

Shanghai Metals Market Price Assessment Methodology

Shanghai 1#Copper cathode

SMM Shanghai 1#Copper cathode spot price

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1. Guidelines to SMM price assessment methodology

Shanghai Metals Market ("SMM") is an independent service provider that does not participate in trades. SMM is a market observer that engages buyers and sellers in the commodities market. By consulting with industry independent participants, SMM drafts the methodology, examines and revises it regularly based on the specifications and terms of trade that are generally used in the market, with equal weighting given to transactions that meet the standards. SMM reserves the right to exclude any unreliable or unrepresentative price data from its price assessment, in line with this methodology and other related Benchmark governance policies and procedures. SMM believes the processes and procedures documented in their Methodologies represent the most accurate way of representing the underlying economic reality of the markets each Benchmark seeks to measure.

SMM price assessments refer to metals spot prices or price indices of both the Chinese and overseas markets reported by SMM on a daily basis. All SMM prices are published according to a set of defined methodologies, indicating how the prices are accessed and reported. These methodologies are published on our website www.metal.com (English) or www.smm.cn (Chinese) or for all market participants to understand and refer to.

To reflect the actual trades in the spot market, SMM will update the methodology for SMM price assessments and publish all the revisions on our website www.metal.com (English) or www.smm.cn (Chinese) 28 days ahead of the changes. For queries or suggestions on the methodology, please contact SMM customer services (please find contact information on the SMM official websites). Please read this paragraph in conjunction with the SMM methodology review and changes policy, and the SMM Complaint Policy available at www.metal.com (English) or www.smm.cn (Chinese).

This document specifies the standards and management methods for the SMM Shanghai 1#copper cathode spot price assessment. These standards are formulated to establish a transparent and verifiable SMM price setting mechanism and provide market participants with an important pricing indicator.

To ensure that SMM Benchmarks and indices are constructed, maintained and

operated to the highest standards, the administrator of the SMM Benchmarks – Shanghai Metal Markets (“SMM” or “the Administrator”, herein known as “SMM”) employs a robust governance framework to manage and approve new Benchmarks and also approve changes to the methodologies of existing Benchmarks.

The SMM Benchmark Management Committee (“the Committee”) is responsible for all aspects of the design, management governance and calculation of the SMM Benchmarks, and is responsible for approving all policies and procedures relating to the provision of the Benchmarks. The Committee will regularly - and no less frequently than annually - review the methodology and its evaluation and publication process. Additionally, the Committee will review the methodology and all other relevant policy and procedure documents in response to changes to market conditions or any aspect of the dynamics of the underlying market the Benchmarks seek to measure.

The Committee maintains oversight of the SMM Benchmark methodology and its compilation process, ensuring that SMM prices and indices reflect as closely as possible the objective conditions of physical markets of relevant commodities. The Committee will immediately point out any problem it finds, and propose external consultations and modifications to the existing methodologies or processes, in order to improve the quality of prices or indices published by SMM. The Committee can only propose changes to the methodologies and processes used in future Benchmark assessments, rather than modifying the already published prices or indices.

2. Guidelines to SMM Shanghai 1#copper cathode spot price assessment

2.1 Definition

The SMM Shanghai 1#copper cathode spot price is assessed and reported based on the methodology defined in this document. As an indicative price, it can be referred to by both parties of a Shanghai 1#copper cathode spot transaction for price settlement. The prices reflect the most tradable levels of spot Shanghai 1# copper cathode, ex-works, at the time of publication on each complete trading day. The prices are assessed based on spot transactions that happened in Shanghai, deducting expenses including transportation costs, taxes, and capital costs.

2.2 Introduction of price assessment

SMM collects data information used to evaluate the spot price of Shanghai 1#copper cathode by means of standard acquisition (that is, the collection of raw data information that complies with the SMM Data Standards Policy), from certain price submitters. Collected data include the bids and offers from the buyer and seller that were not traded on the same day, and the actually traded

price of spot transaction provided by the price submitters. The amount of each transaction that can be deemed as the standard 1#copper cathode quote or transaction in the price collection will be not less than 500 mt. Data collection, assessment (calculation) and daily management of SMM 1#copper cathode spot prices are conducted by SMM Shanghai 1# copper cathode operational team (consists of 2 price analysts and as a price manager).

SMM's objective is to collect price (or data) reflecting arm's length spot market activity. Types of data collected can include, but not limited to:

- Concluded transactions
- Firm bids that are available to the whole marketplace, with market accepted terms
- Firm offers that are available to the whole marketplace, with market accepted terms
- Expressions of interest to trade, with market accepted terms
- Third party reports of transactions
- Any other data that may be relevant to SMM prices

The price published by SMM is intended to reflect the real transactable value of a commodity in a time point or period during the day. As such, where a confirmed deal is done for the same specification and loading range as confirmed bids and offers, and when all are declared to the market simultaneously, the deal will take precedence over the bids and offers. During the assessment process, we may consider other information. However, actual transactions, bids and offers will always take precedence.

Please read this paragraph with the SMM Benchmark Guidelines on Hierarchy of Data Inputs available at available at www.metal.com (English) or www.smm.cn (Chinese).

2.3 Source of raw price data

2.3.1 Collecting from price data submitters

Please note that the following standards and procedures need to be read together with the For more information, please refer to the Submitter Exclusion or Inclusion policy available at available at www.metal.com (English) or www.smm.cn (Chinese).

2.3.1.1 Criteria for price data submitters

SMM will select representative market participants from the industry chain as targeted price submitters for SMM 1#copper cathode spot price assessment (data providers include smelters, traders, downstream users and other related units).

SMM will take reasonable care to determine and verify the authenticity and reliability of price provider. The procedure SMM adopts is designed to minimise

the risk of using any abnormal price data and oppose any manipulation of the Benchmark.

The SMM policy includes, but is not limited to, steps to take as follows:

- Collect relevant public domain documents (such as business licenses) for each price submitter and verify the authenticity of the documents.
- Ensure that each price submitter engages in the transaction, procurement, sales or production of copper cathode products.
- Ensure that each employee designated as the contact person of the price submitter can have direct access to relevant data in the company, and have the necessary authority and ability to submit the data to the price analyst of SMM in a timely manner and in accordance with the SMM Benchmark Submitter Code of Conduct.
- Invite other reputable market participants to help verify the credibility of price submitters.

2.3.1.1.1 Criteria for smelters

- Smelters should have copper cathode capacity of above 100,000 mt on an annualised basis; conduct standardised transactions smoothly across channels with stable sales performance; possess operational integrity, and enjoy good reputation in the market, in the view of SMM.
- Smelters should provide objective and honest feedback on their production and sales, including output, operating rate, quality of the product, sales price, sales volume, buyers and inventory, and be able to engage with SMM price analysts.
- Smelters should have a sound understanding of and insight into the macro economy, spot market situation and trades of the Shanghai copper cathode market, and be able to engage with SMM price analysts.

2.3.1.1.2 Criteria for traders

- Traders should have over two years of experience in Shanghai copper cathode spot trading with an annual purchasing or sales volume of above 100,000 mt; conduct standardised transactions smoothly across channels with stable purchasing and sales performance; possess operation integrity, influence and good reputation in the market.
- Traders should provide objective and honest feedback on their copper cathode procurement and sales, including quality of the product, prices and volumes for purchase and sales, sources of procurement, buyers, and inventory, and be able to engage with SMM price analysts.
- Traders should have a sound understanding of and insight of the macroeconomics, status quo and trading of the Shanghai copper cathode market, and be able to engage with SMM price analysts.

2.3.1.1.3 Criteria for downstream users

- Downstream users should have an annual Shanghai copper cathode purchasing volume of above 100,000 mt; conduct standardised transactions smoothly across channels with stable purchasing performance; possess operation integrity, influence and reputation in the market.
- Downstream users should provide an objective and honest feedback on their seaborne copper procurement, including quality of the product, purchase prices and volumes, procurement sources, and inventory, and be able to engage with SMM price analysts.
- Downstream users should have a sound understanding of and insight of the macro economy, keeping up with the latest updates of trading of the Shanghai copper cathode market, and be able to engage with SMM analysts.

2.3.1.2 Formation and adjustment of the price submitter list

SMM selects price contributing companies based on the above criteria to produce a stable list. SMM signs a formal agreement with each price contributing company to ensure the accuracy and timeliness of the data provided as well as protect confidential information of the price submitter. SMM delegates specific price analysts to collect transaction data and data related market information from price submitters. SMM will continue to evaluate every price submitter based on criteria above and make amendments to the lists for price contributing companies based on the results of evaluations. When a company fails to meet the criteria, it would be required to rectify within a limited period. If it refuses to rectify or fails to meet the criteria after within 30 days from the date of issue of the rectification notice, SMM will revoke its qualification for price contributing companies.

2.3.1.3 Process of price data collection

In accordance with the agreement with price contributors, SMM price analysts will collect Shanghai 1#copper cathode spot transaction data from price submitters by means of phone, QQ, WeChat, fax, email and other forms of communication between 9:45 -11:00 China Standard Time ("CST") on each trading day. (Price data that are submitted after 11:00 CST will not be included in price assessment on the day, while data that does not contain the required minimum information details will not be included, either, even if the data are submitted before the deadline)

The data will include traded prices within the day, and the most likely traded prices, bids and offers. All communication content on instant messengers, WeChat messaging and emails as well as face-to-face communication will be recorded, while phone communication via phone calls will also be recorded in summary and input into the database. Price data must be a typical, repeatable transaction between unaffiliated market participants (completely financially and legally independent).

SMM looks to collect as much data as possible, including transactions, offers, bids and specifications of samples. SMM confirms and analyses submissions, and encourages all market participants to become submitters to the SMM Benchmarks and indices, as more extensive data will increase the accuracy of the Benchmarks and indices.

SMM's Operational teams aim to collect comprehensive information related to the underlying markets the index seeks to measure.

Submissions received that do not fully adhere to SMM's defined requirements will not be incorporated into the index calculation.

SMM takes into account the principle of confidentiality, and all employees must strictly abide by SMM confidentiality and Conflicts of Interest policies, and never disclose any Benchmark and index compilation-related information, whether regarding Benchmark and index values, data or customers, unless required to by law.

SMM strictly prohibits Operational team employees and management from participating in transactions, offers, or bids as individuals or on behalf of market participants in the underlying markets the Benchmarks and indices seek to measure or any related derivative markets. They are also not permitted to provide market participants with free subscriptions or any other benefits in exchange for price or market information. A specific Conflicts of Interests declaration is required annually by Operational team employees, managers and any other staff involved in the production of SMM Benchmarks and indices, declaring that they have not benefited from non-public information. All staff involved in the calculation or management of SMM Benchmarks and indices receive regular training on Conflicts of Interest. SMM maintains a Conflicts of Interest Register. For more information please refer to the SMM Conflicts of Interest Policy, available at www.metal.com (English) or www.smm.cn (Chinese).

Price data provided by the submitters to SMM should include at least the following kinds of information. SMM analysts should encourage the price submitter to report as much detailed information as possible, not just the minimum requirements specified:

Product specification

1# copper cathode specification

Standard copper cathode that meets the GB/T467-2010 standard, with copper and silver content

≥99.95% (#1 copper). LME registered brands, BS6017-1981, AMD5725 (CU-

CATH-1).

1# copper cathode brand

Please refer to 2.5.2 for details on major brands of 1# spot copper cathode.

Traded prices/bids/offers

Premium/discount is against the SHFE front-month contract, unit: yuan/mt.

Volume

The minimum transaction size is set at 500 mt.

Delivery location

Warehouses of Shanghai Guochu Logistics, CMST Development, SIPG Logistics Metal Storage, Shanghai Yuqiang Logistics, China Shipping Logistics (East), Tieshan warehouses and other public warehouses.

Payment terms

Payment terms in the negotiated transaction agreement, such as bank cash, acceptance bills, etc.

SMM strictly controls the submission collection process, and only considers transactions, offers and bids that follow standard contract terms. SMM not only collects the submitted trade price, but also on any significant additional information. If necessary, SMM can require the submitter to provide relevant documents to judge the fulfillment of the contract and to verify the validity of data.

2.3.2 Collecting price data from other submitters

SMM's policy on collecting market information and data is that SMM welcomes all information from various sources or organisations, as long as the data submitter provides them for good faith and authentic purposes. However, the data submitter is required to accept the SMM code of conduct on data submitters. SMM does not accept instant messaging requests from unidentified individuals. SMM price analysts are required to confirm the identity of market participants at least in accordance with the procedures specified in 2.3.1.1 before conducting instant messaging communication with the data submitter.

2.4 Detailed formation process and related regulations

2.4.1 Data collection

SMM price analysts will collect price data and information based on the standards mentioned above. And a preliminary raw dataset is finally generated after taking into account offers and bids, spot market conditions, future market conditions, the macroeconomy, industry status, transactions, demand and supply, inventories, and political, economic, and natural factors.

2.4.2 Data normalisation

SMM price analysts will normalise the preliminary data results, and the finalised prices will be in the form of a price range in discounts or premiums against the corresponding most-traded SHFE contract.

High-end of prices: The maximum of the verified traded prices will be decided as the high-end of the price range. The minimum of quotes by sellers will be used as the high-end of the price range where there is a lack of verified traded prices.

Low-end of prices: The minimum of the verified traded prices will be decided as the low-end of the price range. The maximum of quotes by sellers will be used as the low-end of the price range where there is a lack of verified traded prices.

The price data will be recorded both electronically and in writing. All electronic and written records are archived by analysts and kept at least five years in a secure network environment and physical environment. For more details, please refer to the SMM Recordkeeping Policy available at www.metal.com (English) or www.smm.cn (Chinese).

2.4.3 Information data analysis, verification and screening

SMM will always do its best to confirm bids, offers and deals information with related parties. SMM will perform multi-party verification on information provided by the buyers/sellers with their counterparties, and will cross-validate with other relevant participants if the buyers and sellers are unable or unwilling to provide the information.

SMM will exclude any questionable, irreproducible or apparently abnormal quote and transaction in the price evaluation process, and note the reason for removal in the original data set, which will also be kept at least five years. For instance, SMM ensures that only transactions and quotes made between financially and legally independent parties will be included in the price evaluation process. SMM price analysts will compare and analyse data submitted by SMM price submitters, verifying whether the prices show trends that run counter to the wider market. The cases include but are not limited to:

- Traded prices are significantly higher due to the inclusion of special circumstances or special services
- A company's quotes are intentionally higher due to a special sales plan or policy of the company
- A company's bids reflect its prospects for the market price and is intentionally made public in advance

SMM analysts will investigate into the data submitted once any abnormal condition is detected. They will contact the price submitter to verify the accuracy, applicability and completeness of the data. If it is confirmed that errors, such as input errors, are made in the submission process, SMM price analysts will correct the error and conduct verification and screening. If no mistakes are found in the data submission process, it could be concluded that the data submitted is disqualified and has to be removed from the original data set. The finalised price assessment is in the form of a price range in discounts or premiums.

Minimal subjective judgment from analysts is required in the SMM price evaluation process. The established standards and procedures will be applied to manage the actions taken by SMM price analysts in screening the collected data, and to evaluate the data included in the price assessment is valid or if the abnormal data has been excluded. For more details, please refer to the SMM Guidelines for the Exercise of Expert Judgment available at www.metal.com (English) or www.smm.cn (Chinese)

The experience of SMM price analysts in the Shanghai 1# copper cathode trading market is to ensure that only data that meets clear methodological requirements can be included in the price evaluation process. After screening the original data set and removing disqualified data, SMM price analysts will not have any subjective judgment about the normalised data or the price assessments.

The SMM Benchmark Management Committee regularly reviews the implementation of these procedures to ensure compliance with its published standards. To attain the highest possible standards, SMM price analysts are trained and regularly appraised in their respective markets in which they are responsible for assessing prices. This ensures that SMM analysts follow the requirements of the methodology in a consistent manner.

2.4.4 Evaluation of published prices (calculation)

The SMM Shanghai 1# copper cathode price reflects the actual transactions or tradable levels of spot copper cathode in the Shanghai market, and is published daily at 11:00 China Standard Time (CST). The publication includes the absolute prices and premiums/discounts of standard/high-grade copper and hydro copper, reflecting the mainstream traded prices during 9:45-11:00 CST.

The average absolute prices of standard/high-grade copper is a price range covering the high-end price of the SHFE front-month contract during the period of price assessment + the corresponding premium/discount of high-grade copper and the low-end price of the SHFE front-month contract + the

corresponding premium/discount of standard-grade copper.

For the premium/discount of standard/high-quality copper, the low-end price reflects the mainstream transactions of standard-grade copper and the high-end price reflects the mainstream trades of high-grade copper.

The average absolute prices of hydro copper is a price range covering the high-end price of the SHFE front-month contract during the period of price assessment + the premium/discount of hydro copper and the low-end price of the SHFE front-month contract + the premium/discount of hydro copper.

The premium/discount of hydro copper reflects the mainstream transactions of major hydro-copper brands.

For a complete version of Shanghai colored network (SMM) Shanghai 1#Copper cathode methodology, please contact legal@smm.cn.