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Global Dry Electrode Process Market 2026 by Company, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global Dry Electrode Process market size was valued at US$ 1516 million in 2025 and is forecast to a readjusted size of US$ 5219 million by 2032 with a CAGR of 19.2% during review period.

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

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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 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 is a detailed and comprehensive analysis for global Dry Electrode Process market. Both quantitative and qualitative analyses are presented by company, by region & country, by Film Formation Method and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global Dry Electrode Process market size and forecasts, in consumption value ($ Million), 2021-2032

Global Dry Electrode Process market size and forecasts by region and country, in consumption value ($ Million), 2021-2032

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Global Dry Electrode Process market size and forecasts, by Film Formation Method and by Application, in consumption value ($ Million), 2021-2032

Global Dry Electrode Process market shares of main players, in revenue ($ Million), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for Dry Electrode Process

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key 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.

Market segmentation

Dry Electrode Process market is split by Film Formation Method and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for Consumption Value by Film Formation Method and by Application. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Film Formation Method

Dry Roll Forming

Dry Spray Deposition

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3D Printing

Extrusion Molding

Market segment by Adhesive Mechanism

PTFE Fibrillation

Thermoplastic Adhesive

Adhesive-free

Market segment by Electrode Target

Dry Cathode

Dry Anode

Hybrid

Market segment by Application

Power Batteries

Energy Storage Batteries

Solid-state Batteries

Supercapacitors

Market segment by players, this report covers

Tesla

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LG Energy Solution

CATL

BYD

Samsung SDI

Panasonic

EVE Energy

Gotion

Hongmumian

SK On

Sakuu

Tsingyane Electronics

LiCAP Technologies

AM Battery

Anaphite

Ateios Systems

Intecells

Dragonfly Energy

Coperion

Market segment by regions, regional analysis covers

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North America (United States, Canada and Mexico)

Europe (Germany, France, UK, Russia, Italy and Rest of Europe)

Asia-Pacific (China, Japan, South Korea, India, Southeast Asia and Rest of Asia-Pacific)

South America (Brazil, Rest of South America)

Middle East & Africa (Turkey, Saudi Arabia, UAE, Rest of Middle East & Africa)

The content of the study subjects, includes a total of 13 chapters:

Chapter 1, to describe Dry Electrode Process product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top players of Dry Electrode Process, with revenue, gross margin, and global market share of Dry Electrode Process from 2021 to 2026.

Chapter 3, the Dry Electrode Process competitive situation, revenue, and global market share of top players are analyzed emphatically by landscape contrast.

Chapter 4 and 5, to segment the market size by Film Formation Method and by Application, with consumption value and growth rate by Film Formation Method, by Application, from 2021 to 2032.

Chapter 6, 7, 8, 9, and 10, to break the market size data at the country level, with revenue and market share for key countries in the world, from 2021 to 2026.and Dry Electrode Process market forecast, by regions, by Film Formation Method and by Application, with consumption value, from 2027 to 2032.

Chapter 11, market dynamics, drivers, restraints, trends, Porters Five Forces analysis.

Chapter 12, the key raw materials and key suppliers, and industry chain of Dry Electrode Process.

Chapter 13, to describe Dry Electrode Process research findings and conclusion.

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