# **MINKRON**

# **Optical Quality Coatings & Encapsulants**

## **Basic Properties**

- Siloxane based formulations
- Excellent optical properties
- High thermal stability
- Tunable refractive index (RI)
- Solvent free versions available
- Custom products tailored for customer needs

## **Curing Options**

- UV cure –atmospheric cure
- Low and high thermal cure

## Processing

- Range of processing methods such as spin, slot and various printing methods
- Ready for Wafer Level Packaging

# **Product Types And Examples**

## **Range of Refractive Indices (RI)**

- Full range of refractive indices starting from RI 1.15 up to 1.90
- Particle free/polymer only formulas up to 1.70 RI

Product Example	Refractive Index	Cure	Note	
IOC-501	1.2X @ 550 nm	Thermal	High Temperature	
IOC-511	1.30 @ 550 nm	Low Thermal	Low Temperature	
IOC-045	1.54 @ 633 nm	UV	Planarizing	
ILE-501	1.61 @ 633 nm	Thermal	Encapsulant	
IOC-610	1.58 @ 633 nm	UV	Planarizing	
IOC-620	1.56 @ 633 nm	Thermal	Planarizing	
IOC-820	1.68 @ 633 nm	Thermal	Low Temperature	
IOC-131	1.85 @ 633 nm	UV	Thick layers up to 5 μm	

# High RI Coatings, Product Examples

- IOC-131, RI 1.85 @ 633 nm, UV cure
- IOC-180, RI 1.74 @ 400 nm, thermally stable upto 450 C with gap filling properties
- IOC-820. RI 1.68 @ 633 nm, Low temp. cure

### **Applications:**

- Optimization of light transmission
- CMOS and sensors
- Displays and optics
- Light guides

## **Planarizing Dielectrics**

- IOC-045 optically clear thick dielectric films
  - UV cure, RI 1.54
  - Thick films
- Very low haze
- IOC-180 planarizing dielectric
  - : high RI (1.66 @ 633 nm)
- Thermal cure, Thermally stable up to 400°C

### **Applications:**

• Planarizing dielectric, touch sensors layers





# **Antireflective Coatings**

- Up to 4% gain in transmission (one side coating)
- IOC-501, RI 1.25
- IOC-511, RI 1.30
- Low temperature substrates such as PET

### **Applications:**

- Optimization of light transmission
- CMOS, IS and sensors
- Displays and optics





## **UV-Patternable Dielectrics**

- IOC-101 Low temperature touch panel overcoat
  - UV-patternable, negative tone
  - Low temperature curing @ 120-150°C
  - Outstanding chemical resistance
  - Excellent adhesion to Glass, ITO, Si, PET and Metal Substrates
  - IOC-155 High temperature touch panel overcoat
  - Thermally stable up to 350°C
  - Excellent Photolithography Resolution
  - Resolution < 5 µm with 2 µm film thickness
  - Tack-free lithography
  - PEB-free version available
  - PGMEA/TMAH Development

#### **Applications:**

- Touch sensors
- In-Cell and On-Cell
- Microlens

## **Printable Optics And Dielectrics**

- Inkjetable and screen printable optical quality inks
- IPD-350 inkjetable dielectric
- IPD-325 screen printable dielectric
- IPD-370 UV curable inkjetable dielectric
- IPD-380 High RI (1.7x @ 400 nm) screen printable paste
- High and low RI versions on demand

#### **Applications:**

- OLED and flexible displays
- Printed Optical devices
- Sensors

## **Optical Quality Encapsulants**

- ILE-501, High RI 1.65
- 2-component, thermal cure
  ILE-200, 1-component UV cure version with 1.54 RI
- ILE-199, 1-component, thermal cure with 1.54 RI
- Excellent barrier properties
- Thermally stable

#### **Applications:**

- LED encapsulant
- Optics and sensors
- Wafer and panel level packaging
- UV embossing and nanoimprint

#### About Inkron

Inkron is a technology leader and manufacturer of next generation materials for the displays, LED, Power IC, semiconductor and printed electronics industries. Inkron's proprietary advanced siloxane polymer chemistry capabilities, along with our cost effective manufacturing process for nanomaterials, enable the development of a wide range of customized material products with superior performance advantages in high-tech applications. For more information on Inkron, please visit www.inkron. com or contact us at info@inkron.com.

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Relative Permeability and Efficacy								
Company	Material	RI	Water	Air	Sulfur	lm/W		
Inkron	ILE-200	1.58	1.7x	1	1.5x	n/a		
Inkron	ILE-199	1.58	n/a	n/a	1	n/a		
Inkron	ILE-501	1.61	1	1.8x	n/a	+ 8-12%		
Vendor	Phenyl silicone	1.53	2.6x	6.2x	n/a	+ 3%		
Vendor	Phenyl silicone	1.53	4.1x	15.7x	8.3x	+ 3%		
Vendor	Methyl Silicone	1.41	22.4x	>240x	18.3x	Reference		



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