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Electric Vehicle (EV) Battery Cell and Pack Materials: Global Market 2027-2037

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Abstracts

The electric vehicle (EV) battery cell and pack materials market spans the complete physical composition of a modern traction battery, organised from the cell outward: the cathode and anode active materials that dominate both mass and value, the inactive cell materials that enable them to function, the module-level materials that connect and isolate groups of cells, and the pack-level structural and functional materials that contain, cool and protect the assembly. It is one of the foundational materials markets of the energy transition, sitting directly beneath the rapidly expanding global EV industry and drawing on critical minerals, specialty chemicals, advanced metals and engineered functional materials in roughly equal measure.

The market is shaped less by any single technology than by the interaction of three forces. The first is cell chemistry: the migration away from nickel- and cobalt-rich cathodes toward iron-phosphate formulations, and the gradual infiltration of silicon into the graphite anode, continually reshape which materials matter most. The second is pack architecture: the shift from conventional modular packs toward cell-to-pack, cell-to-body and cell-to-chassis designs steadily reduces the quantity of inactive structural material required for each unit of energy stored. The third is supply geography: the concentration of refining and battery-grade processing — far more than mining — determines where genuine supply risk lies.

Together these forces produce a market whose composition shifts faster than its overall size. Demand grows across nearly every material, but the balance tilts toward abundant and engineered materials and away from those being designed out. For suppliers, processors, cell and pack manufacturers, automakers and investors, understanding this evolving bill of materials — material by material, chemistry by chemistry, and architecture by architecture — has become essential to navigating the decade ahead.

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Electric Vehicle (EV) Battery Cell and Pack Materials: Global Market 2027–2037 quantifies the global market for every material that goes into an EV battery cell and pack across the 2027–2037 period. It tracks the complete bill of materials of a modern traction battery and forecasts, for each material, both physical demand (kilotonnes per year) and market value (US dollars per year) on an annual basis.

The methodology is rigorously bottom-up: EV unit sales by vehicle segment are converted into gigawatt-hours of battery demand, multiplied by chemistry- and design-specific material-intensity factors expressed in kilograms per kilowatt-hour, and then priced — so that every forecast traces transparently from vehicle volumes through to material tonnes and value. Coverage is exhaustive across the value chain. On the cell side it spans cathode active materials (nickel, cobalt, manganese, lithium, iron and phosphate across NMC, NCA, NMCA, LFP, LMFP and LMO chemistries), anode active materials (natural and synthetic graphite, silicon and silicon oxide, and lithium metal on a watching basis), and the inactive cell materials — electrolytes, separators, binders, conductive additives, current collectors and cell casing. On the pack side it covers module materials (busbars, terminals and insulation), pack structural materials (aluminium, steel and composites) and pack functional materials (thermal interface materials, cooling components, fire protection, compression pads and seals). Forecasts are segmented by vehicle type — passenger car, van, truck, bus, two- and three-wheeler and microcar — and across China, Europe, North America and the rest of the world.

Beyond the numbers, the report explains the forces driving the market: the chemistry transition toward iron-phosphate and silicon, the structural-integration revolution in pack design (CTP, CTB and CTC), the sustainability and recycling agenda, and the supply-chain concentration and policy landscape that govern material availability. It includes detailed cell and pack design analysis, real-world pack teardown benchmarks, a full critical-materials supply-risk assessment, consolidated demand and value forecasts, and profiles of the leading materials suppliers across every tier.

Designed for material producers and processors, cell and pack manufacturers, automakers, investors and policymakers, the report provides the granular, internally consistent material-demand and value data needed to identify the fastest-growing material streams, anticipate supply bottlenecks, and position for a decade of structural change in the battery materials value chain.

Report contents include:

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The EV market and battery demand outlookLi-ion battery chemistry and technologyCell cost and energy densityCell materials: cathode and critical raw materials (lithium, cobalt, nickel, manganese, iron, phosphate)Cell materials: anode (graphite and silicon)Cell materials: electrolyte, separators, binders, additives, current collectors and cell caseCell and pack design: CTP, CTB, CTC and large formatsPack and module materials (module interconnects and insulation, pack structural and functional materials)Battery pack examples and teardownsSustainability, recyclability and circularitySupply chain and geographic concentrationMarket forecasts and assumptions, 2027–2037Company profiles. The report profiles leading suppliers across every materials tier, including ABIS Aerogel Co., Ltd., Aerogel Core Ltd, Ampcera, Apheros, Asahi Kasei, Axiotherm GmbH, BAIC BJEV (Beijing Electric Vehicle Co., Ltd.), BENTELER Automotive, CFP Composites, Chery International, Denka, DuPont, Elven Technologies, EVE Energy Co., Ltd., First Graphene Ltd., Freudenberg Sealing Technologies, Hitachi Zosen Corporation, Horizontal Na Energy and more.....

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