

CRU Prices

Lead and Zinc

Concentrates

Methodology and

Definitions Guide

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Methodology and Definitions Guide – Lead and Zinc Concentrates	3
1 <i>Scope</i>	3
2 <i>Methodology</i>	3
Data Providers	3
Data Submitted and Submission Process	3
Data Submission Dependency & Minimum Threshold	3
Final Price Assessment	4
Final Benchmark Publication	5
3 <i>Definitions</i>	6
Trader/smelter spot zinc	6
Miner/trader spot zinc.....	6
Ex. China spot lead	6
China smelter/trader spot zinc	7
China spot lead	7
High Silver Lead Concentrate Treatment Charge	7

Methodology and Definitions Guide – Lead and Zinc Concentrates

1 Scope

This guide covers lead and zinc concentrates prices in all geographical markets and should be read in conjunction with the [CRU Group Compliance Framework and Methodology Guide](#). It details commodity-specific methodology which have precedence, with all other aspects covered by the Group methodology guide.

2 Methodology

The CRU lead and zinc concentrate prices are a monthly assessment of prices representing physical spot transactions and/or prices widely quoted in the spot market. This methodology, which was developed in consultation with the industry (including through our annual underlying market conditions review), allowing CRU to capture market liquidity and establish prices that are reliable and representative of the market. Specification definitions such as price assessment frequency, incoterms, currencies, size/volumes, units and others are aligned with lead and zinc concentrates market requirements and industry conventions.

Data are gathered from Data Providers by email (a submission template may be used), telephone, private one-to-one instant messenger services or other private means of communication.

Our methodology blends strict adherence to transaction data and other methodological rules with limited but necessary application of expert judgement, detailed below, in order to produce a price that benefits from rigour, and Price Assessor expertise and discretion in equal measure.

Data Providers

CRU price assessments are based on regular contact with a wide a network of market participants situated at critical nodes in the supply chain. This network is constantly reviewed to seek a balance of buyers and sellers that are representative of the market.

They must have access to data relating to actual spot market transactions (a purchase or a sale), bid/offer information or be able to provide a credible opinion on such prices in the absence of any other data over the relevant time period. They are therefore typically employed in sales or marketing functions on the sell side and purchasing functions on the buy side, or act in a trading function. Data Providers may also include individuals in finance functions if they can provide the same.

Each data provider is required to meet the criteria stipulated in Section 2.4 of the *CRU Group Compliance Framework and Methodology Guide*.

Data Submitted and Submission Process

Transaction data is prioritised as an input and to that extent the hierarchy of acceptable price types follows that described in Section 2.1 of the *Group Compliance Framework and Methodology Guide*.

In the absence of actual transaction data, the following types of price data may be submitted in the same period: a firm/indicative offer or bid; opinion of the prevailing market price.

Data Providers must supply spot price data relating to spot business in the prior month by 12:30 UK time on the first Wednesday of the month and prior to the publication of the *Lead and Zinc Concentrates Service* each month for their data to be considered.

Data Providers should provide accurate spot price data to CRU detailing date, type of price data and quantity, normalised for delivery basis, pricing period and payment terms to CRU's lead and zinc concentrates definitions below.

Data Submission Dependency & Minimum Threshold

CRU seeks to receive market data information from a broad range of active data sources as possible and seeks to increase the number of companies willing to submit market data. In the event that a limited number of market participants are active in the market, and the market data received constitutes a significant proportion of the total data on which is the assessment is based, CRU will use expert judgement on whether to exclude, or include or defer the indication received until more information is received. This would be based on: observation of the previous price; short term historical price trends; other quantitative market data including prices in other related active markets, producer price change announcements; qualitative information such as that received from interactions with market participants or other CRU Price Assessors, and; other sources of information relevant to the market.

CRU does not outline minimum data thresholds to determine lead and zinc concentrates price assessments to avoid establishing non-representative assessments that may be deemed unrepeatable. Periods of liquidity differs across the markets and data thresholds could result in price assessments that do not accurately reflect the market. Price assessors, instead, aim to source data from a wide range of industry participants to establish the lead and zinc concentrates price assessments, in line with the individual price's market data specifications, such as size, timing, delivery, outlined in this methodology.

When no admissible data is received, price assessors follow the processes set out in the "Price determination in an illiquid market" section and expert judgement would be used to determine the final price value. Further details can be found under Section 2.1 of the *CRU Group Compliance Framework and Methodology Guide*.

Final Price Assessment

Normalisation

The final price is assessed based on all data received by all permissible means. Data which meet the precise definitions below are eligible for admission without any transformation. Data which do not will be subject to a normalisation process in order to adjust for delivery basis etc.

Exclusion of outliers

A Price Assessor may use expert judgement in the exclusion of a data point as an input to the calculation of the final price. In doing so they would consider: the range and distribution of data collected in the same timeframe from other data providers; previous data received from the same data provider; non-price information received from the data provider; market state and direction information from any other source. Inclusion or exclusion of input data in the final price is explicit and recorded.

Price determination in an illiquid market

In the cases of zero submissions or where all submissions were deemed inadmissible, expert judgement would be used to determine the final price value. This choice would be based on: observation of the previous week's prices; short term historical price trends; other quantitative market data including prices in other related active markets, producer price change announcements; qualitative information such as that received from interactions with market participants or other CRU Price Assessors, and; other sources of information relevant to the spot market.

The Price Assessor will use their judgement to evaluate the volume, quality and coherence of any such market information they may possess. If one or more of these factors in combination does not provide a sufficiently clear indication of the direction and extent of market movement to allow the Price Assessor to confidently change the price from the previous value, the prior value would be rolled over to form the current period value.

Expert judgement

Expert judgement may apply to decisions on whether price data submitted relate to actual deals concluded, if normalisation of price data submitted is required and the means of any normalisation, and the inclusion of a data point in calculation of the final price.

A Price Assessor will consult with one or more colleagues before any application of expert judgement if in any doubt or where collective input would improve the quality of a judgement.

Consistency in the application of expert judgement is achieved through a combination of selection, formal and informal training and review, supervision and control processes as detailed in section 4.5 of the *CRU Group Compliance Framework and Methodology Guide*.

Price Verification

Input data points, calculations and the final price for publication are reviewed and approved by a second Price Assessor in the CRU's Prices System (CPS).

Deactivated Prices

A price assessment will remain active as long as there are sufficient buyers, sellers and/or traders for the Price Assessor to make an accurate assessment. If the quotation suffers from limited transparency or if business dynamics change, it may be deactivated following market consultation. Its history will still be available, but no further information will be collected for that assessment from the time it is deactivated.

Final Benchmark Publication

CRU lead and zinc concentrates prices are published in the *CRU Lead and Zinc Concentrates Service*, via CRU Online; data feeds including APIs; and DataLab (CRU's data delivery platform).

Monthly prices are first published on CRU Online on the first non-public holiday Wednesday of each month.

3 Definitions

Trader/smelter spot zinc

DataLab Name:	Zinc, Concentrates, trader/smelter TC, Spot price; China, CIF
Material:	Zinc concentrates of ex-China origin grading 50-55% zinc with no payable by-products or penalty elements
Price basis:	CIF main Chinese port
Type:	Spot
Currency:	US dollar
Weight unit:	Dry metric tonne
Size:	Minimum 5,000 dmt
Delivery:	Prompt to 1 month
Pricing variable:	Treatment charge (TC) per dmt of concentrate (TC is net of price participation where appropriate)
Payment terms:	Buyer pays seller for a portion of the contained zinc less the TC; portion is full content less the greater of 15% of content or 8 percentage points from zinc assay; its value is based on the LME cash price; seller receives prompt payment
Frequency:	Monthly

Miner/trader spot zinc

DataLab Name:	Zinc, Concentrates, Miner/Trader, TC, Spot price; China, CIF
Material:	Zinc concentrates of ex-China origin grading 50-55% zinc with no payable by-products or penalty elements
Price basis:	CIF main Chinese port
Type:	Spot
Currency:	US dollar
Weight unit:	Dry metric tonne
Size:	Minimum 5,000 dmt
Delivery:	Prompt to 5 months
Pricing variable:	Treatment charge (TC) per dmt of concentrate (TC is net of price participation where appropriate)
Payment terms:	Buyer pays seller for a portion of the contained zinc less the TC; portion is full content less the greater of 15% of content or 8 percentage points from zinc assay; its value is based on the LME cash price; seller receives prompt payment
Frequency:	Monthly

Ex. China spot lead

DataLab Name:	Lead, Concentrates, Low Silver, TC, Spot price; China, CIF
Material:	Lead concentrates of ex-China origin grading 55-65% lead and no more than 400 g/t silver with no other payable by-products or penalty elements
Price basis:	CIF main Chinese port
Type:	Spot
Currency:	US dollar
Weight unit:	Dry metric tonne
Size:	Minimum 5,000 dmt
Delivery:	Prompt to 1 month
Pricing variable:	Treatment charge (TC) per dmt of concentrate (TC is net of price participation where appropriate)
Payment terms:	Buyer pays seller for a portion of the contained lead less the TC; portion is full content less the greater of 5% of content or 3 percentage points from lead assay; its value is based on the average of LME cash and LME 3-month prices; seller receives prompt payment
Frequency:	Monthly

China smelter/ trader spot zinc

DataLab Name:	Zinc, Concentrates, trader/smelter TC, Spot price; China, delivered
Material:	Zinc concentrates of Chinese origin grading 50% zinc with no payable by-products or penalty elements
Price basis:	Delivered to smelter's gate
Type:	Spot
Currency:	Renminbi
Weight unit:	Metric tonne
Size:	Minimum 1,000 dmt
Delivery:	Prompt to 1 month
Pricing variable:	Treatment charge (TC) per tonne of zinc contained in concentrate
Payment terms:	Buyer pays seller for the total value of the contained zinc less the TC; value is based on prices published by Shanghai Metal Markets; seller receives prompt payment
Frequency:	Monthly

China spot lead

DataLab Name:	Lead, Concentrates, Low Silver, TC, Spot price; China, delivered
Material:	Lead concentrates of Chinese origin grading 50-55% lead and no more than 400 g/t silver with no other payable by-products or penalty elements
Price basis:	Delivered to smelter's gate
Type:	Spot
Currency:	Renminbi
Weight unit:	Metric tonne
Size:	Minimum 1,000 dmt
Delivery:	Prompt to 1 month
Pricing variable:	Treatment charge (TC) per tonne of lead contained in concentrate
Payment terms:	Buyer pays seller for the total value of the contained lead less the TC; value is based on prices published by Shanghai Metal Markets; seller receives prompt payment
Frequency:	Monthly

High Silver Lead Concentrate Treatment Charge

DataLab Name:	Lead, Concentrates, High Silver, TC, Spot price; China, CIF
Material:	Lead concentrates of ex-China origin grading 55-65% lead and over 3000g/t silver with no other payable by-products or penalty elements
Price basis:	CIF main Chinese port
Type:	Spot
Currency:	US dollar
Weight unit:	Dry metric tonne
Size:	Minimum 5,000 dmt
Delivery:	Prompt to 1 month
Pricing variable:	Treatment charge (TC) per dmt of concentrate (TC is net of price participation where appropriate)
Payment terms:	Buyer pays seller for a portion of the contained lead less the TC; portion is full content less the greater of 5% of content or 3 percentage points from lead assay; its value is based on the average of LME cash and LME 3-month prices; seller receives prompt payment
Frequency:	Monthly

Glossary of Abbreviations

INCO TERM RULES FOR ANY MODE OR MODES OF TRANSPORT:

EXW – Ex-Works
FCA – Free Carrier
CPT – Carriage Paid To
CIP – Carriage and Insurance Paid To
DAT – Delivered at Terminal
DAP – Delivered at Place
DDP – Delivered Duty Paid

INCO TERM RULES FOR SEA AND INLAND WATERWAY TRANSPORT:

FAS – Free Alongside Ship
FOB – Free on Board
CFR – Cost and Freight
CIF – Cost Insurance and Freight

COUNTRY ABBREVIATIONS USED:

We use ISO 3166 alpha-2 standard country codes