LuxNIL® P289

High refractive index UV curable dispersion in PGMEA

FEATURES: High Refractive Index, EXCELLENT adhesion to plastic and glass substrates, OPTICALLY Clear

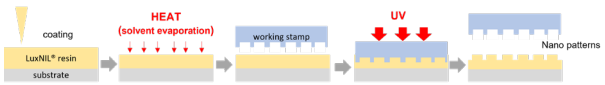
PRODUCT DESCRIPTION:

- LuxNIL® P289 is a UV-curable inorganic organic dispersion in PGMEA that is suitable for AR/VR/MR applications.
- Base chemistry: Inorganic nano particles in acrylate binder.

PRODUCT USE:

- Diffractive Optical Elements (DOE)
- AR/VR/MR
- Photo Nano-Imprint Lithography (P-NIL)

PROCESS FLOW



TYPICAL PROPERTIES

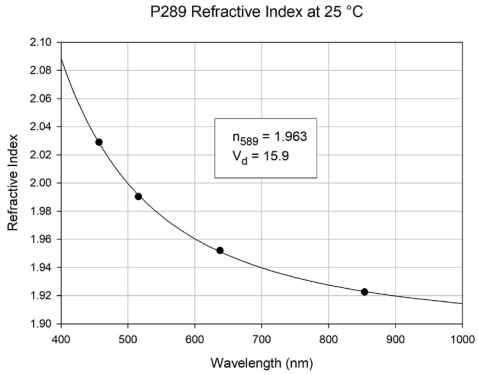
Uncured resin	
Solid content:	50%
Viscosity at 25 °C, mPa.s or cps	2-4
Shelf life (20 - 30°C):	6 months
Pot life or working life (20 - 30°C):	3 months
Cured film	
Shrinkage (volume, %)	<1
Refractive index of cured film (25 °C)	
@589 nm	1.96
Operating temperature:	-40 to 100 °C

LuxNIL® P289 OPTICAL PROPERTIES

Properties	LuxNIL®P289
n_{589}	1.96
Transmission*§	86%
Haze*	0.2%
Clarity*	100%

*1 micron film on borosilicate glass.
§No correction for surface reflection

LuxNIL® P289 RI vs wavelength



GENERAL USAGE INFORMATION:

Storage: After receipt in amber HDPE bottles, room temperature storage (15-30°C) in the original container is require

APPLICATION NOTES:

PROCESS:

1) Coating step for film forming: LuxNIL® P289 is used as a nano imprint lithography resin. LuxNIL® P289 can be applied by spin coat, roll coat, ink-jetting, etc.
2) Solvent removing step: after coating, heat is applied at 70 to 100 °C for 60 sec to remove PGMEA
3) Nano-imprint-lithography: replication of nano features with a working stamper is conducted. **Pressure might be required for imprint process.**
4) UV cure: UV cure to fix the nano features
5) Working stamp is removed

Coating thickness for LuxNIL® P289: 300 to 2000 nm
PRE-CURE (for solvent removal): 70 to 100 °C for 60 sec

UV CURING CONDITIONS:

*Metal halide/medium or high Mercury UV: UV-A (320-400 nm), intensity: 100-1,000 mW/cm^2
*or LED-365 nm, UV light intensity: 100 to 1,000 mW/cm^2
LuxNIL® P289 should be cured between two substrates or in an inert atmosphere.

RECOMMENDED UV Conditions: **LED-365 nm, 250 mW /cm^2 x 100 to 200 sec**. Cure is done between 2 substrates or in an inert atmosphere.

Addison Clear Wave Coatings, Inc., 3555 Legacy Blvd, St. Charles, IL 60174 USA
Tel: +1 630-444-1658, Fax: +1 630-444-1683, www.AddisonCW.com