6.00-8.00%

Quantity: Min 20 tons

Location: in-whs Pittsburgh

Unit: USD per lb cents per pound

Publication: Once a week, every Thursday

MB-FEC-0017

Ferro-chrome high carbon 57-65% Cr, cif dup Japan, \$/lb

Quality: 10-50mm lump. Cr 57% min, 65% max; C 6% min, 9% max; Si 2% min, 4% max; P 0.04% max; S 0.05% max

Quantity: Min 100 tonnes

Location: cif Japan

Unit: USD per lb of chrome contained

Payment terms: LC at sight and TT

Publication: Every other week. Thursday 2-3pm London time

MB-FEC-0018

Ferro-chrome high carbon 57-65% Cr, cif dup South Korea, \$/lb

Quality: 10-50mm lump. Cr 57% min, 65% max; C 6% min, 9% max; Si 2% min, 4% max; P 0.04% max; S 0.05% max

Quantity: Min 100 tonnes

Location: cif South Korea

Unit: USD per lb of chrome contained

Payment terms: LC at sight and TT

Publication: Every other week. Thursday 2-3pm London time

MB-FEM-0001
**Ferro-manganese high carbon
78% Mn, standard 7.5% C, in-whs
Pittsburgh, \$/long ton**

Quality: Mn 780%, C 7.5%
Quantity: Min 20 tons
Unit: US dollars per long ton
Location: In-warehouse Pittsburgh
Frequency: Weekly, Thursday

MB-FEM-0004
**Ferro-manganese medium carbon
80% Mn, max 1.50% C, in-whs
Pittsburgh, \$/lb**

Quality: Manganese min 80%, carbon max 1.50%
Quantity: Min 20 tons
Unit: USD per lb
Location: In-whs Pittsburgh
Frequency: Weekly, Thursday

MB-FEM-0006
**Ferro-manganese basis 78% Mn
max, standard 7.5% C, delivered
Europe, €/tonne**

Quality: Lump in the range of 10-100mm, 90% min. Mn 75% min, 78% max; Si 2% max; C 6% min 8% max; P 0.35% max; S 0.04% max
Quantity: Min 100 tonnes
Location: Delivered consumer works Europe
Unit: EUR/tonne
Payment terms: Cash, other payment terms normalized
Publication: Weekly. Friday between 2pm and 3pm London time

MB-FEO-0001
**Ferro-molybdenum 65% Mo min,
in-whs Rotterdam, \$/kg Mo**

Quality: Lump 5-50mm, 90% min, Mo 65% min, Si 1.50% max, Cu 0.50% max, C 0.10% max, S 0.10% max, P 0.05% max. All other elements should be each 0.10% max, with the exception of Fe
Quantity: Min 10 tonnes (+/- 2%)
Location: In-whs Rotterdam
Unit: USD per kg Mo
Payment terms: Cash; other payment terms normalized
Publication: Twice weekly. Wednesday and Friday 2-3pm London time

MB-FEO-0002
**Ferro-molybdenum 65-70% Mo,
in-whs Pittsburgh, \$/lb**

Quality: Mo 65-70%
Quantity: Min 10 tons
Location: In-whs Pittsburgh
Unit: USD per pound
Publication: Weekly. Thursday

MB-FEO-0003
**Molybdenum drummed molybdic
oxide 57% Mo min, in-whs
Rotterdam, \$/lb Mo**

Quality: Sandy powder (0-4mm). Mo 57% min, Cu 0.5% max, S 0.1% max, P 0.05% max, Pb 0.05% max, C 0.1% max. All other elements should each be 0.10% max, with the exception of Si, which should be 6% max.
Quantity: Min 10 tonnes (+/- 2%)
Location: In-whs Rotterdam
Unit: USD per lb Mo
Payment terms: Cash; other terms normalized
Publication: Twice weekly. Wednesday and Friday between 2pm and 3pm London time

MB-FES-0003
**Ferro-silicon 75% Si, in-whs
Pittsburgh, \$/lb**

Quality: Silicon 75.00%
Quantity: Min 20 tons
Location: In-warehouse Pittsburgh
Unit: USD per lb
Publication: Weekly. Thursday

MB-FES-0004
**Ferro-silicon 75% Si min export,
fob China, \$/tonne**

Quality: Lump. Si 75-80%, Mn 0.4% max, Al 2% max, Cr 0.3% max, P 0.035% max, S 0.02% max, C 0.1% max
Quantity: 100 tonnes
Location: fob China main ports
Unit: USD/tonne, normalized to 75% Si on pro rata basis
Payment terms: Cash, other payment terms normalized
Publication: Weekly. Wednesday 2-3pm London

MB-FES-0005 Ferro-silicon lumpy basis 75% Si (scale pro rata), delivered Europe, €/tonne

Quality: Lump. Si 75% basis (scale pro rata), Al 1.5% max, C 0.10-0.15% max, Ca 0.6% max, Ti 0.15% max, P 0.02% max, S 0.025% max

Quantity: Min 100 tonnes

Location: Delivered consumer works Europe

Unit: EUR/tonne

Payment terms: Cash, other terms normalized

Publication: Weekly. Friday 2-3pm London

MB-SIM-0001 Silico-manganese 65% Mn min, max 17% Si, in-whs China, yuan/tonne

Quality: Lump. Mn 65-72%, Si 17%, C 1.8% max, P 0.25% max, S 0.04% max

Quantity: Min 100 tonnes

Location: ddp China

Unit: CNY/tonne, all Mn grades normalized to 65% basis on pro rata basis

Payment terms: Cash, other terms normalized

Publication: Weekly. Friday 2-3pm London time

MB-SIM-0002 Silico-manganese lumpy 65- 75% Mn, basis 15-19% Si (scale pro rata), major European destinations €/tonne

Quality: Lump. Mn 65-75% (Scale pro rata), Si 15-19%, C 2-2.5%, P 0.3%, S 0.03%

Quantity: Min 100 tonnes

Location: Delivered consumer works Europe

Unit: EUR/tonne

Payment terms: Cash, other terms normalized

Publication: Weekly. Friday 2-3pm London time

MB-SIM-0005 Silico-manganese 65% Mn min, min 16% Si, in-whs Pittsburgh, \$/lb

Quality: Manganese min 65%, Si min 16%

Quantity: 20 tons

Location: In-warehouse Pittsburgh

Unit: USD per lb

Publication: Weekly. Thursday

MB-W-0001 Tungsten APT 88.5% WO3 min Europe, cif Rotterdam and Baltimore duty-free, \$/mtu WO3

Quality: White finely divided free-flowing crystals. WO3 88.5% min, Al 0.001% max, As 0.0005% max, Bi 0.0005% max, Ca 0.001% max, Cd 0.0005% max, Co 0.0005% max, Cr 0.0005% max, Cu 0.0005% max, Fe 0.001% max, K 0.001% max, Mn 0.001% max, Mg 0.001% max, Mo 0.002% max, Na 0.001% max, Ni 0.0005% max, P 0.001% max, Pb 0.0005% max, S:0.001% max, Sb 0.0005% max, Si 0.001% max, Sn 0.0005% max, Ti 0.0005% max, V 0.0005% max

Quantity: Min 20 tonnes (+/- 2%)

Location: cif Rotterdam and Baltimore, duty free

Unit: USD per mtu WO3

Payment terms: Cash. Delivered up to three months in advance considered spot business

Publication: Weekly. Friday 2-3pm London time

MB-FEU-0001 Ferro-tungsten basis 75% W, in-whs dup Rotterdam, \$/kg W

Quality: Lump. W 75.00% min, C 0.40% max, S 0.08% max, Mn 0.50% max, As 0.10% max, Sn 0.08% max, P 0.05% max, Si 0.70% max, Cu 0.15% max, Sb 0.05% max

Quantity: Min 3-tonne lots

Location: dup Rotterdam

Unit: USD per kg W

Payment terms: Cash, other payment terms normalized

Publication: Twice weekly. Wednesday and Friday 2-3pm London

Notes: Packaged in 1-tonne big bags

MB-FEV-0001 **Ferro-vanadium basis 78% V min, 1st grade, ddp Western Europe, \$/ kg V**

Quality: Lump. V 78%, Al 1.5%, Si 1.5%, C 0.25%, S 0.05%, P 0.06%, Mn 0.5%. Other elements trace only, with the exception of Fe

Quantity: Min 5 tonnes

Location: Delivered consumer works Europe

Unit: USD per kg V

Payment terms: Cash, other terms normalized

Publication: Twice weekly. Wednesday and Friday at 2-3pm London time

MB-FEV-0002 **Ferro-vanadium 70-80% V, in-whs Pittsburgh, \$/lb**

Quality: V 70-80%

Quantity: Min 10 tons

Location: In-warehouse Pittsburgh

Unit: USD per lb

Publication: Weekly. Thursday

MB-MNO-0001 **Manganese ore 44% Mn, cif Tianjin, \$/dmu**

Quality: 5.5-75mm lump. Mn base 44%, range 42-48%; Fe base 5%, max 16%; silica base 11%, max 12%; P base 0.10%, max 0.16%; alumina base 5%, max 14%. Moisture base 4%, max 12%

Quantity: Min 5,000 tonnes

Location: cif Tianjin – normalized for other mainland China sea ports

Timing: Within nine weeks

Unit: US\$ per dry metric tonne unit, cif Tianjin, China

Payment: Cash or equivalent

Publication: Friday, 3pm London

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