

Heraeus

CLEVIOS™ PEDOT

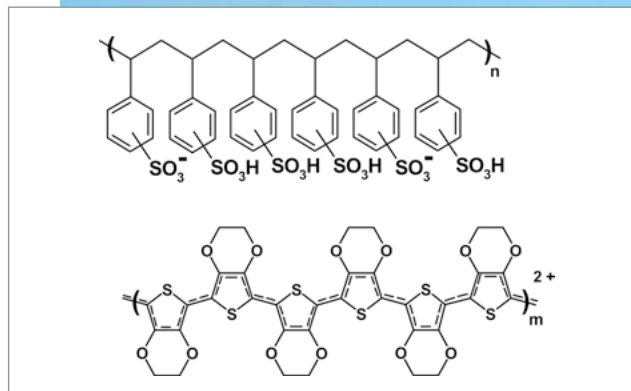
The image features a hand at the top right touching a glowing blue globe. A network of blue dots and lines, representing a molecular structure, is overlaid on the globe and extends across the lower half of the image. On the left side, there is a glass flask containing a blue liquid. The background is a gradient of blue and green with bokeh light effects.

Innovate with Clevios™  
PEDOT Conductive Polymers

# Innovate with Clevios™ PEDOT Conductive Polymers

The use of intrinsically conductive polymers is rapidly developing. Marketed under the name of Clevios™ this groundbreaking 3,4-polyethylene-dioxythiophene base product range is set to continue its success story.

Clevios™ PEDOT/PSS is a class leader in the field of conductive chemistry. New kinds of flexible displays, high performance electrolytic capacitors, antistatic and conductive protective and shielding layers, OLED, OPV and printed electronics are just a few of the many possible applications for Clevios™.



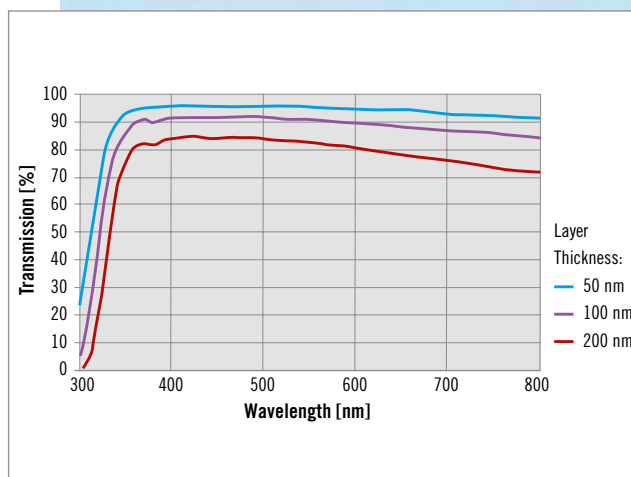
## Key Characteristics

### Film

- Conductivity tunable over wide range
- Transparent and clear
- Excellent mechanical flexibility
- High thermal and chemical stability

### Dispersion

- Aqueous dispersions
- Safe handling
- Easy to use by coating and printing
- Tailored product range
- Manufactured on industrial scale



## Clevios™ Conductivity / Resistivity Range

$10^{-5}$	$10^{-4}$	$10^{-3}$	$10^{-2}$	$10^{-1}$	1	10	$10^2$	$10^3$	$10^4$	S/cm
1E10	1E9	1E8	1E7	1E6	1E5	1E4	1000	100	10	$\Omega/\square$

## Application Methods

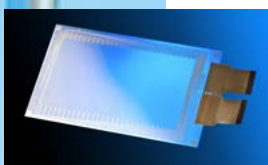
- Screen Printing
- Inkjet Printing
- Gravure Printing
- Slot-Die Coating
- Spray Coating
- Dip Coating
- Spin Coating

# Areas of Application



## Antistatic coatings of plastic and glass

Clevios™ provides transparent, antistatic, and dissipative properties on PET and other substrates to avoid static charges that can cause dust attraction, and damage by electro-static discharge (ESD). Uses include packaging trays, protective / release films, instrument housings etc.



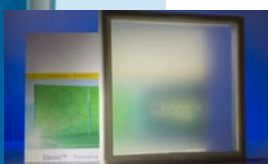
## Capacitive Touch Panels

Transparent touch sensors in touch displays can be made with Clevios™ coated plastic films. Patterning of the sensors is done by the Clevios™ Etch technology. The unique flexible properties of Clevios™ enable the next-generation flexible and foldable touch displays.



## Printed Capacitive Touch Keys, Sliders and Switches

Transparent sensor electrodes are screen-printed using Clevios™. The unique flexible properties enable 3D-shaped touch sensitive surfaces by thermoforming. Uses include toys, whiteware, automotive etc.



## Smartwindows

Coatings of highly conductive Clevios™ on PET film or glass act as the transparent electrodes in smartwindows to switch the PDLC (polymer dispersed liquid crystal) layer by applying an electric field.



## Electroluminescence (EL)

Clevios™ is used for screen printing of transparent electrodes in thick-film electroluminescence. Its flexible properties enable new uses on paper or fabric substrates for smart packagings and wearables.



## OLED Lighting / OLED Displays

Clevios™ is used in organic light emitting diodes as hole-injection layer (HIL) in OLED displays, and as transparent electrode layer with excellent planarization properties on metal-mesh and -nanowires in OLED lighting.



## Organic Solar Cells / 3rd Gen PV

Clevios™ Solar grades are used as hole transport layer (HTL) and transparent top electrode. Solvent-based types are under development for perovskite solar cells.



## Capacitors

Clevios™, used as cathode material, has revolutionized the performance of electrolytic capacitors.



## LCD Shielding

Clevios™ coatings on display glass can be used in IPS LCD for ESD and EMI shielding.

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**Heraeus Deutschland GmbH & Co. KG**

Heraeus Epurio  
Building B202, Chempark  
51368 Leverkusen, Germany  
clevios@heraeus.com  
www.clevios.com | www.heraeus.com



Clevios™