



Argus Battery Materials

Argus Battery Materials delivers over 150 battery material assessments with real-time market news, price alerts and consulting-level business intelligence to empower miners, refiners and manufacturers.

Our service differentiates from competitors by including data and analytics — 1-year forecasts of essential battery metals and chemicals, 10-year forecasts for EV, renewable energy and other battery-dependent industries, historical import/export data and a gigafactory project tracker are all included by default to maximise the value of your subscription.

You also gain access to our industry-specific dashboards and tools like the **Alloy Calculator and Argus Direct for Spreadsheets**

It's crucial to stay informed in the ever-changing and illiquid battery materials market – Read on to explore the full coverage and functionality inside Argus Battery Materials.

Price Assessments

Correct as of 18/10/2023

| | | Frequency | | | |
|--------------------------|-------------------------------|-----------|--------------|--------|---------|
| | | Daily | Twice Weekly | Weekly | Monthly |
| Antimony | Ingot | | ✓ | ✓ | ✓ |
| | 99.65%-99.85% | | ✓ | ✓ | ✓ |
| | Regulus Grade II | | ✓ | | ✓ |
| | Regulus Trioxide Grade | | ✓ | | ✓ |
| | Trioxide | | ✓ | | ✓ |
| Cathode Active Materials | LFP | | | ✓ | |
| | NCA | | | ✓ | |
| | NCM111 | | | ✓ | |
| | NCM523 | | | ✓ | |
| | NCM622 | | | ✓ | |
| | NCM811 | | | ✓ | |
| Cobalt | Electrolytic | | ✓ | | |
| | Chloride | | ✓ | | |
| | Hydroxide | | ✓ | | |
| | Hydroxide (Payable Indicator) | | ✓ | | ✓ |
| | Alloy Grade (99.8%) | ✓ | | ✓ | ✓ |
| | Chemical Grade | ✓ | | | ✓ |
| | Oxide | | ✓ | | ✓ |
| | Powder | | ✓ | | |
| | Sulphate | | ✓ | | |
| | Tetroxide | | ✓ | | |
| Nickel | Briquette | | | ✓ | |
| | Cathode 1x1 | | | | ✓ |
| | Cathode 4x4 | ✓ | | | |
| | Cathode Full-Plate | ✓ | | | |
| | Sulphate | | | | ✓ |
| Scrap | Nickel-Cobalt Refinery Scrap | | | | ✓ |
| | LFP black mass | | | ✓ | |
| | NCA black mass | | | ✓ | |
| | NCM111 black mass | | | ✓ | |
| | NCM523 black mass | | | ✓ | |
| | NCM622 black mass | | | ✓ | |
| | NCM811 black mass | | | ✓ | |
| Graphite | Flake | | | ✓ | |

| | | Frequency | | | |
|--------------------|---|-----------|--------------|--------|---------|
| | | Daily | Twice Weekly | Weekly | Monthly |
| Lithium | Carbonate | ✓ | ✓ | ✓ | ✓ |
| | Cobalt Oxide | ✓ | | | |
| | Concentrate (Spodumene) | | | ✓ | ✓ |
| | Hydroxide | ✓ | ✓ | ✓ | ✓ |
| Manganese | Briquette | ✓ | | | ✓ |
| | Dioxide Carbon Battery Grade | | | ✓ | |
| | Dioxide Alkaline Battery Grade | | | ✓ | |
| | Sulphate | | | ✓ | |
| Silicon | 2-2-0-2 | | ✓ | | ✓ |
| | 3-3-0-3 | | ✓ | | ✓ |
| Vanadium | Pentoxide | ✓ | | | ✓ |
| | Pentoxide Fused Flake | | | ✓ | ✓ |
| Battery Feedstocks | Caustic Soda | | | ✓ | |
| | Phosphoric Acid | quarterly | | | |
| | Sulphuric Acid (spot & contract) | quarterly | | | |
| | Petroleum Coke Anode Grade Calcined | | | | ✓ |
| | Petroleum Coke Anode Grade Green 2.0% Sulphur | | | | ✓ |
| | Petroleum Coke Anode Grade Green 3.0% Sulphur | | | | ✓ |



Argus Rare Earths Analytics

Explore detailed market analysis and 10-year forecasts for rare earths supply, demand and projects.

- Includes analytics on Nd, Pr, Dy, Tb & more
- 10 year market and price outlooks
- Industry outlooks for EVs, magnets and more
- Supply, demand and trade data

[Request a demo of Argus Rare Earths Analytics](#)

Price Data

| Correct as of 18/10/2023 Minimum of 5+ years of historical data available | Price Forecast | | Demand | | Capacity | | Production | | Recycling | | Balance | | Import/Export Trade | |
|--|--|-----|--------|-----|----------|-----|------------|-----|-----------|-----|---------|-----|---------------------|---|
| | 1y | 10y | 1y | 10y | 1y | 10y | 1y | 10y | 1y | 10y | 1y | 10y | 5 year history | |
| Lithium (global) | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | |
| Li-ion battery | | | ✓ | ✓ | | | | | ✓ | ✓ | | | ✓ | ✓ |
| Li carbonate min 99.5% ex-works China | ✓ | ✓ | | | | | | | | | | | ✓ | ✓ |
| Li carbonate min 99.5% cif China | ✓ | | | | | | | | | | | | ✓ | ✓ |
| Li hydroxide min 56.5% ex-works China | ✓ | ✓ | | | | | | | | | | | ✓ | ✓ |
| Li hydroxide min 56.5% fob China | ✓ | | | | | | | | | | | | ✓ | ✓ |
| Li cobalt oxide min 60% Co ex-works | ✓ | | | | | | | | | | | | ✓ | ✓ |
| Nickel (global) | | | ✓ | ✓ | | | | | | | ✓ | ✓ | | |
| Refined nickel | | | | | ✓ | ✓ | ✓ | ✓ | | | | | | |
| Nickel battery | | | | | | | | | ✓ | ✓ | | | | |
| Nickel sulphate | | | | | | | | | | | | | ✓ | ✓ |
| LME Nickel 3M Official Price | ✓ | ✓ | | | | | | | | | | | | |
| Ni sulphate Ni 22% ex-works China | ✓ | | | | | | | | | | | | | |
| Ni sulphate min 22% cif China | ✓ | ✓ | | | | | | | | | | | | |
| Cobalt (global) | | | ✓ | ✓ | | | | | | | ✓ | ✓ | | |
| Refined cobalt | | | | | | | ✓ | ✓ | | | | | | |
| Cobalt battery | | | | | | | | | ✓ | ✓ | | | | |
| Cobalt matte | | | | | | | | | | | | | ✓ | ✓ |
| Co oxide 72% ex-works China | ✓ | | | | | | | | | | | | ✓ | ✓ |
| Co hydroxide min 30% cif China | ✓ | ✓ | | | | | | | | | | | ✓ | ✓ |
| Co sulphate min 20% ex-works China | ✓ | ✓ | | | | | | | | | | | | |
| Manganese | | | ✓ | ✓ | | | | | | | | | | |
| Manganese ore | | | | | | | ✓ | ✓ | | | | | | |
| Manganese dioxide | | | | | | | | | | | | | ✓ | ✓ |
| Mn sulphate min 32% Mn battery grade ex works China | ✓ | | | | | | | | | | | | | |
| Mn flake min 99.7% fob China | ✓ | | | | | | | | | | | | | |
| Natural graphite | | | ✓ | ✓ | | | | | | | | | ✓ | ✓ |
| Synthetic graphite | | | | | | | | | | | | | ✓ | ✓ |
| Graphite Flake 94% min ex-works China | ✓ | | | | | | | | | | | | | |
| Graphite Flake 94% min fob China | ✓ | | | | | | | | | | | | | |
| Graphite Flake (94% ex-works China, excl. VAT) | ✓ | | | | | | | | | | | | | |
| Battery cathodes | | | ✓ | ✓ | | | | | ✓ | ✓ | | | | |
| LFP | ✓ | | | | | | | | | | | | | |
| NCA | ✓ | | | | | | | | | | | | | |
| NCM 111 | ✓ | | | | | | | | | | | | | |
| NCM 523 | ✓ | | | | | | | | | | | | | |
| NCM 622 | ✓ | | | | | | | | | | | | | |
| NCM 811 | ✓ | | | | | | | | | | | | | |
| EV Car Sales | Full 10-year outlook by region and type (BEV, PHEV and EV) | | | | | | | | | | | | | |
| EV Car Battery Chemistry | Full 10-year outlook by region and chemistry | | | | | | | | | | | | | |

Price Analytics and Outlooks

Your subscription includes Argus Battery Material Analytics to inform your medium and long-term strategy.

Argus Battery Materials Analytics

Bi-annual 88-page report with consulting-level analysis across the battery materials supply chain to reinforce decisions at the strategic level:

- Concise price forecast dashboards for lithium, nickel, cobalt and other battery materials
- Deep dive on lithium, nickel, cobalt, manganese, graphite and industry-grade cathodes
- Dedicated recycling forecast broken down by region and scrap type
- Status tracker for projects relating to raw battery materials

Cobalt production forecast to 2033

Output will peak in the late 2020s before declining to avoid price-crashing surplus

Mined cobalt output, 2021-33

Analytics dashboard: Lithium

Lithium prices are forecast to correct downwards in 2023 but we do not see a return to 2020/21 levels; more investment is needed in mine and refining capacity to meet global lithium demand by the end of the decade

| Price data (\$/kg) | 2020 | 2021 | 2022 | 2025 | 2030 | Δ 2022 | Δ 2021 | Δ 2025 | Δ 2030 |
|---|------|-------|-------|-------|-------|--------|---------|--------|--------|
| Li ₂ CO ₃ China (59.5% exworks) | 5.44 | 10.67 | 62.90 | 31.15 | 31.86 | 46.23 | (31.40) | 0.71 | |
| LiOH China (54.5% exworks) | 6.41 | 15.99 | 58.61 | 29.71 | 38.07 | 42.42 | 4.77 | 22.08 | |

| Operating stats ('000 t/yr) | 2020 | 2021 | 2022 | 2025 | 2030 | Δ 2022 | Δ 2021 | Δ 2025 | Δ 2030 | CAGR |
|--|------|------|------|-------|-------|--------|--------|--------|--------|------|
| Global lithium capacity | 640 | 793 | 963 | 1,600 | 2,050 | 260 | 637 | 1,087 | 10% | |
| Global lithium production | 432 | 527 | 726 | 1,475 | 2,025 | 199 | 745 | 1,299 | 14% | |
| Global rock* production | 257 | 308 | 347 | 845 | 1,260 | 39 | 498 | 913 | 17% | |
| Global brine production | 175 | 219 | 379 | 627 | 765 | 160 | 248 | 386 | 9 | |
| Global lithium recycling | - | - | - | 9 | 200 | - | 9 | 200 | - | |
| Global lithium consumption *including lithium clay | 339 | 592 | 745 | 1,422 | 2,780 | 153 | 677 | 2,035 | 18% | |

Updates

- China EVs: China electric vehicle (EV) sales forecast upgraded, adding to lithium demand forecast
- Energy storage: Lithium demand from energy storage will grow significantly over the next decade
- New capacity: New sites and expansions will push balance into slight surplus through mid-decade
- Recycling: Battery recycling could account for 13pc of lithium demand by 2032
- Mine/refining capacity: Announced mine and refining capacity will not meet demand by the mid- to late-2020s. More investment is needed to ensure the lithium demand will be met.

Lithium price forecast, 2018-33

Lithium capacity forecast to 2033

Forecast balance to 2033

In addition to the bi-annual report, a monthly forecasts is included in the first report of each month with the option to download the raw data from our online platform.

Argus Markets Dashboards

Curated by our experts, customized by you

Your subscription to Argus Battery Materials grants you access to unique tools from Argus to help you consume data according to your preferences.

Argus Markets dashboards

Markets are digital dashboards pre-populated with the latest news, expert commentary, charts and key price assessments by our battery material experts.

Subscribers have access to the following market dashboards with further dashboards under active development:

Battery Materials - Global

Lithium - Global

Nickel - Global

Cathodes - Global

Cobalt - Global

Personalise your workspace

Each Market can be copied into your Workspace where you can add, remove or edit each module with an intuitive drag-and-drop interface.

Once completed, use the share functionality to distribute to colleagues.

Our global support team is on hand to help you create the perfect custom dashboard for yourself, colleagues or clients.

Key price charts compare lithium carbonate and lithium hydroxide, as well as trends in spodumene, lithium-cobalt-oxide and other battery material prices. The charts are interactive, allowing you to:

- Edit the date range for the charts using preselected or custom date ranges
- Select or de-select values
- Export the chart as a JPG or PDF file
- Export the underlying data

Drill further by clicking directly on the price to view the price methodology and export valuable data.

| Date | Units | Price Low | Price High | Change |
|-----------|-------|-----------|------------|--------|
| 30 May 23 | USD/t | 3,750 | 3,900 | 100.0▲ |
| 16 May 23 | USD/t | 3,750 | 3,900 | 0.0 |
| 17 May 23 | USD/t | 3,750 | 3,900 | 0.0 |

Read the latest battery materials news and analysis, expand articles of interest in a new window for easier reading.

Convenient table view of prices with lows, highs and changes recorded to compare lithium concentrates, carbonates and hydroxides at a glance.

Drill further by clicking directly on the price to view the price methodology and export valuable data.

Review monthly analytics that showcase Global and China EV sales outlooks, as well as 1-year price outlooks for cobalt, graphite and other battery materials.

Lithium Prices

| Description | Units | Price Low | Price High | Change | Date |
|---|-------|-----------|------------|------------|-----------|
| Lithium concentrate (spodumene) 6% Li2O cif China | USD/t | 3,750 | 3,900 | 100.0▲ | 16 May 23 |
| Lithium carbonate min 99.5% cif China | USD/t | 27,000.00 | 29,000.00 | 0.000 | 17 May 23 |
| Lithium carbonate min 99.5% ex-works China | CNY/t | 270,000 | 290,000 | 20,000▲ | 17 May 23 |
| Lithium carbonate min 99.5% ex-works China excl. VAT USD/kg | USD/t | 31,760.00 | 34,300.00 | 1,850,000▲ | 16 May 23 |
| Lithium hydroxide min 56.5% ex-works China | CNY/t | 260,000 | 285,000 | 20,000▲ | 17 May 23 |
| Lithium hydroxide min 56.5% fob China | USD/t | 41,500.00 | 43,500.00 | 0.000 | 17 May 23 |

Lithium News

China to accelerate NEV adoption in rural areas
NEWS | 17 MAY 23 11:55
Beijing, 17 May (Argus) — China is aiming to accelerate infrastructure construction for new energy vehicles (NEVs) and bolster the adoption of such vehicles in rural areas.

China's XTC to build battery CAM plants in France
NEWS | 17 MAY 23 05:58
Beijing, 17 May (Argus) — Chinese lithium-ion battery cathode active material (CAM) manufacturer XTC New Energy Materials has signed an agreement to build joint-venture production plants in France.

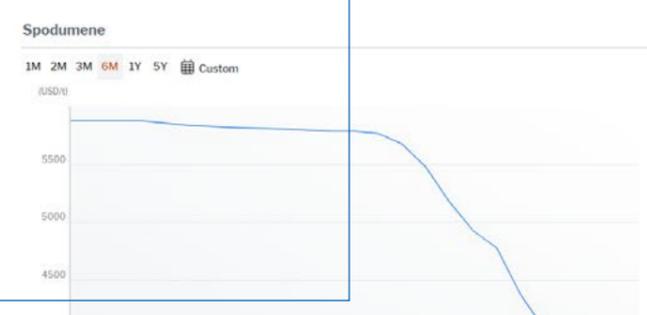
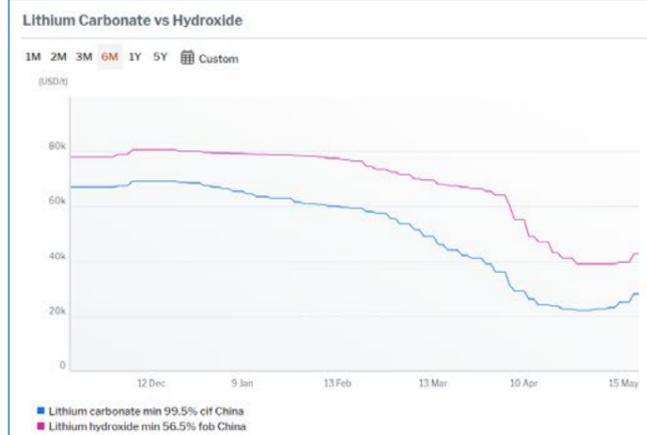
LAC prepares first lithium shipment from Argentina
NEWS | 16 MAY 23 16:58
London, 16 May (Argus) — Canada-based Lithium Americas (LAC) is preparing to make its first shipment of lithium from Argentina in June, and will split its business into two separate entities to focus on different regions.

China's Ganfeng to build lithium-ion battery plants
NEWS | 15 MAY 23 10:12
Beijing, 15 May (Argus) — China's Jiangxi Ganfeng Lithium Battery Technology, a subsidiary of the country's major lithium salts producer Ganfeng Lithium, plans to build a lithium-ion battery production complex at Xiangyang in central China's Hubei...

China's Tianqi to build Li hydroxide plant in Jiangsu
BEIJING, 12 MAY (ARGUS) — Major Chinese lithium producer Tianqi Lithium is building a production facility for lithium hydroxide at Zhangjiagang in east China's Jiangsu province.

Convenient table view of prices with lows, highs and changes recorded to compare lithium concentrates, carbonates and hydroxides at a glance.

Prices for 60pc-grade lithium cobalt oxide (LCO) increased to Yn230-245/kg ex-works on Tuesday from Yn225-240/kg ex-works on 4 May, in response to the rise in lithium carbonate feedstock prices. Most LCO producers offered a flat volume, further on hand interest has come from the lithium ion battery industry.



Analytics Data

Data & Downloads for Argus Consulting:

- Battery materials monthly outlook March 2023
- Battery materials monthly outlook February 2023
- Battery materials monthly outlook January 2023

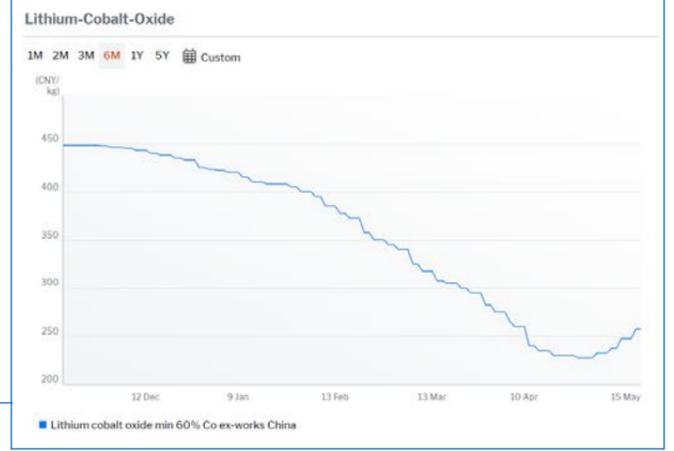
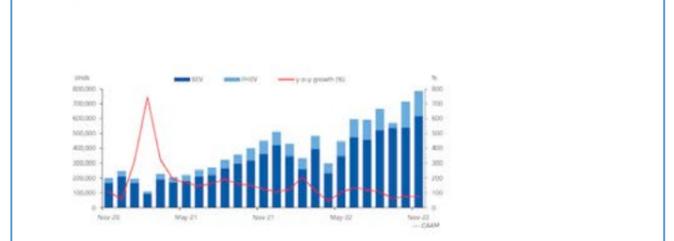
Analytics Charts

05 Jan 23 - 12:42

Monthly battery analytics charts

London, 5 January (Argus) - A selection of chart from Argus Battery Materials consulting.

By Argus consulting



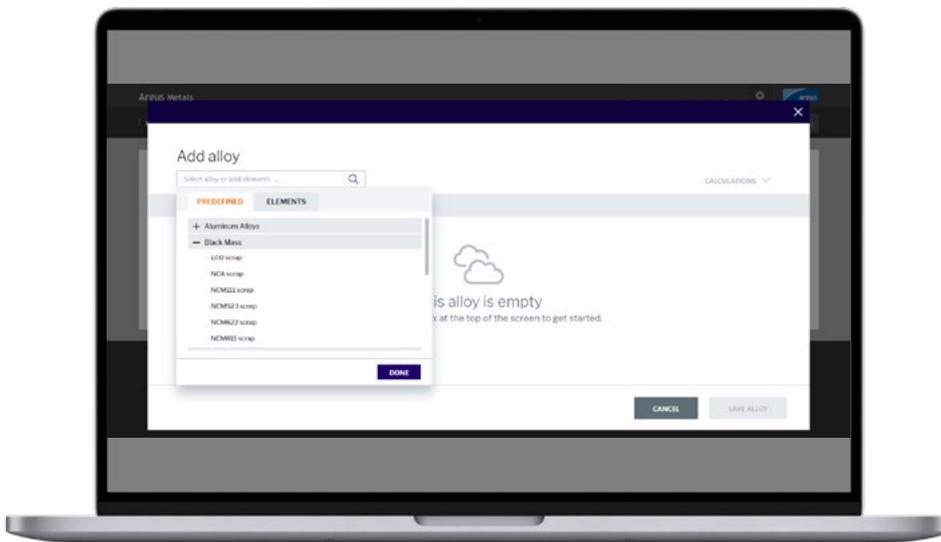
Review monthly analytics that showcase Global and China EV sales outlooks, as well as 1-year price outlooks for cobalt, graphite and other battery materials.

Black Mass Calculator

Commercialising a closed loop battery chain

Availability of e-waste and end-of-life batteries is having a profound impact on the battery supply chain, reducing demand for virgin materials and the carbon footprint of production.

Understanding the real-world value of different battery chemistries will be crucial to gain the competitive edge within a circular battery materials economy.



Capitalise on this emerging market with the **Black Mass Calculator** – a tool to estimate the scrap value of different battery chemistries based on intrinsic value calculations, customizable costs, discounts, and yield loss.

The calculator includes 6 pre-defined industry-grade cathodes; LCO, NCA, NCM111, NCM523, NCM622, NCM811 and even allows you to define your own battery chemistry using over 1,300 price assessments.

| Alloy | 48.0% | Date | Price | Intrinsic value | Avg price | Yield | Trigger | Surcharge |
|---|-------|-----------|--------|---|---------------------------------------|-------|---------|---|
| Nickel LME Lush unofficial | 20.5% | 12 Sep 23 | 8,534 | 1,831 | 9,251 | 1 | 5,977 | 0.000 |
| Cobalt min 99.8% chemical grade du Rotterdam | 20.5% | 12 Sep 23 | 15,425 | 3,203 | 15,723 | 1 | 17,007 | 0.000 |
| Lithium hydroxide min 56.5% inwarehouse Rotterdam | 7.0% | 12 Sep 23 | 37,917 | 1,254 | 18,597 | 1 | 27,211 | 0.000 |
| Use a different base value | | | | Total intrinsic value (USD/lb) 6.288 | Total surcharge (USD/lb) 0.000 | | | |
| Cost/deduction | | | | | | | | |
| Partner discount | | | | | | | | 0.227 |
| | | | | | | | | Total cost/deduction (USD/lb) -0.227 |
| Total product cost (USD/lb) 6.061 | | | | | | | | |

[Request a free trial of Argus Battery Materials](#)

Tools in Argus Battery Materials

Empowering your daily workflow

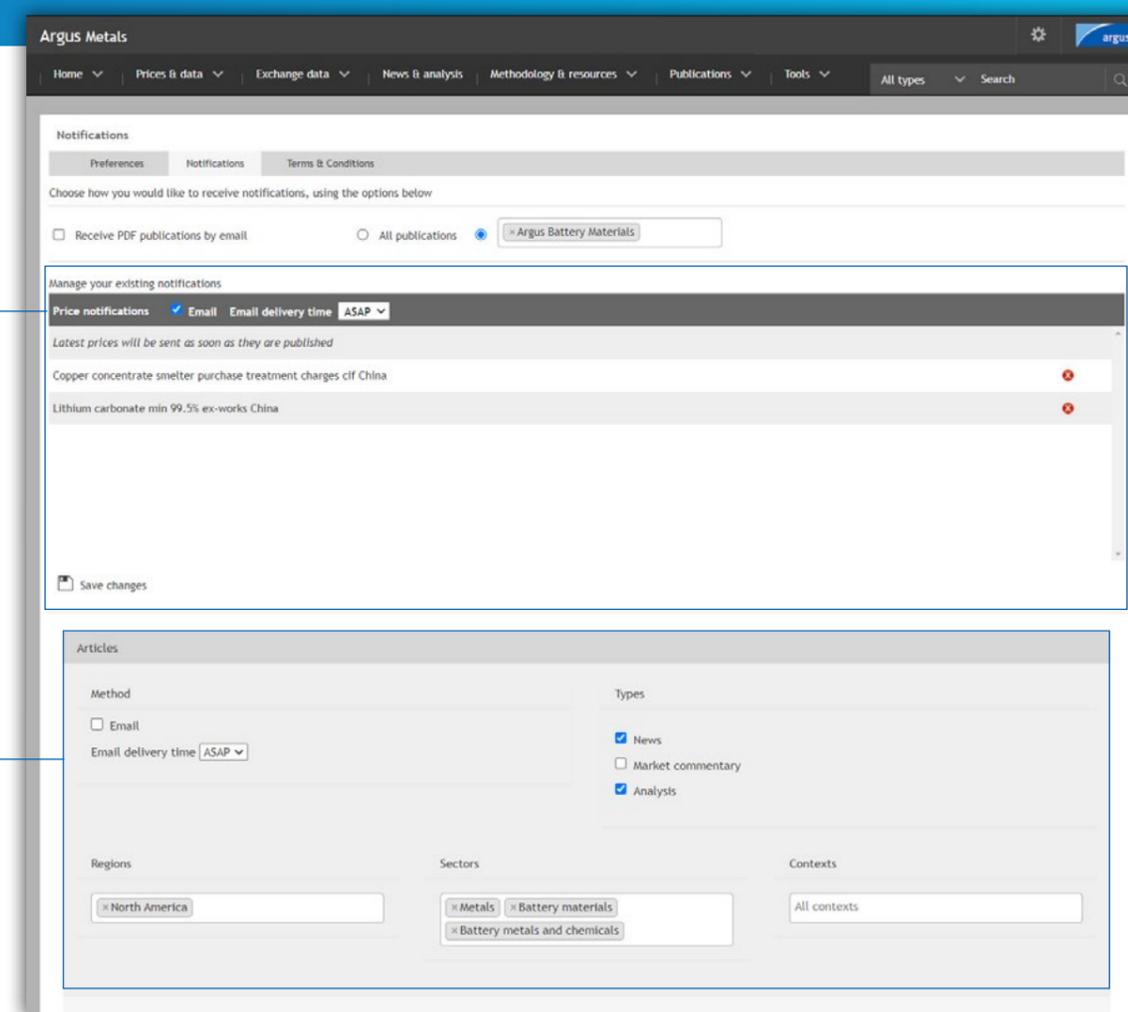
Price Alerts

Don't miss profitable opportunities with configurable real-time email and mobile alerts that notify you of price changes on the metals and materials crucial to your business.

Maximise the benefits of a holistic view of paper and physical markets by setting the start and end dates of alerts to coincide with the details of your suppliers or buyers.

News Alerts

Define your news of interest by region, sector and context. Then choose to receive daily or real-time alerts through email or the Argus Alerts app (available on Google Play and the App Store).

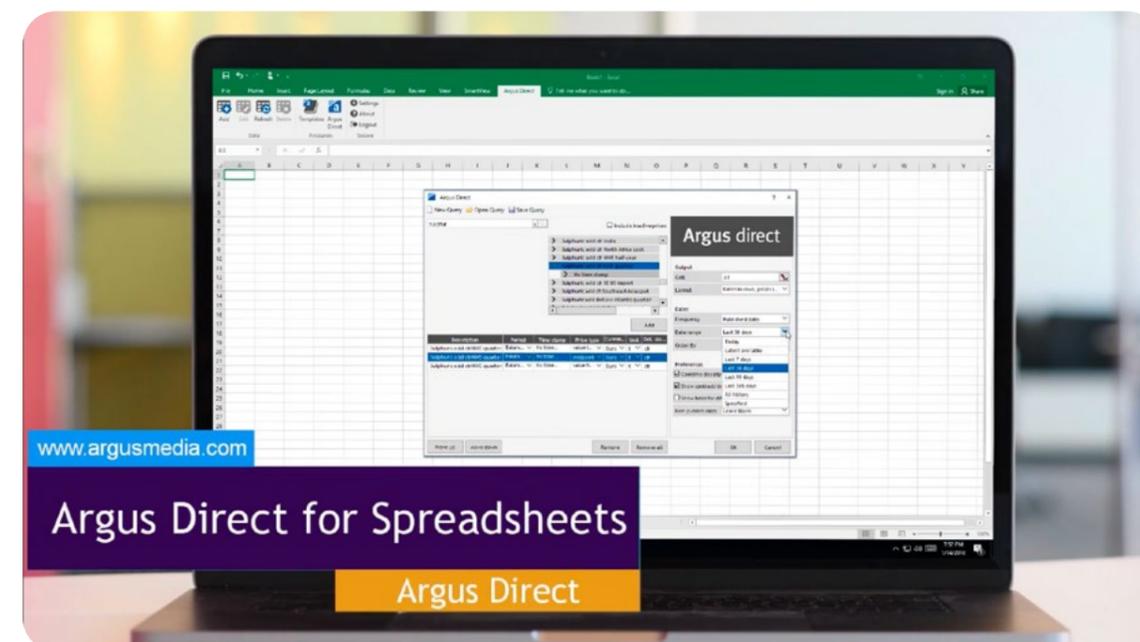


Argus Direct for Spreadsheets

Enhance your existing Excel spreadsheets by plugging in over 150 battery material price assessments with the potential to include over 1,900 ferrous and non-ferrous price assessments from across the Argus database.

Configure your price data to update automatically to ensure your charts, pivot tables and other outputs reflect a true-to-market price. Our bespoke add-in lets users specify price types (e.g. daily prices, midpoints, monthly averages), currency, date ranges and more.

[View the Argus Direct for Spreadsheets video](#)



Argus has consultants and analysts on the ground in offices around the world, allowing us to provide our clients with accurate reporting and focused analysis through our network of local relationships.



Contact metals-m@argusmedia.com to find out more about our metals and battery materials price data

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