

| Conductive | Transparent | Flexible |



## Printable Hole Injection Layers (HILs) for OLED Displays and Lighting

Printable Clevios™ HIL (hole-injection layer) materials – based on PEDOT conductive polymer dispersions – can maximize OLED device efficiency and lifetime. Heraeus offers water-free, non-aqueous, as well as aqueous HIL materials for inkjet printing, spin- and slot-die coating. Clevios™ HIL materials are optimized to form smooth layers with low roughness and outstanding optical transparencies at even thicker layers. HILs with high lateral conductivities are offered with excellent planarization properties, e.g. for metal-mesh electrodes.

Heraeus has been developing dedicated materials for OLED applications for over two decades. Ton scale Clevios™ HIL materials have been supplied for OLED displays. With extensive synthesis and processing laboratories Heraeus can customize its OLED materials to your specific requirements.

### Key benefits of Clevios™ HIL materials

- Inkjet printing, slot die- and spin-coat versions
- New, non-aqueous, water-free PEDOT HIL dispersions
- pH neutral aqueous types
- Excellent transmission even at thick layers
- Controlled dispersion properties for very low film roughness
- Volume production in place

The conditions of your use and application of our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and applications. This application-specific analysis at least must include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by Heraeus. All information is given without warranty or guarantee. It is expressly understood and agreed that the customer assumes and hereby expressly releases

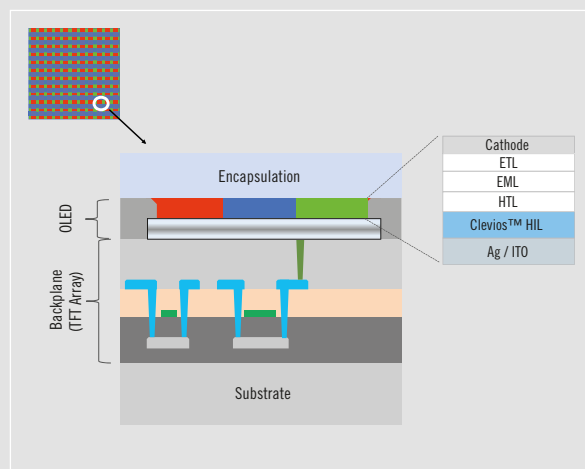
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### Clevios™ HIL product overview

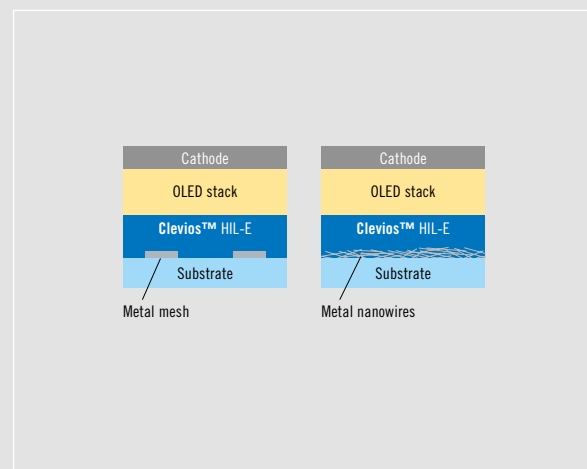
	Water-based	Solvent-based	pH neutral	Acidic	High conductivity	High resistivity	Inkjet printing	Spin coating	Planarization, thick layer
<b>HIL 8 Jet</b>		○					■	□	
<b>P Jet (OLED)</b>	○		○				■	□	
<b>P VP AI 4083</b>	○			○				■	
<b>P VP CH 8000</b>	○			○		○		■	
<b>HIL-E 100</b>	○		○		○			□	■

○ applicable    □ recommended    ■ highly recommended

### Inkjet printable Clevios™ HIL for OLED displays



### Highly conductive Clevios™ HIL-E for planarization



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# Clevios™