

CRU Prices
Battery Materials
Methodology and
Definitions Guide

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Methodology and Definitions Guide – Battery Materials

1 Scope

This guide covers battery materials 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

CRU collects battery materials prices. These prices are gathered from regular discussions with a wide network of market participants. This network is frequently reviewed to ensure a balance of buyers and sellers, and to reflect actual activity in the market. CRU also conducts consultations with the market about its methodology – all answers are treated as confidential.

Assessment Method

Analysts use telephone, electronic messaging, and email services to collect prices as well as to verify the information received. We endeavour to record actual transactions, but also include bids, offers and other market information. More weighting is given to transactions when assessing a price from a range of possible levels.

Price determination in an illiquid market

Data is gathered through consultation with producers, consumers, and traders. Published prices reflect the average of the deals concluded within the timeframe under consideration. Outliers are excluded from the assessment. If a market has been quiet with no deals concluded, prices are rolled over. However, if the overall market trend is strongly upward or downward but there were no transactions concluded, bids, offers and other market information will be used to form the assessment.

Exclusion of outliers

Expert judgement may be used in the exclusion of a data point as an input to the calculation of a final price. In doing so consideration may be given to 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 and the current market state from any other source. Inclusion or exclusion of input data in the final price is recorded.

Any data that deviates from the previous assessed range or the collected data for the trading period will receive extra scrutiny. For example, if a transaction is considered to be a potential outlier, supporting documentation as a means of further authentication may be asked for. Supporting documentation is typically a contract or purchase/sales order, but other documentation may be accepted. Supporting documentation may not be asked for when, in CRU's judgement, the data is otherwise corroborated or deemed valid.

Expert Judgment

Expert judgement may apply to decisions on what type of data is submitted; if the deal is executed at arms-length; if normalisation of price data submitted is required; the means of any normalisation, and the inclusion of a data point in the calculation of the final price (exclusion of outliers).

An analyst 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.

Deactivated premiums, discounts, and charges

A price will remain active as long as it can be demonstrated that there are a sufficient number of buyers and sellers and/or traders which allow for the analyst to make an accurate assessment. If the quotation suffers from limited transparency or if business dynamics change, it will be deactivated. Its history will still be available to clients for a fee, should they require it, but no further information will be collected for that product from the time it is deactivated.

Final publication

CRU's battery metal prices are published in the *CRU Battery Material Monitor*, associated *Battery Material Price Baskets*, via FTP data feeds and available in DataLab.

3 Definitions

Battery Materials

Cobalt

China sulfate 20.5% Co DAP

DataLab Name:	Cobalt, Sulphate, 20.5% Co, Spot premium; China, DAP
Grade:	Co 20.5% min
Form:	Crystal
Price basis:	DAP
Credit/Payment terms:	Bank acceptance (other payment normalized)
Loading Location:	Producer plant
Type:	Spot - Assessed
Currency:	RMB
Weight Unit:	Metric ton of material
Size:	Min lot size 5 tonnes
Timing:	No more than 4 weeks forward
Main Consumer Markets:	China
Pricing:	Business reported by sellers to buyers – no inter-trade activity
Duties/Tariffs:	VAT included, any other duties excluded
Frequency:	Weekly, every Friday

Nickel

China Nickel sulfate min 21% - max 22.5%, Co 10ppm max RMB/t

DataLab Name:	Nickel, Sulphate, min 21% - max 22.5%, Spot premium; China, DAP
Grade:	Nickel content min 21%, max: 22.5%; Cobalt 10ppm max
Form:	Crystal
Price basis:	DAP
Credit/Payment terms:	Bank acceptance (other payment normalized)
Loading Location:	Producer plant
Type:	Spot - Assessed
Currency:	RMB
Weight Unit:	Metric ton of material
Size:	Min lot size 1 tonne
Timing:	No more than 4 weeks forward
Main Consumer Markets:	China
Pricing:	Business reported by sellers to buyers – no inter-trade activity
Duties/Tariffs:	VAT included, any other duties excluded
Frequency:	Weekly, every Friday

Lithium

China lithium carbonate 99.5% Li₂CO₃ battery grade

DataLab Name:	Lithium, Carbonate, 99.5% Li ₂ CO ₃ Battery grade, Spot premium; China, DAP
Grade:	Min 99.5% Li ₂ CO ₃ (delivery of Min 99.2% Li ₂ CO ₃ also accepted, if qualified for use in battery applications)
Form:	Powder
Price basis:	DAP China
Credit/Payment terms:	Bank acceptance (other payment normalized)
Loading Location:	Producer plant
Type:	Spot - Assessed

Currency:	RMB
Weight Unit:	Metric ton of material
Size:	Min lot size 5 tonnes
Timing:	No more than 4 weeks forward
Main Consumer Markets:	China
Pricing:	Business reported by sellers to buyers – no inter-trade activity
Duties/Tariffs:	VAT included, any other duties excluded
Frequency:	Weekly, every Friday

Lithium hydroxide monohydrate LiOH 56.5% min, battery grade

DataLab Name:	Lithium, Hydroxide Monohydrate, 56.5% LiOH Battery grade, Spot premium; China, DAP
Grade:	Li 56.5% min, battery grade
Form:	Powder
Price basis:	DAP
Credit/Payment terms:	Bank acceptance (other payment normalized)
Loading Location:	Producer plant
Type:	Spot - Assessed
Currency:	RMB
Weight Unit:	Metric ton of material
Size:	Min lot size 5 tonnes
Timing:	No more than 4 weeks forward
Main Consumer Markets:	China
Pricing:	Business reported by sellers to buyers – no inter-trade activity
Duties/Tariffs:	VAT included, any other duties excluded
Frequency:	Weekly, every Friday

Manganese sulfate

China 32% Mn min battery grade, EXW

DataLab Name:	China Manganese sulfate 32% Mn min, EXW
Grade:	32% Mn min, Fe 0.001% max, Zn 0.001% max, Cu 0.001% max, Pb 0.001% max, Cd 0.0005% max, K 0.01% max, Na 0.01% max, Ca 0.01% max, Mg 0.01% max, Ni 0.005% max, Co 0.005% max
Price basis:	China ex-works
Credit/Payment terms:	Bank acceptance bill/Cash
Loading Location:	Producing plant
Type:	Spot
Currency:	RMB
Weight Unit:	Tonne
Size:	33t +
Timing:	n/a
Main Consumer Markets:	China mainland
Pricing:	Business reported by sellers to buyers, including producers to traders
Duties/Tariffs:	VAT included, any other duties excluded
Frequency:	Monthly