

OPTICAL-GRADE POLYMERS for lensimprint

Materials for consumer electronics applications

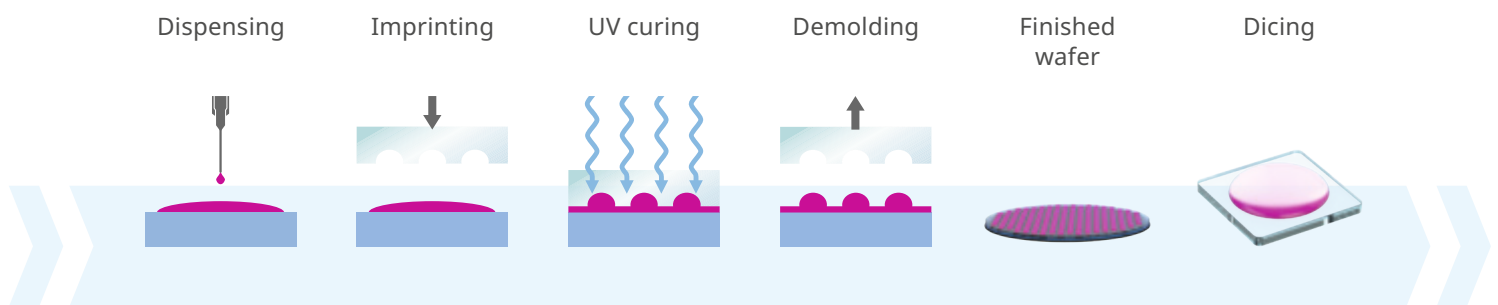
Microlenses based on DELO's wide range of optical-grade polymers are essential elements in miniaturized optical devices such as endoscopes, time-of-flight sensors, smartphone cameras or miniature flashlights, where they

act as imaging elements or simply increase the optical efficiency of a device. They can be either manufactured monolithically or as polymer-on-glass, where the lens is imprinted on a rigid glass substrate.

Imprint process

The imprint process, also known as nanoimprint lithography (NIL), allows for efficient and high-quality replication of optical elements directly at wafer-level. With the ability to fabricate 2.5D structures in a single process step, wafer-

level imprinting is a versatile and cost-effective mass-manufacturing process especially suited for miniaturized optics with high functionality and dense packaging.



(Adhesives / polymers are represented in magenta in all illustrations)

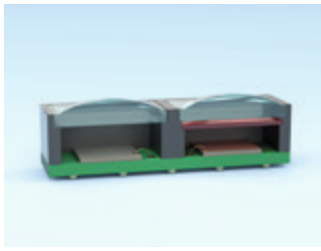


Discuss your project and your requirements with our experts:

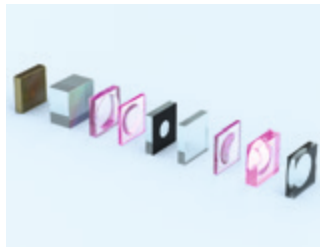
wlmo-experts@DELO.de

Applications

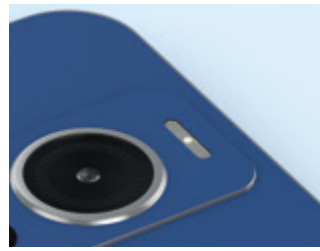
Ambient sensing



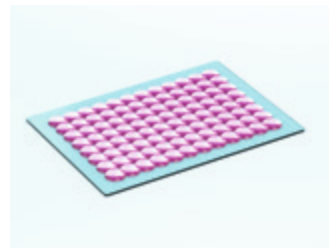
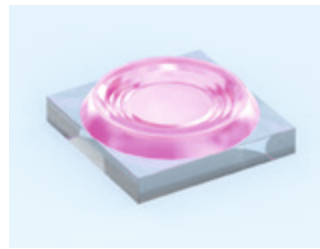
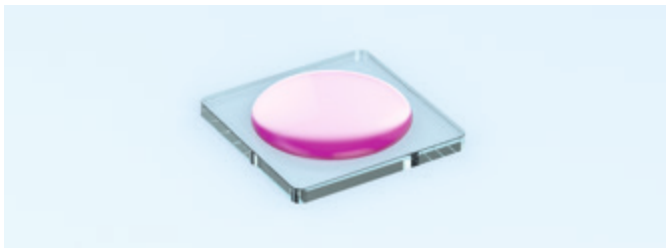
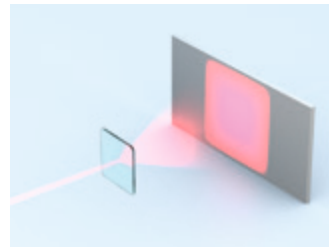
Compact camera module



Miniature flashlights



Flood illumination



Material requirements

- › High transmission
- › Optical and dimensional stability
- › Refractive index matching the optical design
- › High adhesion to the substrate, e. g. glass
- › Low shrinkage

Material solutions

- › ■ DELO PHOTOBOND OM4310: high refractive index
- › ■ DELO KATIOBOND OM614: allrounder
- › ■ DELO KATIOBOND OM6116: high glass transition temperature
- › ■ DELO KATIOBOND OM6611: high temperature resistance

Refractive index
@ 589 nm, solid

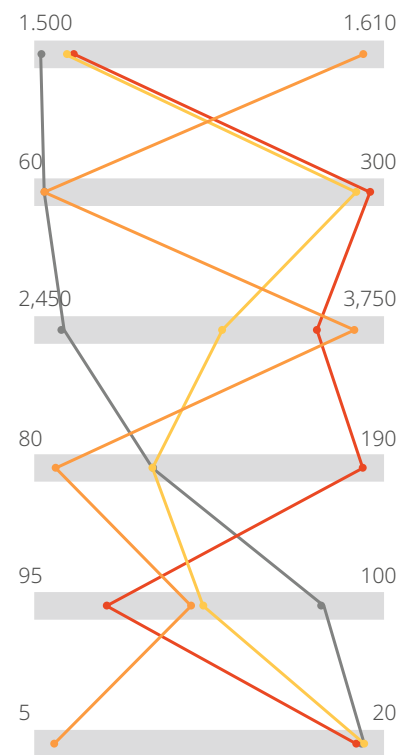
Light curing time
for imprint [s]

Young's modulus
[MPa]

Glass transition
temperature
DMTA [°C]

Yellowing resistance,
transmission after
1,000 h @ +125 °C [%]

Compression
shear strength
glass/glass [MPa]



DELO

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