### **Product Data Sheet**





Helios ETL D Spray (H-DZ11015)

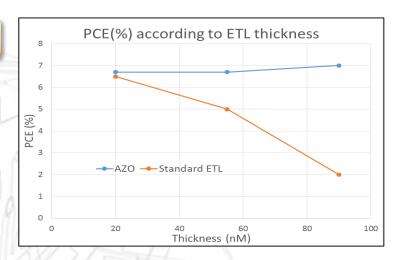
Helios ETL D Spray H-DZ11015 Semi Conductive Ink was developed for the printed electronics market and is particularly well suited for OPV and OPV.

Helios ETL D Spray H-DZ11015 Semi Conductive Ink shows great performance on Spray coating and is compatible with various flexible substrates (Kapton, PET, PET/ITO, ...) but also Glass/ITO.

The use of Helios ETL D Spray (H-DZ11015) Semi Conductive Ink is greatly improving the devices performances by reducing the roughness of the TCE without a negative impact on the electrical conductivity and the transparency. Life time of the devices is also increased. The use of Helios ETL D Spray (H-DZ11015) Semi Conductive Ink provides ETL layer with high performances. In addition, compared to standard ETL, the PCE not retained even with higher thickness.

## Ready-to-Use Ink

Material	AZO nanoparticles
Solvent type	Alcohol
Viscosity (20°C)	10 ± 3 mPa.s
Surface Tension	25 ± 5 mN/m
Storage stability	6 months at 18-25 °C



# Key advantages & benefits

- Easy deposition under atmospheric conditions (temperature and pressure)
- Good optical performances (Visible light transmission > 90%)
- Non-Toxic (No CMR ink)
- Compatible with ITO layer and Ag NWs layer
- Compatible with most flexible substrates
- Low drying temperature making printing onto flexible substrates possible

# Typical Electrical Properties

Work function  $3.6 \pm 0.1 \text{ eV}$ Conductivity  $10^{-3} - 10^{-4} \text{ S/cm}$ 

#### **Typical Processing Guideline**

- Helios ETL D Spray (H-DZ01015) Semi Conductive Ink can be homogenized for 5 minutes in an ultrasonic bath in order to get rid of any aggregates
- Filtration on a 0.45 μm PTFE filter syringe to avoid any nozzles clogging
- Drying conditions: Oven, IR oven, Vacuum oven
- Clean-up solution: Ethanol/Acetone

# **Applications**

Flexible OLED Display



**OLED & OPV grid** 



# For more information on our semi conductive inks, please contact:



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# **Shipping & Packaging**

- Standard sample order is 100 ml
- Standard bulk order is 1 l
- Standard delivery time is 10 days

#### Caraclel warranty

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