

## LuxNIL® P276

## High refractive index UV curable dispersion in PGMEA

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

## PRODUCT DESCRIPTION:

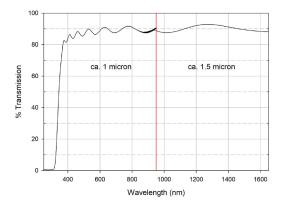
- LuxNIL® P276 is an UV-curable inorganic organic dispersion in PGMEA that is suitable for AR/VR/MR applications.
- Base chemistry: Inorganic nano particles in acrylate binder.

#### **PRODUCT USE:**

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

## LuxNIL® P276 UV-VIS and NIR spectra

P276 on glass air reference, no correction for surface reflections



## **GENERAL USAGE INFORMATION:**

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

## **TYPICAL PROPERTIES**

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OH	cui	eu	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
Glass transition temperature (tan delta DMA) 104°C

Refractive index of cured film (25 °C)

@589 nm 1.81

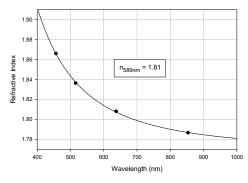
## LuxNIL® P276 optical properties

## LuxNIL® P276 RI vs wavelength

Properties	LuxNIL®P276
n <sub>589</sub>	1.81
Transmission*§	89%
Haze*	0.2%
Clarity*	100%

<sup>\*1</sup> micron film on borosilicate glass.

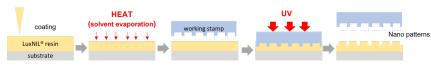
§No correction for surface reflection



# Operating temperature:

## -40 to 100 °C

## PROCESS FLOW



## APPLICATION NOTES:

## PROCESS:

- 1) Coating step for film forming: LuxNIL® P276 is used as a nano imprint lithography resin. LuxNIL® P276 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,
- 4) UV cure: UV cure to fix the nano features
- 5) Working stamp is removed

Coating thickness for LuxNIL® P276: 100 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<sup>2</sup>

\*or LED-365 nm, UV light intensity: 100 to 1,000 mW/cm<sup>2</sup>

LuxNIL® P276 should be <u>cured between two substrates</u> or in an inert atmosphere. If cured in air, the integrity of the film is reduced.

RECOMMENDED UV Conditions: <u>LED-365 nm, 250 mW /cm² x 100 to 200 sec</u>. Cure is done between 2 substrates or in an inert atmosphere.

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