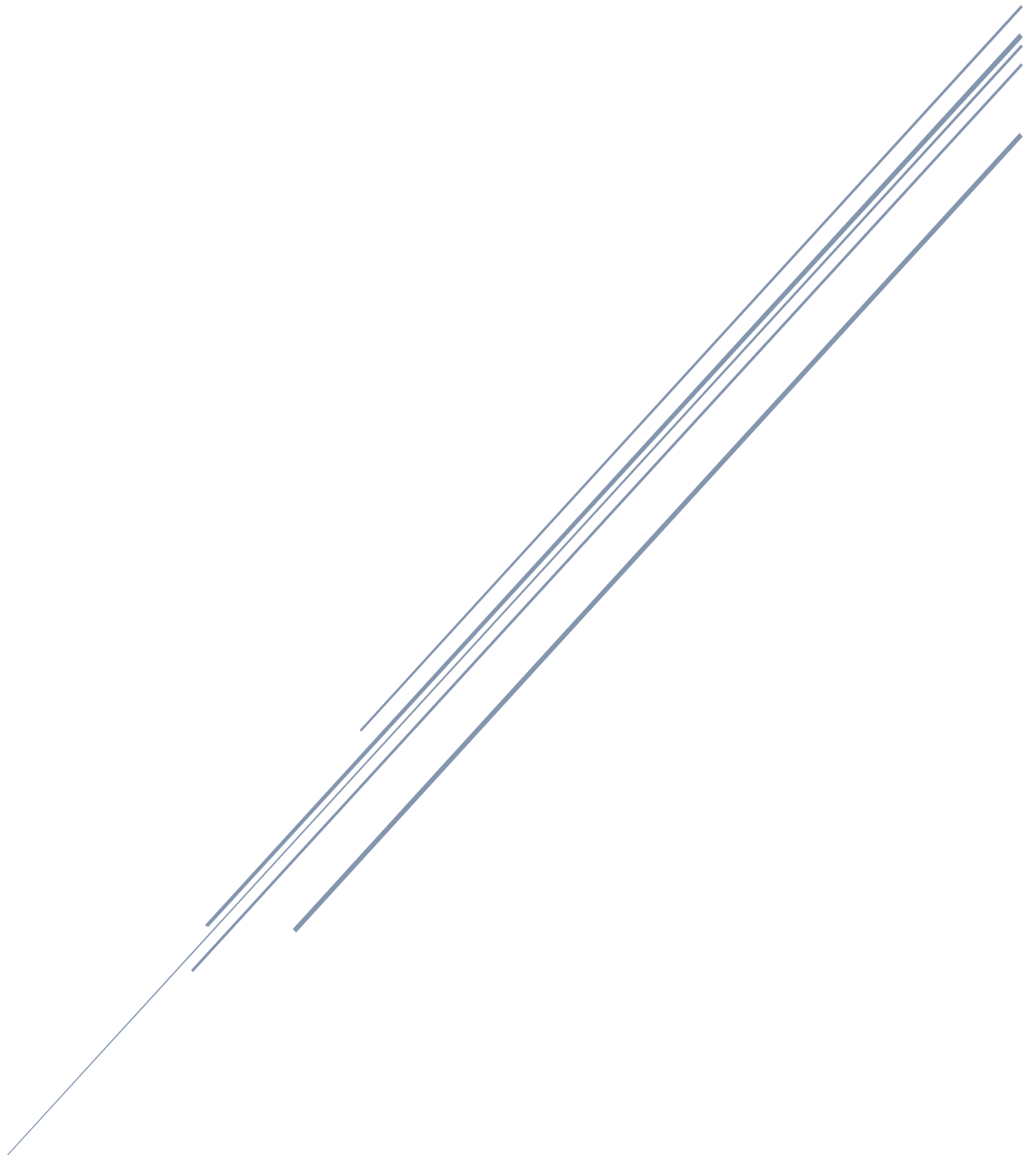


# BATTERY PRICE REPORT, PRICING METHODOLOGY AND SPECIFICATIONS



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## Industrial Minerals' Mission Statement

Industrial Minerals, part of The Metal Bulletin Group, aims to provide leading pricing intelligence, including independent industry benchmarks for the metals, minerals and mining industry. The group's global portfolio of news, analysis, conferences and insight services complement these price benchmarks.

## Introduction

Industrial Minerals, as the leading global provider of information and prices for the industrial minerals markets, has been producing price assessments since the 1980's.

Industrial Minerals employs a team of reporters located in Europe, Asia and North America to cover a wide variety of markets across the world.

Industrial Minerals' reporters are required to abide by a code of conduct and clear pricing procedures during their market reporting and pricing activities. Industrial Minerals is completely independent and has no vested commercial interest in any of the markets it prices.

The aim of this document is to provide a clear overview of Industrial Minerals' methodology and the specification of the prices it assesses.

If you have any questions, please contact Industrial Minerals' Editor Barbara O'Donovan, [bodonovan@indmin.com](mailto:bodonovan@indmin.com).

## Industrial Minerals' price discovery process and methodology

### *Methodology Rationale*

Industrial Minerals produces independent, fair and representative price assessments of industrial minerals prices on a weekly basis.

Industrial Minerals' rationale to adopt and develop the price discovery process and the methodology described in the present guide is to produce assessments that are a consistent and representative indicator of value of the market which they relate to for the trading period they measure.

During the price discovery process, the price reporters' goal is to discover at what representative level market participants have concluded business, made offers or received bids over a certain defined trading period – generally the period since the conclusion of the previous price quotation (if, for instance, the last price assessment published by Industrial Minerals was on Thursday 3-4pm London time and our next assessment is due on Thursday 3-4pm London time, we will accept price data for business conducted and reported to Industrial Minerals between Thursday afternoon and Thursday morning).

The time period, or window, identified to assess a market (e.g. daily, bi-weekly, weekly) is determined by Industrial Minerals after considering the number of data points that Industrial Minerals can reasonably expect to collect on a consistent basis over the selected period to support the price assessment process.

### *Data collection criteria*

Industrial Minerals reporters aim to talk to a broad sample of market participants specifically involved in the buying and selling of the mineral of interest, with a good representation of both sides of the market, including producers and consumers, as well as traders.

Data is collected from market participants directly involved in spot and contract business primarily by telephone, but also by email, digital messaging or direct submission. All input data received is kept confidential and stored in a secure network.

Industrial Minerals encourages organisations to submit all their pricing data, especially all the concluded transactions. Depending on market liquidity Industrial Minerals reserves the right to base its prices also on bids, offers, deals heard and market participants' assessment or indication of prevailing values.

Industrial Minerals welcomes organisations to submit transaction data from authorised back office functions.

#### *Price specifications and reference units*

Industrial Minerals has clear specifications for all the price points that it covers. All the reference units, such as currency and volume, are in line with recognised metals markets trading conventions.

Industrial Minerals specifications detail the material's characteristics or quality, location and the incoterm accepted. These specifications are determined in consultation with market participants and following industry convention. Reporters ensure that the information they receive matches these specifications.

#### *Guidelines that control the exercise of judgment by price reporters during the assessment process*

To produce the price assessment greater weighting is generally given to actual concluded transaction data, bids/offers are second in order of importance, followed by data sources' own assessment of the market when they have no business to report. However, other consideration might also intervene such as, the trustworthiness of a data source based on past data submissions, or their willingness to provide data on a consistent basis.

Industrial Minerals seeks price information for trades with a relevant minimum lot size. When volume information is available, this is also taken into consideration in the assessment process, for instance typically a deal with a bigger volume will carry more weight in the price reporter judgement than a smaller volume transaction. However, price reporters will also consider, for instance, to normalise or discard a price reported for a deal with an abnormally large or small volume.

As commodity markets differ in liquidity level at different periods, the methodology does not set any minimum number, or threshold, of transactions to be gathered on which to base the assessment.

A pricing session typically includes bids/offers, contributors' assessment as well as concluded transactions. This means that market data will typically be contributed by several separate sources and that there is no key submitter dependency. However, should a significant proportion of the data (defined as more than 50% of the data points) on which to base the assessment be provided by a single source, the reporter, peer reviewer and the senior editorial person signing-off the price prior to publication will analyse the data and consider if it is the case to publish an assessment based on the data collected or rather not to move the price and roll it over from the previous session.

#### *Data normalisation*

Occasionally Industrial Minerals might receive price data for material where specifications differ in some element from our specifications – for instance, different material quality, delivery terms or delivery location, different cargo size or payment terms. In such cases, when appropriate, Industrial Minerals normalises data to our typical specification.

A typical example would be a price that is either net-back or net-forward due to delivery terms different from Industrial Minerals's specification.

#### *Criteria to discard pricing data*

Industrial Minerals will use its expert judgment to exclude outlying or unrepresentative numbers, and discount or discard prices that it believes may otherwise be questionable and unreliable.

When required, for instance when a transaction appears questionable or outside the range reported by other market participants, Industrial Minerals may seek to confirm information on deals either by requesting a signed copy of the contract or other materials as evidence of claimed deals, or by checking the deal information with the counterparty. If no evidence of the deal is provided, Industrial Minerals may discard the data from the pricing process.

### *Procedure to ensure consistency in the price discovery procedures*

All Industrial Minerals price assessments are set by a first reporter who covers that specific market, peer reviewed by a second reporter, and always signed-off and approved by a senior reporter or editor prior to publication. This peer review process is in place to make sure that pricing procedures and methodologies are correctly and consistently applied and to ensure integrity and quality of the published prices.

Price reporters are formally trained in the price discovery process and must abide by a written Code of Conduct and Pricing Procedures.

### *Publication of the price assessment*

At the end of the pricing session, from the information that Industrial Minerals receives and reviews it sets a price range, to reflect the representative spread of prices at which business has been transacted, offered or bid.

## Methodology and price specification review process

Industrial Minerals continually develops and revises its methodologies in consultation with industry participants, aiming to adopt product specifications and trading terms and conditions that actually reflect and are representative of typical working practices in the industry.

Changes to the methodology and/or price specification are implemented following a consultation process which starts with Industrial Minerals posting on its website an advance pricing notice providing clear details and a timeframe for the change proposed. The objective of the consultation process is to give market participants sufficient time and opportunity to provide feedback and views about the change proposed.

## Price Correction policy

Publication of price errors can occasionally happen for reasons that may include technical, input errors or incorrect application of the methodology.

To minimise as much as possible the inconvenience to our subscribers, Industrial Minerals aims to investigate each error immediately as it becomes aware of it and to publish a correction promptly on its website through a pricing notice with an explanation of the reason for the correction.

Industrial Minerals will publish a correction of a price only where it has established that undeniably there has been an error. Industrial Minerals price assessments are produced based on the best data available at the time of the assessment. It will not retroactively change a price based on new information or additional submission of data received after a respective pricing session has closed.

## Become a contributor to the price discovery process

Industrial Minerals continually seeks to increase the number of market sources willing to take part in the price discovery process. The main condition Industrial Minerals requires from contributors is to be active participants in the spot market. Industrial Minerals' Data Submitter Policy provides guidelines defining the high level of data quality and integrity that Industrial Minerals expects from a contributing organisation providing pricing data. The Policy can be found on Metal Bulletin's website or upon request.

All data sources are subject to review before their data submitted is fully taken into account in the pricing process. The aim is to make sure that submitters are trustworthy and have sufficient visibility and understanding of the market to be able to provide viable price data.

If you want to become a contributor to Industrial Minerals pricing, or have questions or comments about the methodology and price specifications, please contact Industrial Minerals' head of market reporting [Yoke Wong yoke.wong@indmin.com](mailto:yoke.wong@indmin.com) or Industrial Minerals' editor Barbara O'Donovan [bodonovan@indmin.com](mailto:bodonovan@indmin.com).

# Lithium compounds

## Carbonate

[Lithium carbonate min 99-99.5% Li<sub>2</sub>CO<sub>3</sub>, large biannual contracts, del continental US, \\$/kg](#)

Price	
Currency & Unit:	US Dollars per kilogram
Currency & Unit:	Continental United States
Basis	Delivered continental Europe
Price Type	Assessment
Frequency	Weekly
Min lot size	20-25 kg
Quality	min 99-99.5% LiCO <sub>3</sub>
Form	Powder
Publication	Weekly, Thursday between 3pm and 4pm on Thursday

[Lithium carbonate min 99-99.5% Li<sub>2</sub>CO<sub>3</sub>, large quarterly contracts, del continental US, \\$/kg](#)

Price	
Currency & Unit:	US Dollars per kilogram
Location	Continental United States
Basis	Delivered continental United States
Price Type	Assessment
Frequency	Weekly, Thursday
Min lot size	20-25 kg
Quality	min 99-99.5% LiCO <sub>3</sub>
Form	Powder
Publication	Weekly, Thursday between 3pm and 4pm on Thursday

[Lithium carbonate min 99-99.5% Li<sub>2</sub>CO<sub>3</sub>, large contracts, packed in bags, CIF Asia, \\$/kg](#)

Price	
Currency & Unit:	US Dollars per kilogram
Location	Asia
Basis	CIF
Price Type	Assessment
Frequency	Weekly, Thursday
Min lot size	20-25 kg
Quality	min 99-99.5% LiCO <sub>3</sub>
Form	Powder
Publication	Weekly, Thursday between 3pm and 4pm on Thursday

Price [Lithium carbonate min 99-99.5% Li<sub>2</sub>CO<sub>3</sub>, spot price, packed in bags, CIF China, \\$/kg](#)

Currency & Unit: US Dollars per kilogram

Location China

Basis Cost, insurance & freight

Price Type Assessment

Frequency Weekly: Thursday

Min lot size 20-25 kg

Quality min 99-99.5% LiCO<sub>3</sub>

Form Powder

Publication Weekly, between 3pm and 4pm on Thursday

Price [Lithium carbonate min 99% Li<sub>2</sub>CO<sub>3</sub> technical and industrial grades, contract prices DDP Europe and US, \\$/kg](#)

Currency & Unit: US Dollars per kilogram

Location Continental United States

Basis Delivered continental United States

Price Type Assessment

Frequency Weekly, Thursday

Min lot size 20-25 kg

Quality min 99-99.5% LiCO<sub>3</sub>

Form Powder

Publication Weekly, Thursday between 3pm and 4pm on Thursday

Price [Lithium carbonate min 99% Li<sub>2</sub>CO<sub>3</sub> technical and industrial grades, spot prices DDP Europe and US, \\$/kg](#)

Currency & Unit: US Dollars per kilogram

Location Continental United States

Basis Delivered continental United States

Price Type Assessment

Frequency Weekly, Thursday

Min lot size 20-25 kg

Quality min 99-99.5% LiCO<sub>3</sub>

Form Powder

Publication Weekly, Thursday between 3pm and 4pm on Thursday

Price	<a href="#">Lithium carbonate min 99.5% Li<sub>2</sub>CO<sub>3</sub> battery grade, contract prices DDP Europe and US, \$/kg</a>
Currency & Unit:	US Dollars per kilogram
Location	Continental United States
Basis	Delivered continental United States
Price Type	Assessment
Frequency	Weekly, Thursday
Min lot size	20-25 kg
Quality	min 99-99.5% LiCO <sub>3</sub>
Form	Powder
Publication	Weekly, Thursday between 3pm and 4pm on Thursday

Price	<a href="#">Lithium carbonate min 99.5% Li<sub>2</sub>CO<sub>3</sub> battery grade, spot prices DDP Europe and US, \$/kg</a>
Currency & Unit:	US Dollars per kilogram
Location	Continental United States
Basis	Delivered continental United States
Price Type	Assessment
Frequency	Weekly, Thursday
Min lot size	20-25 kg
Quality	min 99-99.5% LiCO <sub>3</sub>
Form	Powder
Publication	Weekly, Thursday between 3pm and 4pm on Thursday

## Hydroxide

Price	<a href="#">Lithium hydroxide 56.5-57.5% LiOH, large biannual contracts, packed in drums or bags, del Europe or US, \$/kg</a>
Currency & Unit:	US Dollars per kilogram
Location	Euorpe or United States
Basis	Delivered
Price Type	Assessment
Frequency	Weekly, Thursday
Min lot size	25kg
Quality	56.5-57.5% LiOH
Form	Powder
Publication	Weekly, Thursday between 3pm and 4pm on Thursday

Price [Lithium hydroxide, Chinese, \(56.5-57.5% LiOH\), packed in drums or bags, large contracts, del Europe \\$/kg](#)  
Currency & Unit: US Dollars per kilogram  
Location Europe  
Basis Delivered  
Price Type Assessment  
Frequency Weekly, Thursday  
Min lot size 25kg  
Quality 56.5-57.5% LiOH  
Form Powder  
Publication Weekly, Thursday between 3pm and 4pm on Thursday

Price [Lithium hydroxide 56.5-57.5% LiOH, large quarterly contracts, packed in drums or bags, del Europe or US, \\$/kg](#)  
Currency & Unit: US Dollars per kilogram  
Location Europe or United States  
Basis Delivered  
Price Type Assessment  
Frequency Weekly, Thursday  
Min lot size 25kg  
Quality 56.5-57.5% LiOH  
Form Powder  
Publication Weekly, Thursday between 3pm and 4pm on Thursday

Price [Lithium hydroxide 56.5-57.5% LiOH, spot price, packed in drums or bags, del China, \\$/kg](#)  
Currency & Unit: US Dollars per kilogram  
Location China  
Basis Delivered  
Price Type Assessment  
Frequency Weekly, Thursday  
Min lot size 25kg  
Quality 56.5-57.5% LiOH  
Form Powder  
Publication Weekly, between 3pm and 4pm on Thursday



Price [Lithium hydroxide monohydrate min 56.5% LiOH2O technical and industrial grades, contract prices, DDP Europe and US, \\$/kg](#)  
Currency & Unit: US Dollars per kilogram  
Location Europe or United States  
Basis Delivered  
Price Type Assessment  
Frequency Weekly, Thursday  
Min lot size 25kg  
Quality Min 56.5% LiOH2O  
Form Powder  
Publication Weekly, Thursday between 3pm and 4pm on Thursday

Price [Lithium hydroxide monohydrate min 56.5% LiOH2O technical and industrial grades, spot prices, DDP Europe and US, \\$/kg](#)  
Currency & Unit: US Dollars per kilogram  
Location China  
Basis Delivered  
Price Type Assessment  
Frequency Weekly: Thursday  
Min lot size 25kg  
Quality Min 56.5% LiOH2O  
Form Powder  
Publication Weekly, between 3pm and 4pm on Thursday

Price [Lithium hydroxide monohydrate min 56.5% LiOH2O battery grade, contract prices, DDP Europe and US, \\$/kg](#)  
Currency & Unit: US Dollars per kilogram  
Location China  
Basis Delivered  
Price Type Assessment  
Frequency Weekly: Thursday  
Min lot size 25kg  
Quality Min 56.5% LiOH2O  
Form Powder  
Publication Weekly, between 3pm and 4pm on Thursday

Price [Lithium hydroxide monohydrate min 56.5% LiOH2O battery grade, spot prices, DDP Europe or US, \\$/kg](#)  
Currency & Unit: US Dollars per kilogram  
Location China  
Basis Delivered  
Price Type Assessment  
Frequency Weekly: Thursday  
Min lot size 25kg  
Quality Min 56.5% LiOH2O  
Form Powder  
Publication Weekly, between 3pm and 4pm on Thursday

# Lithium Minerals

Price [Spodumene concentrate, > 7.5% Li<sub>2</sub>O, bulk, CIF Asia, \\$/tonne](#)  
Currency & Unit: US Dollar  
per tonne Location: Asia  
Basis: CIF  
Price Type: Assessment  
Frequency: Weekly, Thursday  
Quality: > 7.5% Li<sub>2</sub>O  
Publication: Weekly, between 3pm and 4pm on Thursday

Price [Spodumene concentrate, min 5.5% Li<sub>2</sub>O, bulk, FOB Australia, \\$/tonne](#)  
Currency & Unit: US Dollar per tonne  
Location: Asia  
Basis: CIF  
Price Type: Assessment  
Frequency: Weekly, Thursday  
Quality: min 5.5% Li<sub>2</sub>O  
Publication: Weekly, between 3pm and 4pm on Thursday

Price [Spodumene concentrate, 5% Li<sub>2</sub>O, CIF Asia, \\$/tonne](#)  
Currency & Unit: US Dollar per tonne  
Location: Asia  
Basis: CIF  
Price Type: Assessment  
Frequency: Weekly, Thursday  
Quality: min 5% Li<sub>2</sub>O  
Publication: Weekly, between 3pm and 4pm on Thursday

# Graphite

## Spherical

Price [Graphite Spherical, 99.95% C, 15 microns, FOB China \[USD/tonne\]](#)  
Currency & Unit: US Dollar per tonne  
Location: China  
Basis: FOB  
Price Type: Assessment  
Frequency: Weekly  
Min lot size: 150-200 tonnes  
Quality: 99.95% C, 15 microns  
Publication: Weekly, between 3pm and 4pm on Thursday

Price	<a href="#">Graphite Flake, 94-97% C, +80 Mesh, FCL, CIF, Europe [USD/tonne]</a>
Currency & Unit:	US Dollar per tonne
Location	Europe
Basis	CIF
Price Type	Assessment
Frequency	Weekly
Min lot size	500 tonnes
Quality	94-97% C, +80 Mesh
Publication	Weekly, Thursday between 3pm and 4pm on Thursday

## Flake

Price	<a href="#">Graphite Flake, 94-97% C, +80 Mesh, FCL, FOB, Qingdao, China [USD/tonne]</a>
Currency & Unit:	US Dollar per tonne
Location	Qingdao, China
Basis	FOB
Price Type	Assessment
Frequency	Weekly
Min lot size	500 tonnes
Quality	94-97% C, +80 Mesh
Publication	Weekly, Thursday between 3pm and 4pm on Thursday

Price	<a href="#">Graphite Flake, 94-97% C, -100 Mesh, FCL, FOB, Qingdao, China [USD/tonne]</a>
Currency & Unit:	US Dollar per tonne
Location	Qingdao, China
Basis	FOB
Price Type	Assessment
Frequency	Weekly
Min lot size	500 tonnes
Quality	94-97% C, -100 Mesh
Publication	Weekly, between 3pm and 4pm on Thursday

[Graphite Flake, 94-97% C, +100 Mesh -80 Mesh, FCL, FOB, Qingdao, China \[USD/tonne\]](#)

Price  
Currency & Unit: US Dollar per tonne  
Location Qingdao, China  
Basis FOB  
Price Type Assessment  
Frequency Weekly  
Min lot size 500 tonnes  
Quality 94-97% C, +100 Mesh, -80 Mesh  
Publication Weekly, between 3pm and 4pm on Thursday

Price [Graphite Flake, 97% C, -100 Mesh, FOB, Henan, China \[USD/tonne\]](#)

Currency & Unit: US Dollar per tonne  
Location Henan, China  
Basis FOB  
Price Type Assessment  
Frequency Weekly  
Min lot size 500 tonnes  
Quality 97% C, -100 Mesh  
Publication Weekly, between 3pm and 4pm on Thursday

## COBALT

Price: [Cobalt low grade in-warehouse Rotterdam \\$/lb](#)  
Basis: In-warehouse Rotterdam  
Currency: US Dollar  
Unit: tonne  
Min lot size: 1 tonne  
Payment terms: Cash; other terms normalised

Low-grade cobalt metal, 99.3% minimum cobalt content. Katanga cathodes, Chambishi broken cathodes, CTT broken cathodes, Norilsk ingots (K1A and K1AY), Tocantins broken cathodes, Mopani broken cathodes, Rubamin cut cathodes, Minara briquettes, Nicomet cut cathodes, Kasese broken cathodes, Ambatovy briquettes (subject to confirmation of specification).  
Quality:  
Form: Broken cathodes, ingots, cut cathodes, briquettes  
Publication: Twice weekly. Between 2pm and 3pm London time on Wednesday and Friday

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