pixelligent
THE CLEAR SOLUTION®

PixNIL®
Nanoimprintable Formulations

Target Applications

Nanoimprint Lithography (NIL) and Thin Films for a wide variety of AR/MR, Display, and Sensor applications.

Broad Compatibility with

- Glass & plastic substrates
- Commercially available stamps
- Industry-standard manufacturing

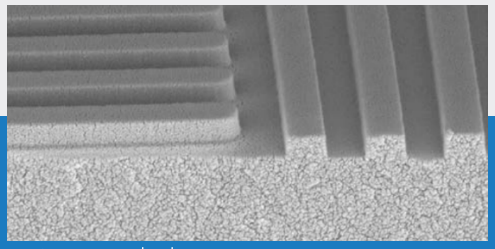
Benefits of PixNIL® Enabled HRI Nanoimprintable Product

- Refractive index (RI) of > 2.0 for titania formulations
- Refractive index (RI) of > 1.7 for zirconia formulations
- Particle Size 10-20nm
- Highest transparency across all visible wavelengths
- Lowest haze
- Large FOV
- Low shrinkage
- Excellent structural fidelity
- Implementation into multi-layer stack
- Cost effective and scalable process with nanoimprinting

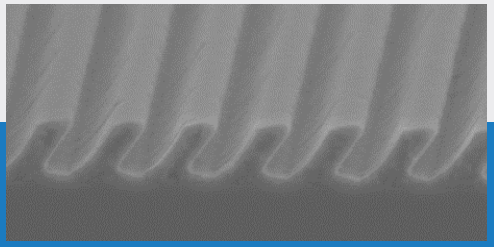
PixNIL® Processing

There are a range of coating processes available including spin coating, slot die coating, and inkjet coating, followed by NIL imprinting and UV curing.

PIXNIL® ENABLED NIL STRUCTURES



scale: 200nm

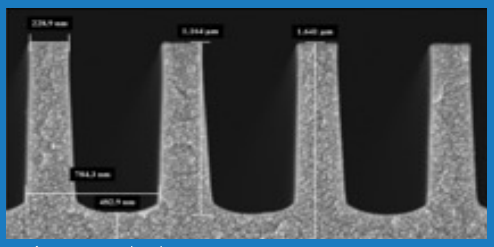


scale: 50 nm

Results Courtesy of SCIL

scale: 100nm

Results Courtesy of NIL Technology



scale: 200nm

Results Courtesy of EV Group

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Technical Data

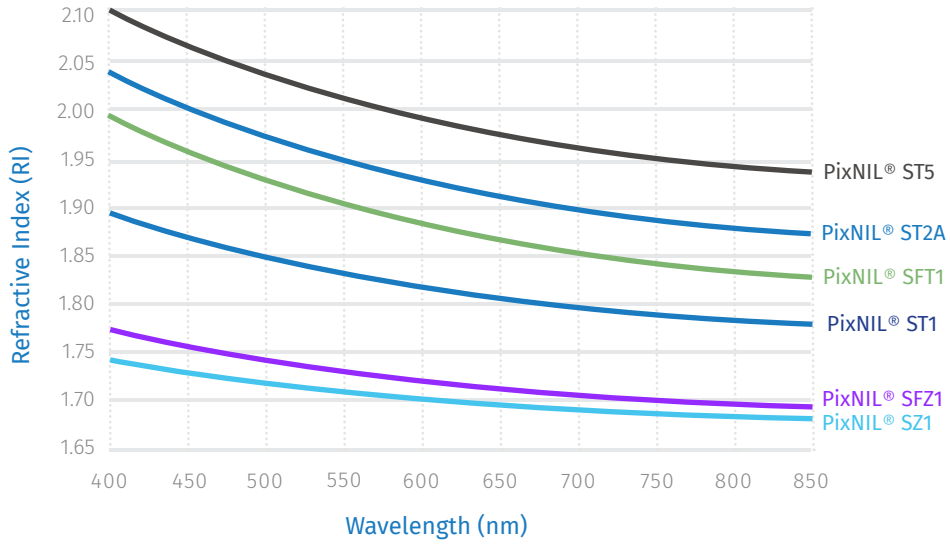
PIXNIL® FORMULATIONS

PixNIL® Nanoimprintable Products

PRODUCT	SOLVENT	FILM RI	FILM THICKNESS RANGE	%T	HAZE%	CURING (UV CONDITION)	NANOCRYSTAL PROPERTIES
PixNIL® SZ1	Yes	1.7	0.5 -1.5 µm	>95%	0.01	365 or 385 UV LED, 320 mJ/cm²	PixClear® Zirconia 10 nm
PixNIL® ST1	Yes	1.8	0.5 -1.5 µm	>93%	0.02	365 or 385 UV LED, 320 mJ/cm²	PixClear® Titania 20 nm
PixNIL® ST2A*	Yes	1.9	0.1-0.5 µm	>93%	0.01	385 UV LED 320 mJ/cm²	PixClear® Titania 20 nm
PixNIL® ST5	Yes	2.0	0.5-1.5 µm	>91%	0.01	365 UV LED 3.75 J/cm²	PixClear® Titania 20 nm
PixNIL® SFZ1	No	1.7	5.0-15.0 µm	>95%	0.02	385 UV LED 2 J/cm²	PixClear® Zirconia 10 nm
PixNIL® SFT1	No	1.9	3.0-10.0 µm	>93%	0.03	365 or 385 UV LED, 2 J/cm²	PixClear® Titania 20 nm

** Residual Layer Thickness (RLT) as low as <30nm.*

Refractive Index



PixNIL® enabled high RI nanoimprintable products have the **lowest haze** across all visible wavelenths and are a **cost-effective, scalable** process with nanoimprinting.

PixNIL® products offer **solvent & solvent-free** formats with a **range of refractive indices** and **residual layer thicknesses**.

About Pixelligent

Pixelligent is a developer of industry-leading PixJet®, PixNIL®, and PixClear® Designer Compounds®. We create and manufacture advanced nanomaterials that that deliver the highest refractive index, robust mechanical properties, and near-perfect transparency for next-generation displays, XR devices, and sensors.

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