Beneq nCLEAR® Moisture Barriers and Encapsulation for Industrial Applications

The need for efficient moisture and oxygen barrier films is a major challenge in flexible and organic electronics. Applications such as OLED lighting and displays, flexible CIGS and organic PV require glass-like permeation property barriers in order to satisfy the lifetime requirements set upon them. Beneq nCLEAR® barrier coatings, based on atomic layer deposition (ALD) offer superior properties and cost-efficient solutions for industrial production.

ALD-based thin film barriers and encapsulation, developed by Beneq, achieve glass-like permeation properties by depositing a dense and pinhole-free coating that completely follows the contours of the substrate surface. Beneq ALD can offer water vapor transfer rates (WVTR) down to $10^{-6}$ g/m² day (see graph below). Still, the barrier is fully transparent and flexible. In industrial production, ALD is cost-efficient and scalable.

Encapsulation for OLED:
- Display
- Lighting
- TV

ALD offers a cost-efficient means to eliminate defect-driven moisture permeation, with no need for adhesives.

With experience from installed industrial capacity, Beneq can see you through all steps of implementing ALD encapsulation into your production. To get started on your own proof-of-concept and economical feasibility evaluation, get in touch with Beneq Coating Services.

Beneq offers equipment for producing thin film moisture barriers on polymer substrates, enabling high transparency and significant device lifetime enhancement.

For a no-risk entry to ALD barriers, including proof-of-concept and economical feasibility evaluation, ask for our Coating Services.

ALD barriers and encapsulation offer:
- Glass-like permeation properties, down to WVTR $10^{-6}$ g/m² day
- Transparency and flexibility
- Cost-efficiency and scalability
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**Barriers for flexible:**
- OLED lighting
- CIGS solar cells
- Organic and Dye-Sensitized Photovoltaics
- Display

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