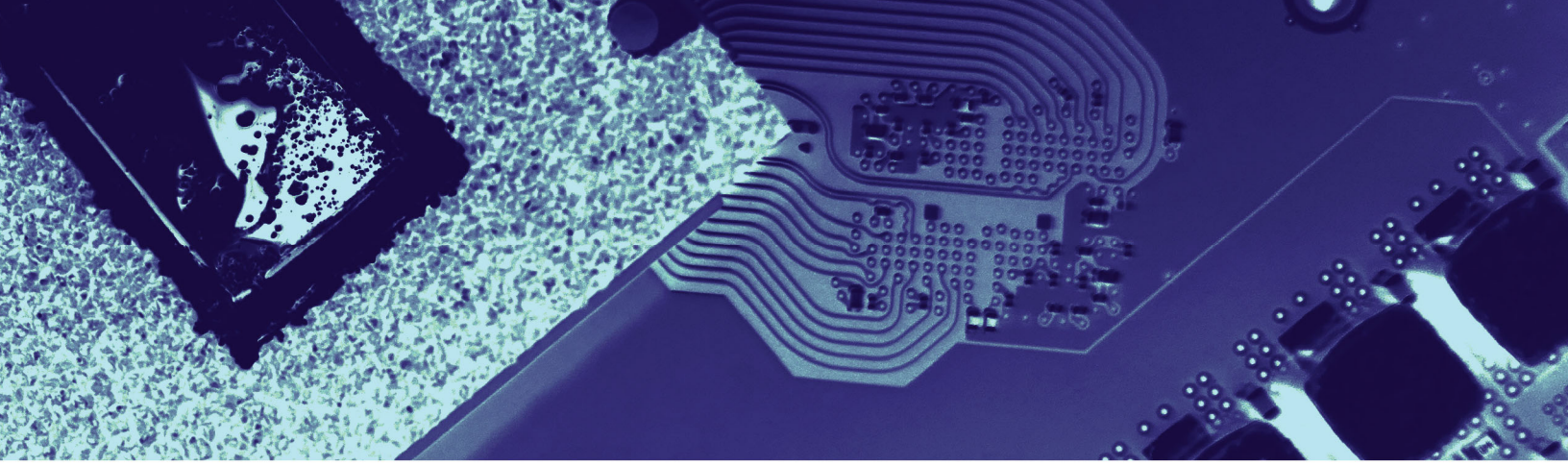

THE ELECTRONIC MATERIALS REPORTER

EMR

December 2025 • Third Quarter 2025

- This issue of the *Electronic Materials Reporter* surveys the leading electronic materials suppliers.
- We profile the Top 50 electronic materials suppliers by revenue during calendar year 2024. This year has seen significant changes on the Top 50 list, as drastic price erosion in many battery and photovoltaic materials caused their suppliers' revenues to shrink. Suppliers of conventional electronic materials surged up the ranks and once again dominate the Top 10.
- Shin-Etsu resumed its historic position at the top of the ranking as PV wafer suppliers, such as last year's leader LONGi Green Energy, slid down the ranking. Shin-Etsu shipped an estimated $5.5Bn of electronic materials. The Top 50 suppliers in aggregate sold $114Bn worth of electronic materials, accounting for 42% of the total market.
- Many battery and PV material suppliers are based in China, Korea or other Asian countries. As their share declined, the revenue share of Asia (ex-Japan)-headquartered companies decreased correspondingly: from 59% in 2023 to only 47% in 2024. Conversely, the Top 50 revenue share of long-dominant Japanese-headquartered companies recovered from 23% to 30%.
- The decline of the PV and battery materials segments, home to many individually large suppliers, has reduced the revenue share of the Top 50 to 42% of the total EM market. The electronic materials market as a whole remains fragmented.
- Despite the overall fragmentation, market concentration is a feature of some individual market segments. This is particularly likely where a small number of customers demand large materials volumes, and where the need for access to financial and technology resources creates barriers to entry.
- Prismark's electronic materials forecast for 2025 has seen a downward revision to 5.7% overall, with stronger growth in conventional materials offset by a lagging recovery in batteries and photovoltaics. For 2026, we expect another strong year, provided the energy segments manage to bounce back from their modest baseline.

PRISMARK
PARTNERS LLC · EST. 1994

THE ELECTRONIC MATERIALS REPORTER

EMR

August 2025 • Second Quarter 2025

- This is the Q2 2025 issue of Prismark's **Electronic Materials Reporter (*EMR*)**. This issue reviews year-to-date market developments, highlights the fastest-growing electronic materials segments, and focuses on a review of several materials segments: semiconductor packaging, interconnect materials, battery materials, and board-level and systems-level assembly materials.

- After a solid first half of the year, Prismark has revised upward its 2025 forecast for the conventional segments of the electronic materials market. Conversely, the recovery in the battery materials segment is taking a little longer than expected, and materials for photovoltaics continue to suffer from low pricing. This prompted a downward revision for these energy materials segments. Altogether, this leads to a downward adjustment in our overall electronic materials forecast, to 8% growth in 2025.

- **High-growth opportunities** remain available across various segments of the materials market. A wide range of materials offer growth rates of at least 7% CAAGR from 2024 to 2029. In some cases, this is partly due to a low 2024 baseline. Materials related to batteries, OLED displays, advanced packaging and high-end PCBs stand out as particularly fast-growing.

- The **semiconductor packaging** materials segment is usually one of the weaker segments due to miniaturization and the adoption of materials-poor advanced package types. In 2025 and over the mid-term from 2024 to 2029, however, higher metals prices are supporting this segment's outlook. We expect growth at slightly less than 5% CAAGR.

- The **interconnect materials** segment is again set for double-digit growth in 2025, after an already strong 2024. Higher pricing and growth in more complex PCB structures make for better than 6% CAAGR mid-term growth outlook.

- **Battery materials** are adjusting to lower end-market demand growth and lower metals prices. The mid-term outlook has been revised downward to 13% CAAGR—still the fastest-growing of all segments.

- **Materials for PCB and systems assembly** are expected to grow at around 4% CAAGR in the mid-term, fundamentally following systems growth.

PRISMARK
PARTNERS LLC EST. 1994

THE ELECTRONIC MATERIALS REPORTER

EMR

May 2025 • First Quarter 2025

- This is the Q1 2025 issue of Prismark's Electronic Materials Reporter (EMR). This issue is focused on the review and forecast of the electronic materials market, segmented by application space.
- The total electronic materials market declined by 3.2% in 2024, falling to $274Bn. Materials market segments serving conventional electronics grew almost 7% in aggregate, while the energy-related segments (materials for batteries and photovoltaics) declined by 11%.
- Exchange rate fluctuations had a limited negative impact on the electronic materials market as measured in US dollars in 2024, reducing the market size by about 1%. Commodity price fluctuations had a limited impact on conventional electronic materials. However, price declines in cobalt, lithium and polysilicon were significant drivers of the decline in the energy materials segments.
- For 2025, Prismark expects a strong year for the electronics industry, with over 7% systems value growth, 10% growth at the electronic components level, and similarly 10% growth in electronic materials value. We expect almost 6% growth for conventional electronic materials, and a rebound to 13% growth for the energy materials segments.
- In the mid-term from 2024 to 2029, Prismark expects growth at 8.5% CAAGR for the electronic materials market in total. This includes just over 5% CAAGR for the conventional materials, and 11% CAAGR for energy materials. Battery materials in particular are boosted by the low 2024 baseline.
- Materials companies pursuing above-average growth can employ various strategies: focus on fast-growing applications such as battery materials, capture market share through innovation and focused commercial efforts, find new applications for existing technologies, expand market share through consolidation, or use acquisitions to expand product portfolios.

PRISMARK PARTNERS LLC EST. 1994

THE ELECTRONIC MATERIALS REPORTER

EMR

February 2025 • Fourth Quarter 2024

- This is the Q4 2024 issue of Prismark's ***Electronic Materials Reporter (EMR)***. This issue provides initial estimates for full-year 2024 and an outlook for 2025 and focuses on a review of several materials segments: semiconductor wafer fabrication materials, display fabrication materials, photovoltaics materials, and materials used in the fabrication of other components.
  - Semiconductor ***wafer fabrication materials*** were almost flat at 1% growth (preliminary) to $36Bn in 2024. A decline in wafer substrates offset growth in other materials subsegments. Prismark's segment growth outlook stands at 7% CAAGR 2024-2029.
  - The ***display materials*** market in 2024 recovered by over 7% (preliminary), following the underlying display panel market. The 2024-2029 growth outlook at just under 4% CAAGR makes this one of the weaker segments. As before, lack of substantial unit growth in PCs, phones, and TVs continues to restrain the outlook.
  - ***PV materials*** were almost flat in 2024 (preliminary), with a drop in wafer and glass prices largely offsetting volume growth. With more modest volume growth expected in the mid-term, the PV materials segment now offers the weakest outlook of all segments, at only 2% CAAGR (2024-2029).
  - The "***Other components***" materials segment includes materials for passives, connectors, and data storage components. This materials segment recovered by 6% in 2024 and is expected to largely follow the underlying systems growth at about 5% CAAGR in the mid-term (2024-2029).
- Prismark's preliminary estimate for full-year 2024 electronic materials market growth stands at -3.4% decline from 2023. This headline number hides the split between a -11% drop in energy materials (battery and PV materials), and 6% growth in conventional materials. Even so, energy materials still account for well over half of the total electronic materials market, and they are expected to resume their growth in 2025 and beyond. For 2025, our current estimate is for over 8% year-over-year electronic materials market growth in total, with both conventional electronic materials and energy materials expected to do well.

PRISMARK
PARTNERS LLC EST. 1994

THE ELECTRONIC MATERIALS REPORTER

EMR

November 2024 • Third Quarter 2024

- This issue of the *Electronic Materials Reporter* surveys the leading electronic materials suppliers.
- We profile the Top 50 electronic materials suppliers by revenue during calendar year 2023. Similar to last year, suppliers of PV and battery materials maintain prominent positions on this year's Top 50, despite drastic price erosion in some of those areas. Six of the ten largest suppliers are focused on battery or PV materials.
- LONGi Green Energy maintains its position as the largest electronic material supplier, having produced some $7.5Bn of PV wafers in 2023. The Top 50 suppliers in aggregate sold $143Bn worth of electronic materials, accounting for 50% of the total market.
- The prominence of battery and PV material suppliers leads to a much higher revenue share of Asia (ex-Japan)-headquartered companies, at 59%, than has been the case historically. The Top 50 revenue share of long-dominant Japanese-headquartered companies recovered slightly to 23%. With continuing price erosion in many battery and PV materials in 2024, these trends may conceivably reverse on next year's Top 50 list.
- The broader electronic materials slowdown in 2023 and price erosion in the PV and battery materials segments have reduced the revenue share of the Top 50 to 50% of the total EM market. As before, the electronic materials market as a whole remains fragmented.
- As in the past, some individual market segments have a more concentrated supplier base. This may result where a small number of customers demand large materials volumes, and where the need for access to financial and technology resources creates barriers to entry.
- Prismark's electronic materials forecast for 2024 has been revised downward and now stands at -4.2% decline in total. While conventional electronic materials are expected to do well at +5.5% growth over 2023, energy-related materials are now expected to contract by worse than -11%. 2025 looks to be a strong year all around, with 10% electronic materials growth in total.

PRISMARK PARTNERS LLC EST. 1994

THE ELECTRONIC MATERIALS REPORTER

EMR

August 2024 • Second Quarter 2024

- This is the August 2024 issue of Prismark's **Electronic Materials Reporter (*EMR*)**. This issue reviews year-to-date market developments, highlights the fastest-growing electronic materials segments, and focuses on a review of several materials segments: semiconductor packaging, interconnect materials, battery materials, and board-level and systems-level assembly materials.

- Primark has revised upward its 2024 forecast for conventional segments of the electronic materials market, and revised downward the outlook for the battery materials segment. In a reversal of fortunes, conventional materials will grow faster than battery materials this year. Altogether, we now expect the total electronic materials market to contract by -2.5% in 2024.

- **High-growth opportunities** remain available across various segments of the materials market. Some 35 distinct materials are expected to offer growth rates of at least 7% CAAGR from 2023 to 2028.

- The **semiconductor packaging** materials segment is usually one of the weaker segments due to miniaturization and the adoption of materials-poor advanced package types. For the 2023 to 2028 mid-term period, however, a weak baseline and metals price increases make it one of the leading segments at almost 6% CAAGR (2023-2028).

- The **interconnect materials** segment is set for double-digit growth in 2024 owing to a weak 2023 baseline, and growth slightly exceeding the systems outlook over the mid-term.

- The battery value chain is adjusting to a lower growth trajectory as EV demand growth moderates. This will lead to a double-digit decline for **battery materials** in 2024. In the mid-term, however, this segment will resume growth at a rate exceeding all other segments.

- **Materials for PCB and systems assembly** are expected to grow at around 5% CAAGR in the mid-term, closely following systems growth.

PRISMARK PARTNERS LLC EST. 1994

THE ELECTRONIC MATERIALS REPORTER

EMR

November 2024 • Third Quarter 2024

- This issue of the *Electronic Materials Reporter* surveys the leading electronic materials suppliers.
- We profile the Top 50 electronic materials suppliers by revenue during calendar year 2023. Similar to last year, suppliers of PV and battery materials maintain prominent positions on this year's Top 50, despite drastic price erosion in some of those areas. Six of the ten largest suppliers are focused on battery or PV materials.
- LONGi Green Energy maintains its position as the largest electronic material supplier, having produced some $7.5Bn of PV wafers in 2023. The Top 50 suppliers in aggregate sold $143Bn worth of electronic materials, accounting for 50% of the total market.
- The prominence of battery and PV material suppliers leads to a much higher revenue share of Asia (ex-Japan)-headquartered companies, at 59%, than has been the case historically. The Top 50 revenue share of long-dominant Japanese-headquartered companies recovered slightly to 23%. With continuing price erosion in many battery and PV materials in 2024, these trends may conceivably reverse on next year's Top 50 list.
- The broader electronic materials slowdown in 2023 and price erosion in the PV and battery materials segments have reduced the revenue share of the Top 50 to 50% of the total EM market. As before, the electronic materials market as a whole remains fragmented.
- As in the past, some individual market segments have a more concentrated supplier base. This may result where a small number of customers demand large materials volumes, and where the need for access to financial and technology resources creates barriers to entry.
- Prismark's electronic materials forecast for 2024 has been revised downward and now stands at -4.2% decline in total. While conventional electronic materials are expected to do well at +5.5% growth over 2023, energy-related materials are now expected to contract by worse than -11%. 2025 looks to be a strong year all around, with 10% electronic materials growth in total.

PRISMARK PARTNERS LLC EST. 1994

THE ELECTRONIC MATERIALS REPORTER

EMR

May 2024 • First Quarter 2024

- This is the Q1 2024 issue of Prismark's ***Electronic Materials Reporter (EMR)***. This issue is focused on the review and forecast of the electronic materials market, segmented by application space.

- Prismark's total electronic materials market growth in 2023 has been revised downward to 2.3% over 2022, reaching a value of $283Bn. The downward revision was prompted by worse-than-expected performance of battery materials suppliers at the end of last year. Even so, energy materials outperformed conventional electronic materials, which contracted almost -9% in aggregate. All conventional segments declined.

- Currency exchange rate fluctuations had a noticeable impact in 2023, reducing the total electronic materials market size in US dollars by about -1.5%, relative to results in local currencies. Commodity price fluctuations for copper, tin, silver, gold, and cobalt together also had a slightly negative impact on the total market. Drastic price declines in lithium precursors and polysilicon significantly impacted the battery materials and PV wafer segments.

- For 2024, Prismark expects a reversal of fortunes as conventional materials segments recover, while energy materials segments are impacted by a slowdown in end market demand combined with declining prices. Over 4% growth in conventional segments will be offset by a decline in energy materials that leads to an effectively flat total materials market in 2024.

- In the mid-term, Prismark's outlook for the electronic materials market stands at just over 8% CAAGR overall from 2023 to 2028. This includes 6% CAAGR for the conventional materials, and almost 10% for energy materials, both impacted by base-year effects in 2023.

- Above-average growth can be found in segments such as battery materials as well as select niches in other segments. Besides targeting fast-growing applications, materials suppliers can aim for growth by pursuing market share gains through innovation and focused commercial efforts, finding new applications for existing technologies, and consolidation or acquisitions to expand product portfolios.

PRISMARK
PARTNERS LLC · EST. 1994

THE ELECTRONIC MATERIALS REPORTER

FOURTH QUARTER • FEBRUARY 2024

- This is the Q4 2023 issue of Prismark's ***Electronic Materials Reporter (EMR)***. This issue provides initial estimates for full-year 2023 and an outlook for 2024, and focuses on a review of several materials segments: semiconductor wafer fabrication materials, display fabrication materials, photovoltaics materials, and materials used in the fabrication of other components.
  - Semiconductor ***wafer fabrication materials*** declined some 7% (preliminary) to $35Bn in 2023. Wafer substrates and photomasks had a stabilizing influence on the segment, with many other materials declining more steeply. Prismark's segment growth outlook stands at almost 8% CAAGR 2023-2028.
  - The ***display materials*** market in 2023 similarly declined by some 7% (preliminary), following the underlying display panel market. The 2023-2028 growth outlook has improved to over 4% CAAGR, due to the weak baseline. Lack of substantial unit growth in PCs, phones, and TVs continues to restrain the outlook.
  - ***PV materials*** grew a solid 11% (preliminary), with a steep drop in wafer prices largely offsetting much faster volume growth. With a high baseline and more modest volume growth expected in the mid-term, the PV materials segment now is forecast to grow at barely more than 1% CAAGR (2023-2028).
  - The "***Other components***" materials segment includes materials for passives, connectors, and data storage components. This materials segment dropped by more than 6% in 2023, largely due to another very weak year for hard-disk drives. The five-year outlook stands at 4% CAAGR (2023-2028).
- Prismark's preliminary estimate for full-year 2023 electronic materials market growth stands at 4.5% over 2022. This headline number hides the split between 16% growth in energy materials (battery and PV materials), and an 8% decline in conventional materials. Energy materials now account for well over half of the total electronic materials market. For 2024, our current estimate is for over 6% year-over-year electronic materials market growth in total, with conventional electronic materials recovering from a weak 2023, but growth in energy materials moderating somewhat.

PRISMARK PARTNERS LLC

THE ELECTRONIC MATERIALS REPORTER

THIRD QUARTER • NOVEMBER 2023

- This issue of the *Electronic Materials Reporter* surveys the leading electronic materials suppliers.
- We profile the Top 50 electronic materials suppliers by revenue during calendar year 2022. This year's Top 50 list is characterized by the rise of a large number of PV and battery material suppliers that saw extremely strong growth in 2022. Seven of the ten largest suppliers are focused on battery or PV materials.
- The largest supplier (LONGi Green Energy) produced some $9.5Bn of PV wafers in 2022. The Top 50 suppliers in aggregate sold $161Bn worth of electronic materials, accounting for 58% of the market.
- The revenue share of Asia (ex-Japan)-headquartered companies has continued to increase and reached 61% in 2022. This is largely due to the rapid growth of the PV and battery materials segments, where many materials suppliers are based in Asia (and particularly China). Conversely, the Top 50 revenue share of long-dominant Japanese-headquartered companies declined further to 20%. These trends may reverse in 2023 as value growth in the PV and battery materials markets moderates or even declines.
- As before, the electronic materials market as a whole remains fragmented. The Top 50 suppliers identified here represent only 58% of the total electronic materials market.
- As in the past, some individual market segments have a more concentrated supplier base. This may result where a small number of customers demand large materials volumes, and where the need for access to financial and technology resources creates barriers to entry.
- Prismark's electronic materials forecast for 2023 has undergone only minor updates and remains at 0.4% growth in total. Conventional electronic materials are expected to contract by almost -8%, offset by growth in energy-related materials. The initial outlook for 2024 is for mid- to high-single-digit growth.

PRISMARK PARTNERS LLC

THE ELECTRONIC MATERIALS REPORTER

SECOND QUARTER • AUGUST 2023

- This is the Q2 2023 issue of Prismark's **Electronic Materials Reporter (*EMR*)**. This issue reviews year-to-date market developments, highlights the fastest-growing electronic materials segments, and focuses on a review of several materials segments: semiconductor packaging, interconnect materials, battery materials, and board-level and systems-level assembly materials.
- Prismark has **revised downward its electronic materials estimate for 2023.** After a weak first half of the year, the combination of weak end demand, price declines, inventory destocking and some currency effects continues to dampen the growth prospects for 2023. We now expect the electronic materials market in total to grow only 0.4% in 2023 over 2022. Growth in energy materials (+6%) is expected to be largely offset by a decline in conventional materials (-6%).
- **High-growth opportunities** remain available across various segments of the materials market. Some 20 distinct materials are expected to offer growth rates of at least 6% CAAGR from 2022 to 2027.
- After some strong years during the pandemic, the **semiconductor packaging** materials segment is now once again held back by miniaturization and the adoption of materials-poor advanced package types. Prismark expects growth at less than 3% CAAGR (2022-2027).
- The **interconnect materials** segment faces another down year in 2023, but the mid-term outlook is slightly faster than systems growth. Prismark expects over 4% CAAGR (2022-2027).
- After almost doubling in each of the preceding two years, the **battery materials** segment is now facing somewhat more modest EV unit growth as well as some drastic raw materials price declines in 2023. Even so, battery materials remain the fastest-growing segment at 15% CAAGR (2022-2027).
- **Materials for PCB and systems assembly** are expected to grow at just over 3% CAAGR in the mid-term, close to systems growth with some attenuation from price erosion and efficiencies.

PRISMARK PARTNERS LLC

THE ELECTRONIC MATERIALS REPORTER

FIRST QUARTER • MAY 2023

- This is the Q1 2023 issue of Prismark's ***Electronic Materials Reporter (EMR)***. This issue is focused on the review and forecast of the electronic materials market, segmented by application space.
- The electronic materials market grew 25% in 2022 over 2021 by Prismark's revised estimate, reaching a value of $276Bn. This headline number conceals the wide disparity between fast growth in the battery materials and PV materials segments (together, +73% YoY) and a decline of -3.6% in conventional electronic materials.
- Currency exchange rate fluctuations had a noticeable impact in 2022, reducing the total electronic materials market size by about 3%. Commodity price fluctuations, on the other hand, had almost no impact, with price changes for copper, tin, silver, gold, and cobalt largely offsetting one another. One important exception was lithium precursor pricing, which gained significantly and boosted revenues of battery materials.
- Among conventional electronic materials, the wafer fabrication materials segment was the only one to grow year over year in 2022. All other conventional segments declined, following the underlying electronic systems trend.
- For 2023, Prismark expects a much more modest 3.4% growth for the overall electronic materials market. This includes a -2.6% decline for conventional electronic materials segments (with downside potential, depending on recovery timing), and comparatively modest growth of 9% for battery and PV materials—much slower than in recent years.
- Prismark's mid-term outlook for the electronic materials market stands at 7.1% CAAGR overall from 2022 to 2027. This includes 3.8% CAAGR for the conventional materials, similar to the expected electronic systems growth rate. Energy materials are forecasted to grow at 10% CAAGR over the period, held back by the extremely strong 2022 baseline.
- Apart from large, fast-growing segments such as battery materials, smaller fast-growing niches exist in almost all segments. Other growth strategies for electronic materials suppliers include market share gains through innovation and focused commercial efforts, finding new applications for existing technologies, and consolidation or acquisitions to expand product portfolios.

PRISMARK PARTNERS LLC

CONSULTANTS TO THE ELECTRONICS INDUSTRY
BUSINESS OPPORTUNITIES FROM TECHNOLOGY AND
MARKET CHANGES

PRISMARK PARTNERS LLC

130 Main Street, Cold Spring Harbor, NY 11724 USA • Tel: +1-631-367-9187 • Fax: +1-631-367-9223
email: partners@prismark.com website: http://www.prismark.com