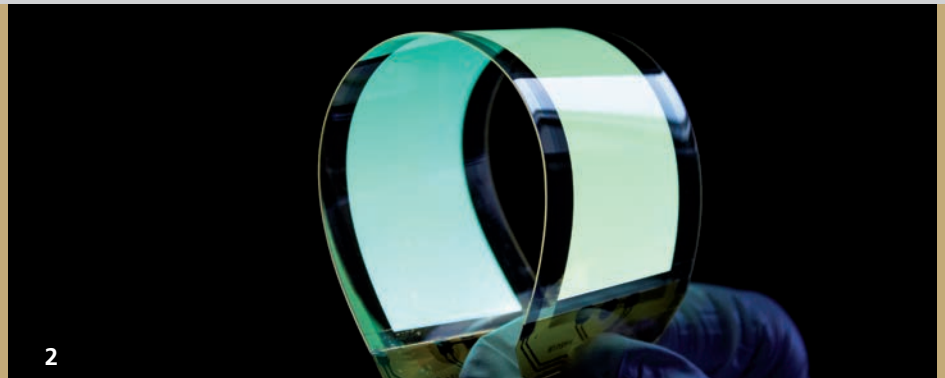




1



2

- 1 *Barrier films for food packaging*
 2 *High-barrier coatings for flexible electronics*

COATING OF FLEXIBLE PRODUCTS

Advanced coatings on polymer films, flexible glass, thin metal foils, and textiles

Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP

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Roll-to-roll coating of flexible materials

Roll-to-roll coating continues to be the most efficient way to coat flexible materials. The Fraunhofer FEP is a worldwide leader in research and development in coating of polymer films, thin metal foils, flexible glass and other flexible materials such as membranes, textiles, and paper.

The coated flexible materials are used in a wide range of modern products such as:

- transparent barrier films for packaging
- high barrier and functional films for flexible electronics
- optical filters, optical films
- anti-counterfeiting labels
- batteries
- super-caps
- solar cells
- decorative films

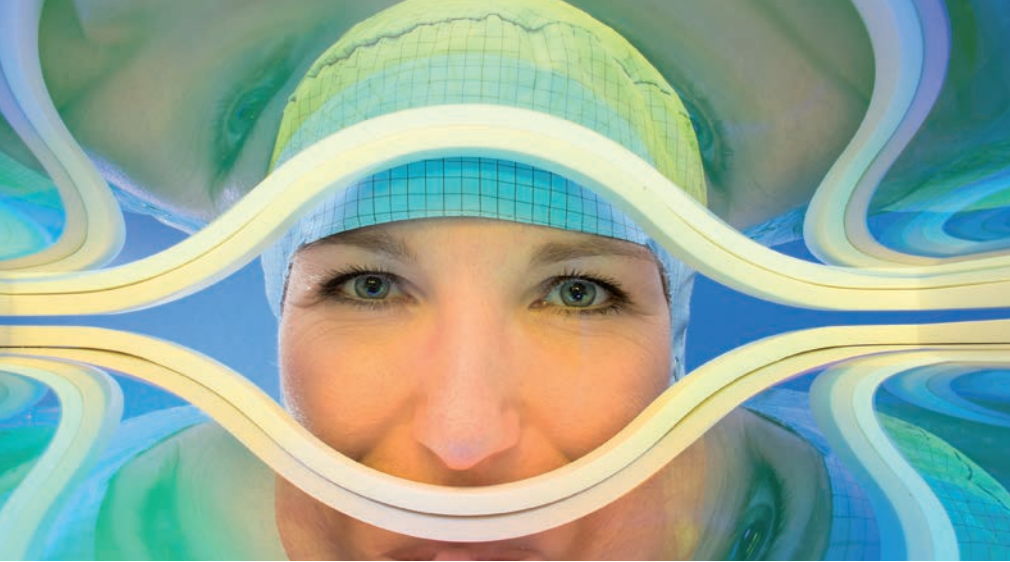
properties. One of our research goals is the combination of multiple functionalities in one single layer.

Web coaters, equipment manufacturers and end users of coated webs need advanced research and development resources to keep pace with the rapidly developing and innovative web coating business. The Fraunhofer FEP is uniquely qualified to address this growing need. We have full in-house capability to take a project from concept through to a final industrial solution. Our service for contract pilot coating enables our clients to quickly enter the market with their new products before their own coating capabilities have been installed.

We are dedicated to developing new products and technologies that represent the state of the art in roll-to-roll coating.

Roll-to-roll coating technologies are capable of providing a variety of advanced surface





Technologies

Fraunhofer FEP offers and continuously develops innovative coating technologies.

Our technologies include:

for vacuum roll-to-roll coating

- pulse magnetron sputtering
- high-rate plasma-enhanced CVD (PECVD)
- high-rate evaporation
(boat evaporation, thermal evaporation

and electron beam evaporation, optionally with plasma-activation)

- plasma and ion surface treatment
- in-line optical monitoring

for atmospheric roll-to-roll coating

- slot die coating
- electron beam curing

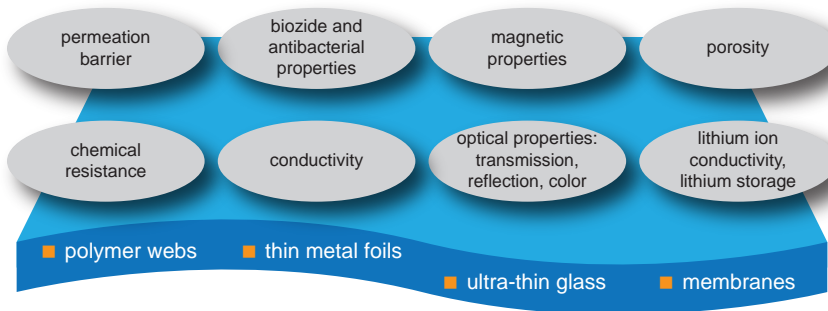
Our offer

We have full in-house capability to take a project from concept through to a final industrial solution, including:

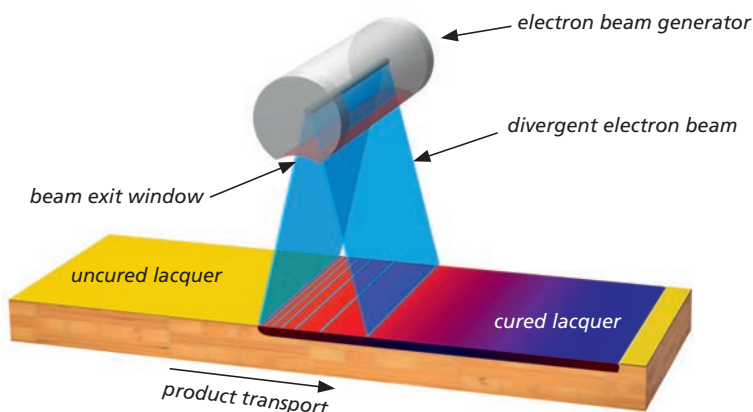
- feasibility studies
- development of layer systems, products, and coating technologies for roll-to-roll web coating
- scale-up of coating technologies to large web widths and high web speeds
- technology transfer and fitting web coating plants with key components (magnetrons, plasma sources, reactive gas systems, electron beam units, product and process monitoring systems)
- contract coating in the pilot phase of a product, which enables our clients to quickly enter the market with their new products before their own coating capabilities have been installed

Shaping surface properties of flexible materials

homogeneity, uniformity, low defect rate, stability, low stress etc.



Electron beam roll-to-roll curing of lacquers



Vacuum roll-to-roll coating

