

WHY SILICONE OPTICS?

THE DIFFERENCE



NLS
LIGHTING

THE LASTING LED LIGHTING SOLUTION

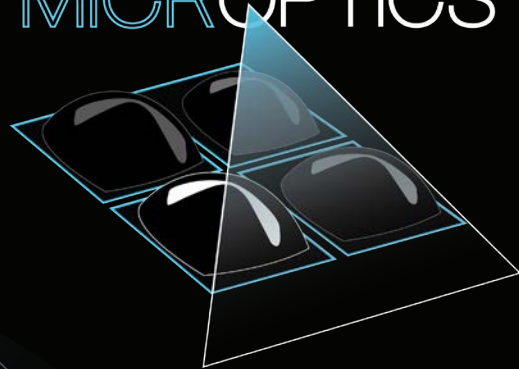
NLS Lighting Silicone Micro Optical System technology takes quality and performance to the highest level.

Vandal resistant, superior clarity—Micro Optics have become the best and lasting solution in the industry.

BENEFITS

- Produces superior 96% clarity
- Heat resistant to 150° C, 50% higher than acrylic
- Ecologically friendly—no glare
- Vandal-resistant, IK10
- Does not brittle, crack, or yellow over time










MICROOPTICS



INDEPENDENT TEST REPORT BY DOW CORNING

Results clearly show benefits Silicone vs. Competitive Optics.

- Silicone remains optically clear post UV and Heat aging tests
- Dow Corning's test focuses on the areas of optical properties, their dependencies on temperature & UV aging, and the stability of mechanical properties after thermal aging

	SILICONE	POLYCARBONATE	ACRYLIC
INITIAL			
UV AGING 65° C AFTER 6,000 HOURS			
HEAT AGING 130° C AFTER 6,000 HOURS			

TEST REPORT PERFORMED BY DOW CORNING

KEY PUBLISHED PROPERTIES OF MOLDABLE SILICONE

- Rated for long-term temperature use at 150°C, PMMA is 90°C
- Transmission properties unchanged due to UV & thermal aging > 4,500 hrs. at 65°C
- Reflection properties unchanged > 10,000 hrs. at 150°C
- No discoloring due to thermal aging after 6,000 hrs. at 130°C
- Better chemical resistance over PMMA
- Some mechanical properties were degraded after 10,000 hrs. at 150°C but these were not seen as an issue since these were beyond the scope of actual in-service usage
- Shore A hardness increased by approximately 8%. Since the conformability of the silicone affects the sealing of the optical assembly IP67 capability after thermal aging should be verified.



VS.

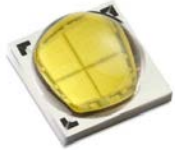
PMMA PROPERTIES

- Temperature limit of 90°C
- Immediate change transmission properties due to UV & thermal aging
- Major yellowing due to thermal aging after 6,000 hrs. at 65°C
- Poor chemical resistance compared to Silicone
- Hardness decreases—gets **significantly** brittle



DIODES

- Illumination grade multi-die LED designed for outdoor and industrial applications
- Targeting high efficiency and low cost
- Delivering high efficacy and high flux density from a uniform source with tight correlated color temperature control
- Superior quality of light, volume of lumens, and real world efficacy enable leading performance and efficient solution development in a wide variety of lighting segments



- CRI > 70, 80
- Kelvin Temperatures: 2700K, 3000K, 3500K, 4000K, 5000K

HOUSE SIDE SHIELD

Micro Optics' House Side Shield (HSS), designed for full cutoff at property line.





NLS
LIGHTING

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