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Global Dry Electrode Process Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Dry Electrode Process market size is expected to reach $ 5219 million by 2032, rising at a market growth of 19.2% CAGR during the forecast period (2026-2032).

Dry electrode process is an advanced lithium-ion battery electrode fabrication technology. It does not use liquid solvents such as NMP during manufacturing. Instead, it involves dry-mixing active materials, conductive agents, and binders (such as PTFE), followed by shearing and fibrillation to directly press them into a self-supporting thin film, which is then laminated with a current collector. Its core advantages lie in eliminating the drying process, significantly reducing costs, saving space, being environmentally friendly, and increasing energy density.

Upstream of the dry electrode process includes cathode and anode active materials (such as high-nickel ternary materials, lithium iron phosphate and silicon-based anodes), conductive additives (carbon black, carbon nanotubes and graphene), specialized dry-process binders (commonly PTFE-based polymers) and aluminum and copper current collectors. On the equipment side, key systems include high-shear mixing units, fibrillation equipment, dry film forming machines and precision calendaring systems. Compared with wet processing, the dry method imposes higher requirements on binder fibrillation control, particle size compatibility and dispersion uniformity, making equipment precision and material formulation critical cost and performance factors.

In terms of process flow, active materials, conductive agents and binders are subjected to high-energy mechanical mixing, during which PTFE forms a fibrillated network structure under shear forces. This fibrous network physically entangles particles to generate a cohesive electrode film without solvent evaporation. The film is subsequently pressed onto the current collector. Because there is no drying stage, production time

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and energy use are substantially reduced, and solvent recovery systems are no longer required.

Compared with traditional wet coating technology, the dry electrode process offers potential advantages in lowering manufacturing costs, reducing carbon emissions, enabling thicker electrode designs and increasing energy density. It supports higher areal loading and thick electrode structures, which can enhance cell-level energy density and simplify manufacturing flow. However, technical challenges remain in ensuring uniform material distribution, strong interfacial adhesion, stable conductive networks and consistent large-scale production yield.

Industry trends indicate that as the battery sector pushes toward higher energy density and lower cost per kWh, the dry electrode process is transitioning from pilot validation to industrialization. It is particularly promising for high-nickel cathode systems and silicon-rich anodes. Equipment manufacturers are accelerating development of continuous dry film forming and high-speed calendaring technologies, while material suppliers are optimizing binder and conductive formulations tailored to solvent-free systems. Although initial capital expenditure and process tuning costs are relatively high, successful scale-up could significantly improve gross margins by reducing solvent, energy and facility costs. Over the long term, the dry electrode process is considered one of the key technological upgrade paths in next-generation lithium-ion battery manufacturing.

This report studies the global Dry Electrode Process demand, key companies, and key regions.

This report is a detailed and comprehensive analysis of the world market for Dry Electrode Process, and provides market size (US$ million) and Year-over-Year (YoY) growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Dry Electrode Process that contribute to its increasing demand across many markets.

Highlights and key features of the study
Global Dry Electrode Process total market, 2021-2032, (USD Million)
Global Dry Electrode Process total market by region & country, CAGR, 2021-2032, (USD Million)
U.S. VS China: Dry Electrode Process total market, key domestic companies, and share, (USD Million)
Global Dry Electrode Process revenue by player, revenue and market share 2021-2026, (USD Million)

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Global Dry Electrode Process total market by Film Formation Method, CAGR, 2021-2032, (USD Million)
Global Dry Electrode Process total market by Application, CAGR, 2021-2032, (USD Million)

This report profiles major players in the global Dry Electrode Process market based on the following parameters - company overview, revenue, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Tesla, LG Energy Solution, CATL, BYD, Samsung SDI, Panasonic, EVE Energy, Gotion, Hongmumian, SK On, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the world Dry Electrode Process market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US$ Millions), by player, by regions, by Film Formation Method, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global Dry Electrode Process Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

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Rest of World

Global Dry Electrode Process Market, Segmentation by Film Formation Method:

Dry Roll Forming

Dry Spray Deposition

3D Printing

Extrusion Molding

Global Dry Electrode Process Market, Segmentation by Adhesive Mechanism:

PTFE Fibrillation

Thermoplastic Adhesive

Adhesive-free

Global Dry Electrode Process Market, Segmentation by Electrode Target:

Dry Cathode

Dry Anode

Hybrid

Global Dry Electrode Process Market, Segmentation by Application:

Power Batteries

Energy Storage Batteries

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Solid-state Batteries

Supercapacitors

Companies Profiled:

Tesla

LG Energy Solution

CATL

BYD

Samsung SDI

Panasonic

EVE Energy

Gotion

Hongmumian

SK On

Sakuu

Tsingyane Electronics

LiCAP Technologies

AM Battery

Anaphite

Ateios Systems

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Intecells

Dragonfly Energy

Coperion

Key Questions Answered

1. How big is the global Dry Electrode Process market?
2. What is the demand of the global Dry Electrode Process market?
3. What is the year over year growth of the global Dry Electrode Process market?
4. What is the total value of the global Dry Electrode Process market?
5. Who are the Major Players in the global Dry Electrode Process market?
6. What are the growth factors driving the market demand?

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