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Global Dry Electrode Process Market Growth (Status and Outlook) 2026-2032

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Abstracts

The global Dry Electrode Process market size is predicted to grow from US$ 1441 million in 2025 to US$ 5269 million in 2032; it is expected to grow at a CAGR of 20.4% from 2026 to 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

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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.

LPI (LP Information)' newest research report, the ?Dry Electrode Process Industry Forecast? looks at past sales and reviews total world Dry Electrode Process sales in 2025, providing a comprehensive analysis by region and market sector of projected Dry Electrode Process sales for 2026 through 2032. With Dry Electrode Process sales broken down by region, market sector and sub-sector, this report provides a detailed analysis in US$ millions of the world Dry Electrode Process industry.

This Insight Report provides a comprehensive analysis of the global Dry Electrode Process landscape and highlights key trends related to product segmentation, company formation, revenue, and market share, latest development, and M&A activity. This report also analyses the strategies of leading global companies with a focus on Dry Electrode Process portfolios and capabilities, market entry strategies, market positions, and geographic footprints, to better understand these firms? unique position in an accelerating global Dry Electrode Process market.

This Insight Report evaluates the key market trends, drivers, and affecting factors

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shaping the global outlook for Dry Electrode Process and breaks down the forecast by Film Formation Method, by Application, geography, and market size to highlight emerging pockets of opportunity. With a transparent methodology based on hundreds of bottom-up qualitative and quantitative market inputs, this study forecast offers a highly nuanced view of the current state and future trajectory in the global Dry Electrode Process.

This report presents a comprehensive overview, market shares, and growth opportunities of Dry Electrode Process market by product type, application, key players and key regions and countries.

Segmentation by Film Formation Method:

Dry Roll Forming

Dry Spray Deposition

3D Printing

Extrusion Molding

Segmentation by Adhesive Mechanism:

PTFE Fibrillation

Thermoplastic Adhesive

Adhesive-free

Segmentation by Electrode Target:

Dry Cathode

Dry Anode

Hybrid

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Segmentation by Application:

- Power Batteries
- Energy Storage Batteries
- Solid-state Batteries
- Supercapacitors

This report also splits the market by region:

- Americas
  - United States
  - Canada
  - Mexico
  - Brazil
- APAC
  - China
  - Japan
  - Korea
  - Southeast Asia
  - India
  - Australia
- Europe

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- Germany
- France
- UK
- Italy
- Russia

Middle East & Africa

- Egypt
- South Africa
- Israel
- Turkey
- GCC Countries

The below companies that are profiled have been selected based on inputs gathered from primary experts and analyzing the company's coverage, product portfolio, its market penetration.

- Tesla
- LG Energy Solution
- CATL
- BYD
- Samsung SDI
- Panasonic

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EVE Energy

Gotion

Hongmumian

SK On

Sakuu

Tsingyane Electronics

LiCAP Technologies

AM Battery

Anaphite

Ateios Systems

Intecells

Dragonfly Energy

Coperion

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