

PRESS INFORMATION

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DRYplatform Launches: Battery Research Gains Lighthouse Infrastructure

Fraunhofer IWS Opens Path from Concept to Industry-ready Cells

(Dresden, 11/04/2025) Fraunhofer Institute for Material and Beam Technology IWS officially inaugurated DRYplatform on November 3, 2025, during the DRY Coating Forum. Guests witnessed the ceremonial ribbon-cutting, while nearly 200 experts, about 80 percent from industry, had already explored the potential and industrial perspectives of dry electrode coating at the preceding forum. The German Federal Ministry of Education and Research (BMBF, today BMFTR) funded the facility with €3.7 million as a flagship project.

DRYtraec replaces conventional wet coating of electrodes. Developed at Fraunhofer IWS, this dry-coating process eliminates solvents and energy-intensive drying steps, cutting costs and environmental impact. DRYtraec forms the core of DRYplatform. The platform integrates the process into a complete system: a flexible dry-air multi chamber design with precise humidity control, high-intensity and extrusion mixers for powder preparation, connected analytics, and complementary units for cell testing, post-compaction, and electrode finishing. Inline and offline data converge in a shared digital infrastructure, enabling rapid scaling of material–process–property relationships. “DRYplatform accelerates the transfer from science to industry,” said Prof. Christoph Leyens, Director of Fraunhofer IWS. “It highlights Germany’s commitment to advanced battery research and provides our partners with a research environment unmatched anywhere in the world.”

Overcoming Obstacles through Teamwork

Building the platform demanded more than 40 individual procurements and installations amid supply chain disruptions, pandemic aftereffects, and rising energy costs. Fraunhofer IWS revised its original plan of single dry-air cabinets into a multi chamber concept that now combines low operating costs with the ability to process highly sensitive materials.

Chemists, process engineers, mechanical engineers, designers, and service units collaborated closely. “We systematically linked material development, plant engineering, and process analytics,” said Dr. Benjamin Schumm, Head of Particle Technology. “That lets us deliver fast, reliable answers to complex questions – a capability only possible through the breadth of expertise at Fraunhofer IWS.”

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Responsibility for the content of this publication remains with the author.

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Value across the Supply Chain

DRYplatform supports stakeholders from material development to industrial deployment. Powder suppliers can validate recipes, equipment manufacturers can integrate and optimize systems, and cell producers can assess electrochemical performance. Automotive and aerospace industries gain robust foundations for future products. Companies can access the research infrastructure as part of joint research and development projects.

Strategic Relevance for Germany

E-mobility is reshaping global value chains. Dry coating offers Germany the opportunity to safeguard its industrial competitiveness. DRYplatform enhances research as well as machine and plant engineering while enabling early adoption by cell manufacturers. The result: expertise stays in the country, reducing dependence on costly imports. Public funding translates directly into industrial application, delivering societal benefit.

Outlook

DRYplatform bridges scientific concepts and industry-scale demonstration. Fraunhofer IWS works closely with partners, such as Fraunhofer Research Fabrication Battery Cell FFB, which will commission a DRYtraec-based production line at the end of the year 2025. This creates a seamless progression from fundamentals to pilot manufacturing.

The Fraunhofer IWS research and technology platform enables the efficient and scalable evaluation of dry-coating processes for current and next-generation batteries, including solid-state, sodium-ion, and lithium–sulfur systems. This allows researchers to validate new electrochemical concepts at an early stage and systematically advance their technology readiness. Companies gain a sound basis for deciding whether to complement established wet-coating processes with dry methods. This choice will powerfully shape which cell technologies dominate the market in the next five to ten years.

Forum as Showcase and Catalyst

The DRY Coating Forum in Dresden provided the ideal stage for the inauguration of DRYplatform. Around 200 experts discussed industrial adoption of dry coating. Attendees included leading automakers, key cell producers, and globally relevant equipment manufacturers. The strong industry presence underscored the technology's importance. For Fraunhofer IWS, it was also an opportunity to position DRYplatform as the centerpiece of a network linking research, industry, and plant engineering – a catalyst for faster exchange and stronger cooperation.

Info Box

DRYtraec

The patented Dry Transfer Electrode Coating process developed at Fraunhofer IWS replaces energy-intensive wet coating with a solvent-free, roll-to-roll dry method. Dry films transfer directly to the substrate, eliminating the need for drying stations, reducing energy and space requirements, and improving environmental balance. DRYtraec works for lithium-ion, solid-state, and other battery types and is available to industry partners through licensing.

Key Features:

- Solvent-free and resource-efficient
- Roll-to-roll process without drying steps
- Reduced footprint and energy demand
- Applicable to multiple battery technologies
- Patented and licensable

More information: www.drytraec.de/en

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Invited guests celebrated the official opening of DRYplatform with a symbolic ribbon-cutting ceremony.

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Materials and Lasers – Competence with a System: **The Fraunhofer Institute for Material and Beam Technology IWS** develops complex system solutions in materials and laser technology. We define ourselves as idea drivers developing customized solutions based on laser applications, functionalized surfaces as well as material and process innovations – from easy-to-integrate custom solutions to cost-efficient solutions for small and medium-sized enterprises to industry-ready one-stop solutions. Our research focuses on aerospace, energy and environmental technology, automotive, medical and mechanical engineering, toolmaking, electrical engineering and microelectronics, and photonics and optics sectors. In our five future and innovation fields of battery technology, hydrogen technology, surface functionalization, photonic production systems and additive manufacturing, we are already creating the basis today for the technological answers of tomorrow.



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Prof. Christoph Leyens, Director of Fraunhofer IWS, emphasized that DRYplatform integrates state-of-the-art dry-coating and analytics infrastructure from powder preparation and cell testing to the digital interconnection of all process data.

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“DRYplatform” enables researchers to develop and scale concepts from scientific approaches to near-industrial demonstrations based on the “DRYtraec” dry-coating process.

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Winners of the Joseph von Fraunhofer Prize for 2025: Holger Althues, Stefan Kaskel and Benjamin Schumm (from left) from Fraunhofer IWS received the award in recognition of their research on the DRYplatform core technology DRYtraec.

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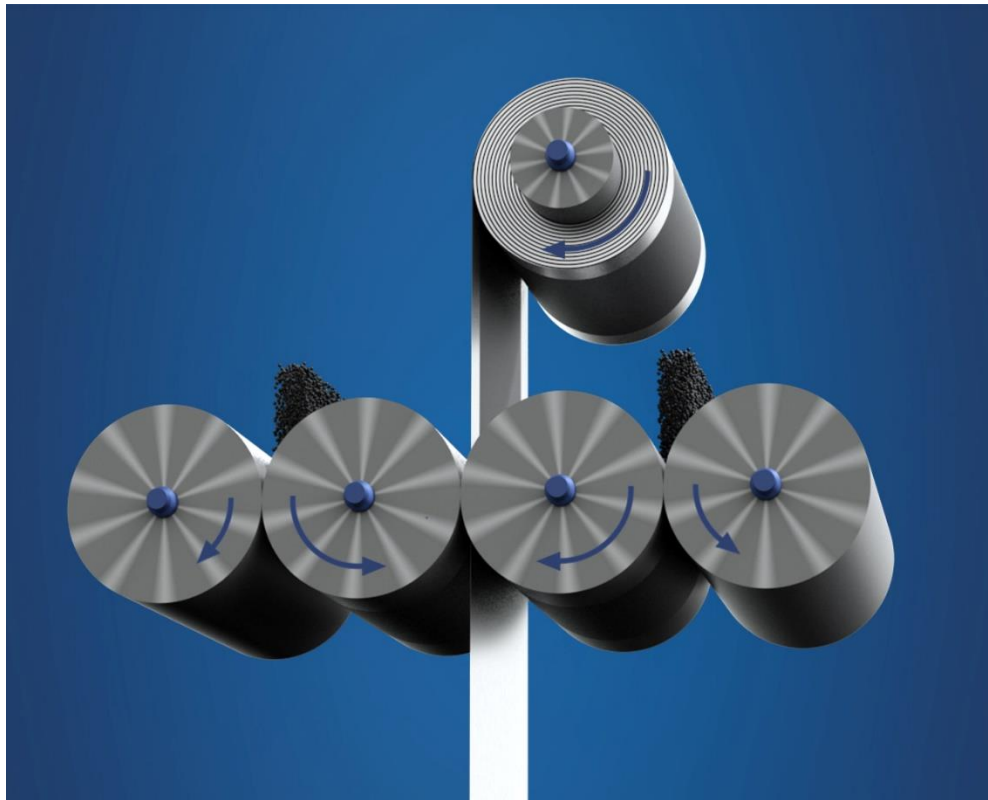
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With the new dry transfer technology DRYtraec, the electrodes of energy storage cells are coated with a dry film instead of using liquid chemicals.

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DRYtraec process scheme: The shear force in the calender gap leads to film formation on the faster rotating roll. Therefrom, the film is transferred to the target substrate.

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