

Shanghai Metals Market Price Assessment Methodology T/C for Lead Concentrate-Yun Nan

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 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. The notice period may be shortened under special circumstances, especially force majeure (natural disasters, wars, exchange bankruptcy, etc.) 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 assessment of treatment charges(T/C) for Lead Concentrate-Yun Nan. These standards are formulated to establish a transparent and verifiable SMM price setting mechanism and provide market participants with an important pricing indicator.

The SMM Benchmark Management Committee ("the Committee") will regularly - and no less frequently than annually - review the methodology and its evaluation and publication process. 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 T/C for Lead Concentrate-Yun Nan

2.1 Definition

The T/C for Lead Concentrate-Yun Nan (hereinafter referred to as lead concentrate) is assessed and reported based on the methodology defined in this document. As a benchmark, it can be referred to by both parties of lead concentrate spot transaction as their settlement price. The prices are an indicative price range for actual spot lead concentrate transactions in Yunnan every week. Taking demand and supply in the country during the week into consideration, the prices are assessed mainly based on prices for actual lead concentrate transactions, including costs for delivering cargoes from mines to smelters.

2.2 Introduction of price assessment

SMM collects data information used to evaluate lead concentrate TCs by means of standard acquisition (that is, the collection of raw data information that complies with the SMM Data Standards Policy), from data providers, including the bid and offer of the buyer and seller that were not traded during the week, and the price of transaction actually done. The amount of each transaction that can be deemed as standard lead concentrate TCs quotes or trades in the price collection will be no less than 100 mt of lead content. Data collection, assessment (calculation) and daily management of SMM lead concentrate TCs are conducted by SMM Lead Operational Team (consists of position A and B, and a price manager).

The price published by SMM is intended to reflect the real transactable value of a commodity in a time point or period. SMM will also take transactions of lead concentrate that is not the standard grade of 50% into account, and convert the prices into levels for grade of 50% via widely used deduction method as lead concentrate from different mines has different lead content. During the assessment process, we may consider other information. However, actual transactions will always take precedence. **Please read this paragraph with the SMM Benchmark Guidelines on Hierarchy of Data Inputs 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 Submitter Exclusion or Inclusion policy 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 in Yunnan as targeted price submitters for SMM lead concentrate (50% Pb) TC assessment (data providers, including miners, traders and smelters).

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 the local lead concentrate industry chain.
- 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 miners

- Miners should have lead concentrate capacity of above 500 mt Pb 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.
- Miners should provide objective and honest feedback on their lead concentrate 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 Operational Team in accordance with the SMM Benchmark Submitter Code of Conduct.
- Miners should have a sound understanding of and insight into the macro economy, status quo of the lead industry, and trades of the lead concentrate market, and be able to engage with SMM Operational Team in accordance with the SMM Benchmark Submitter Code of Conduct.

2.3.1.1.2 Criteria for traders

- Traders should have over two years of experience in lead concentrate spot trading with an annual purchasing or sales volume of above 1,000 mt Pb; conduct standardised transactions smoothly across channels with stable purchasing and sales performance; possess operation integrity, influence and reputation in the market.
- Traders should provide objective and honest feedback on their lead concentrate procurement and sales, including quality of the product, prices and volumes for purchase and sales, procurement sources, buyers, and inventory, and be able to keep good contact with SMM Operational Team in accordance with the SMM Benchmark Submitter Code of Conduct.
- Traders should have a sound understanding of and insight of the macro economy, status quo of the lead industry and the trading of the lead concentrate market, and be able to engage with SMM Operational Team in accordance with the SMM Benchmark Submitter Code of Conduct.

2.3.1.1.3 Criteria for smelters

- Smelters should have an annual lead concentrate purchasing volume of above 1,000 mt Pb; conduct standardised transactions smoothly across channels with stable purchasing performance; possess operation integrity, influence and reputation in the market.
- Smelters should provide an objective and honest feedback on their lead concentrate procurement, including quality of the product, purchase prices and volumes, procurement sources, and inventory, and be able to engage well with SMM Operational Team in accordance with the SMM Benchmark Submitter Code of Conduct.
- Smelters should have a sound understanding of and insight of the macro economy, status quo of the lead industry and the trading of the lead concentrate market, and be able to engage well with SMM Operational Team in accordance with the SMM Benchmark Submitter Code of Conduct.

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.

The updated list of SMM lead concentrate price contributing companies is as follows:

Business type	Name
Smelter	Yunnan Chihong Zinc & Germanium Co., Ltd.
Smelter	Honghe Prefecture Zhenxing Lead Industry Co., Ltd.
Smelter	Mengzi Mining & Metallurgy Co., Ltd.
Mine	Yunnan Haolong Industry Group Co., Ltd.
Mine	Gejiu Tianhong Mining Co., Ltd.
Mine	Jianshui County Puxiong Township Paper Factory-Lead&Zinc Mine Joint Venture

Note: The list is in no particular order. SMM will amend the list based on the selection criteria in this document.

Data providers will not receive incentives, rewards or benefits from SMM for providing data.

2.3.1.3 Process of price data collection

SMM's Operational Teams will collect lead concentrate spot transaction data from price submitters by means of phone, fax, email, QQ, WeChat and other forms of communication before 17:00 CST every Friday. (Price data that are submitted after 17:00 CST on Friday will not be included in price assessment on the week. The data will include traded prices within the week, and the most likely traded prices. All communication content on instant messengers 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's Operational Teams will report to their manager about any threat by market participants that could undermine or influence the assessment during the price collection process, and comply with **Code of Business Ethics**.

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 specifications

Lead concentrate with Pb content of 50%

Volume

Minimum volume of 100 mt Pb

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 demand and supply balance, inventory levels in the corresponding market, as well as other major 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 of TCs for Pb50% lead concentrate-Yun Nan.

As lead concentrates from different mines differ in grade, SMM will standardise the TCs as follows:

If lead content in the lead concentrates exceeds 50% or is less than 50%, 20 yuan/mt (Pb content) will be deducted from or added into TCs of the standard lead concentrates (50% Pb content) correspondingly, i.e. 20 yuan/mt (Pb content) will be deducted in case where lead content in the lead concentrates exceeds 50%, or 20 yuan/mt (Pb content) will be added in case where lead content in the lead concentrate is less than 50%.

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 will be in the form of a range for TCs.

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 lead concentrate 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 adjust the standardised data or price assessments as buyers and sellers in the lead concentrate transaction process have certain disagreements.

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

Every Friday, SMM price analysts will fine-tune the price data based on their industry experience and the current market supply and demand relationships, and publish the final result of T/C for Lead Concentrate-Yun Nan.

After years of tracking and gathering feedback, SMM applies a strategy of the actually traded price range on a delivery-to-factory basis in assessing lead concentrate TCs as other strategies have proven unreliable. For example, a tonnage weighted calculation will be easily affected by trading volumes of certain companies. As trading volumes are unpredictable, the price assessment methodology that is based on transaction volumes will have the following shortcomings: 1. Individual companies in the region who account for a significant share of the industry could result in excessive transaction volumes and affect the price accuracy; 2. If no deals are reached as the two parties of the transaction cannot agree with each other, it will be impossible to assess prices.

2.4.5 Special circumstances

SMM reserves the right to exercise judgments when trading liquidity is thin. We will make the assessments based on the actual demand and supply relationships in the market, and offers and bids from sellers and buyers if there is a lack of credible or verifiable market information, so as to make sure that the data samples used to evaluate lead concentrate TCs are sufficient and accurate.

For more details, please refer to the SMM Illiquid Market Management Policy and SMM Expert Judgment Policy available at www.metal.com (English) or www.smm.cn (Chinese).

In addition, SMM will also make a price assessment when there are no significant transactions in the week or when the trading volumes are too low to assess a tradable price. In these two cases, the actual supply and demand relationships in the market, and offers and bids from sellers and buyers will also be taken into consideration. SMM will not set the minimum trading volumes for the price assessment under circumstances where sparse deals are heard in the market.

2.4.6 Price publication

The SMM T/C for Lead Concentrate-Yun Nan assessment is published on the SMM websites at www.metal.com (English) or www.smm.cn (Chinese) every Friday, or published in advance in case of public holidays in China.

The deadline for price collection is before 17:00 CST every Friday, and the

following 30-60 minutes are used to verify and calculate the final lead concentrate TCs.

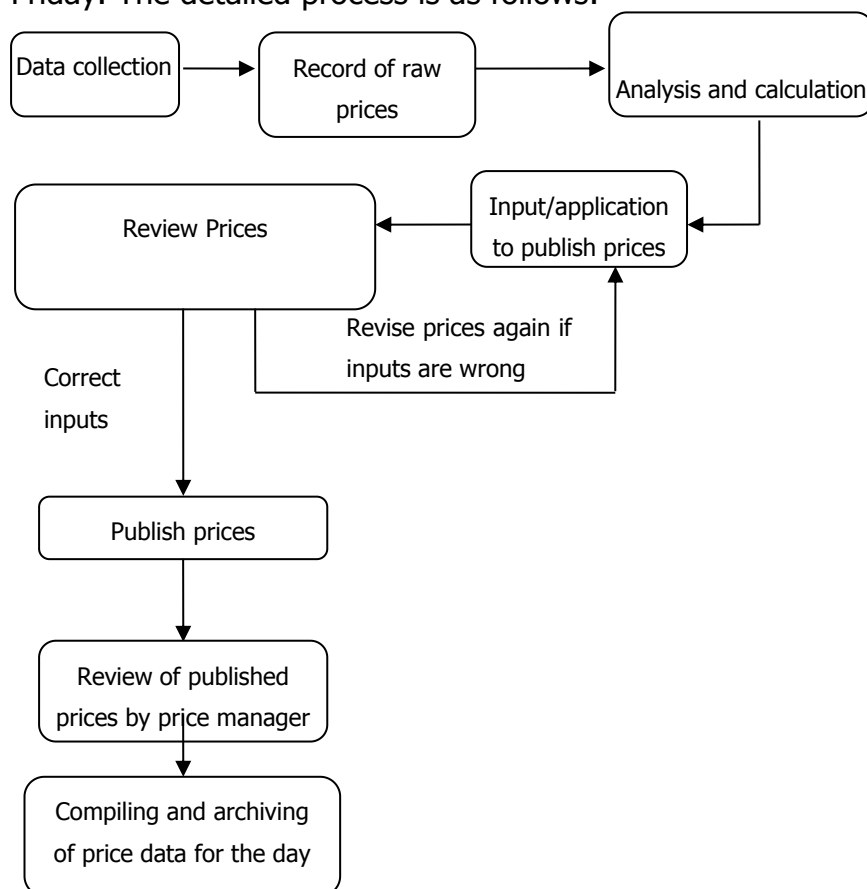
The time of the price publication may also be affected by emergencies and force majeure factors, such as power outages and natural disasters. In such cases, SMM will make every effort to inform the market of the delayed publication schedule as soon as possible. **For more details, please refer to the SMM Disaster Recovery Procedures available at www.metal.com (English) or www.smm.cn (Chinese).**

2.4.7 Modification of published prices

If there are any errors (mistake in calculation or errors caused by incorrect operations) after the price is published, SMM will immediately issue a correction statement to reflect the correct price. **For more details, please refer to the SMM Error Correction Policy available at www.metal.com (English) or www.smm.cn (Chinese).**

2.5 Price assessment process

SMM undertakes the lead concentrate TC assessment before 17:00 CST every Friday. The detailed process is as follows:



2.6 Adjustment to the price assessment methodology

SMM updates our methodologies on a regular basis to reflect a constantly

changing metals trading market. Amendments will be made based on feedback by market participants, and an internal check will be also made regularly. We will follow the external consultation workflow to amend discrepancies in the methodology that may be less time-sensitive. Major revisions and updates will be published 28 days ahead of the changes, to seek opinions from market participants, unless there are unavoidable and unpreventable circumstances such as natural disasters, war or bankruptcy of the exchange, which will shorten the period. SMM promises to carefully look into any feedback to the adjustment of the price methodologies, and will amend the methodologies under certain circumstances even if some market participants do not approve of the changes. We will arrange an official consultation of lead concentrate TC assessment at least once a year. Dates of the most recent and the next session are at the start of this document. **For more details, please refer to the SMM Methodology Review and Changes Policy, available at www.metal.com (English) or www.smm.cn (Chinese).**

3. Historical data

SMM began recording T/C for Lead Concentrate-Yun Nan from April 10, 2015. Subscribers of Shanghai Metals Market are able to access historical data of the price assessments in the past three years. For information on subscribing to historical price data, please visit www.metal.com (English) or www.smm.cn (Chinese). **For more details, please refer to the SMM Recordkeeping Policy, available at www.metal.com (English) or www.smm.cn (Chinese).**

4. Compliance with SMM Policies

All SMM employees must comply with the methodologies published by SMM, as well as follow SMM's internal standards and policies, which include the SMM Conflict of Interest Policy, SMM Whistleblowing Policy, SMM Error Correction Policy, SMM Methodology Review, Consultation and Modification Policy, and SMM Complaint Policy.