UV-Curable Low Refractive Index Optical Resin for Nano Imprint, Cladding or Index matching Bonding

R272

PRODUCT DESCRIPTION:
- Base chemistry: Fluorinated acrylate, radical polymerization
- One component resin ready for use, solvent-free, UV curing

PRODUCT USE:
- Nano Imprint Lithography
- Cladding
- Anti-reflective application
- Index matching bonding

FEATURES:
- High Tg, low refractive index, good flow properties, low viscosity

OPTICAL CLARITY:
- UV-Vis and Near IR spectra

CURING METHOD: UV curing
R272 is required to be cured in the absence of air (cure in nitrogen or an inert atmosphere) or cured between two substances.

UV curing conditions:
* Metal halide/Mercury UV: UV-A (320-400 nm), intensity: 50-1,000 mW/cm²
* or LED-365 nm, UV light intensity: 100 to 1,000 mW/cm²

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<thead>
<tr>
<th>UV intensity (mW/cm²)</th>
<th>time (sec)</th>
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<tr>
<td>100</td>
<td>15 sec or more</td>
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<td>or 200</td>
<td>7 sec or more</td>
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<td>or 300</td>
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<td>or 400</td>
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<td>or 500</td>
<td>3 sec or more</td>
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<td>or 1,000</td>
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<th>LED-365 nm</th>
<th>Metal Halide/Mercury (UV-A: 320-400 nm)</th>
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<tbody>
<tr>
<td>UV intensity (mW/cm²)</td>
<td>time (sec)</td>
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<td>50</td>
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TYPICAL PROPERTIES

Uncured resin
- Viscosity at 25 °C, mPa.s or cps: 25 to 40
- Density (g/mL): 1.6
- Shelf life (20 - 30°C): 6 months
- Pot life or working life (20 - 30°C): 3 months

Cured film
- Appearance of cured adhesive: optically clear
- Shrinkage (volume, %): 1
- Hardness – Shore D: 65
- Glass transition temperature (DMA, °C): 90
- Depth of cure: >1,000 µm
- Refractive index of cured film (25 °C)
  - @ 589 nm (D): 1.413
  - @ 1310 nm: 1.405
  - @ 1550 nm: 1.404
- Abbe number, Vd: 69

Physical properties tested at 25°C, 50% RH (ASTM D638)
- Elongation (%): 5
- Tensile strength (MPa): 12
- Young’s Modulus (MPa): 400
- Operating temperature, °C: -40 to 140

GENERAL USAGE INFORMATION:
Shipment: no restriction on shipment
Storage: After receipt in black syringes or amber HDPE bottles, room temperature storage (15-30°C) in the original container is required.

SAFETY AND HANDLING: The uncured adhesive can be cleaned with isopropyl alcohol (IPA), methyl ethyl ketone (MEK), acetone, or xylene. Avoid direct skin and eye contact. Use only in well ventilated areas. Use protective clothing, gloves and safety goggles. Read Safety Data Sheet before handling.