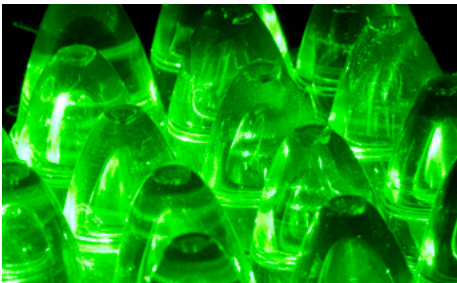




## Product Information Guide

# Silicones Enable New Designs and Applications for LED Lighting

Advanced Materials for Next-Generation Lighting Designs

**DOWSIL™****The Best of Both Worlds**

Silicone's unique properties combine some of the very best qualities of glass and plastic.

Like glass, silicones provide high transparency to wavelengths in the visible spectrum, strong dielectric insulation and powerful resistance to moisture, chemicals and extreme temperatures.

Like plastics and other carbon-based organic polymers, silicones merge superb moldability with mechanical strength. They can also take many forms — from low-viscosity gels to flexible elastomers to stiff polymers.

By changing the size or structure of silicone molecules or by attaching different functional groups, Dow can enhance or change material behavior and performance. In other words, we can tailor our silicones to deliver an amazing range of performance properties to benefit your LED lamp or luminaire design.

LED lamps and luminaires are challenging incumbent incandescent and fluorescent light sources in applications from architecture to automotive to general lighting. Yet solid-state lighting faces challenges of its own. New LED lighting designs must deliver more lumen density and power, withstand wider temperature ranges, simplify assembly and minimize the footprint, weight and cost of next-generation lighting systems.

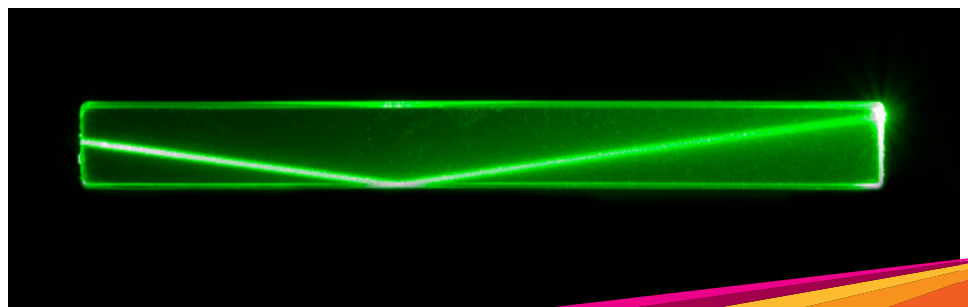
Dow's extensive portfolio of optical silicone materials and design support can help address these tough industry demands, and offer a competitive edge at every point in the lighting value chain. Contact us to learn how our advanced silicone technology can enable lamp and luminaire designs that:

- **Optimize efficiency** by employing optically ultra-clear, easily shaped silicones for primary and secondary optical elements, and white silicone for reflectors.
- **Resist yellowing and physical degradation** from high heat and high lumen density (150°C+) to ensure

high-brightness LED sources retain superb optical stability up to 50,000-hour lifetime.

- **Protect sensitive LED assemblies** from thermal cycling stress and perform reliably at extreme temperatures ranging from -45°C to 200°C.
- **Push design boundaries** by enabling LED sources to feature more complex shapes, micro-scale optical structures, multifunction parts and even undercuts that are difficult to achieve with organic polymers or glass.
- **Simplify and speed processing** by exploring our silicone portfolio's broad range of properties to enable easier and faster manufacturing.

Do not allow materials to define the limits of your LED lamp and luminaire design. Dow's broad portfolio of advanced silicones can help you push those limits, and innovate the next generation of advanced solid-state light sources.



## About Us

Established in 1943 specifically to explore and expand the potential of silicones, Dow Performance Silicones has grown to become a global leader in silicones, silicon-based technology and innovation.

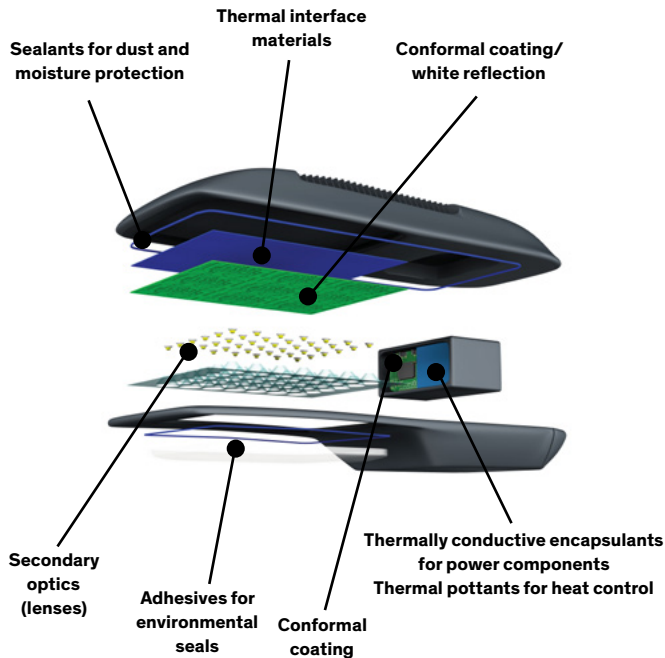
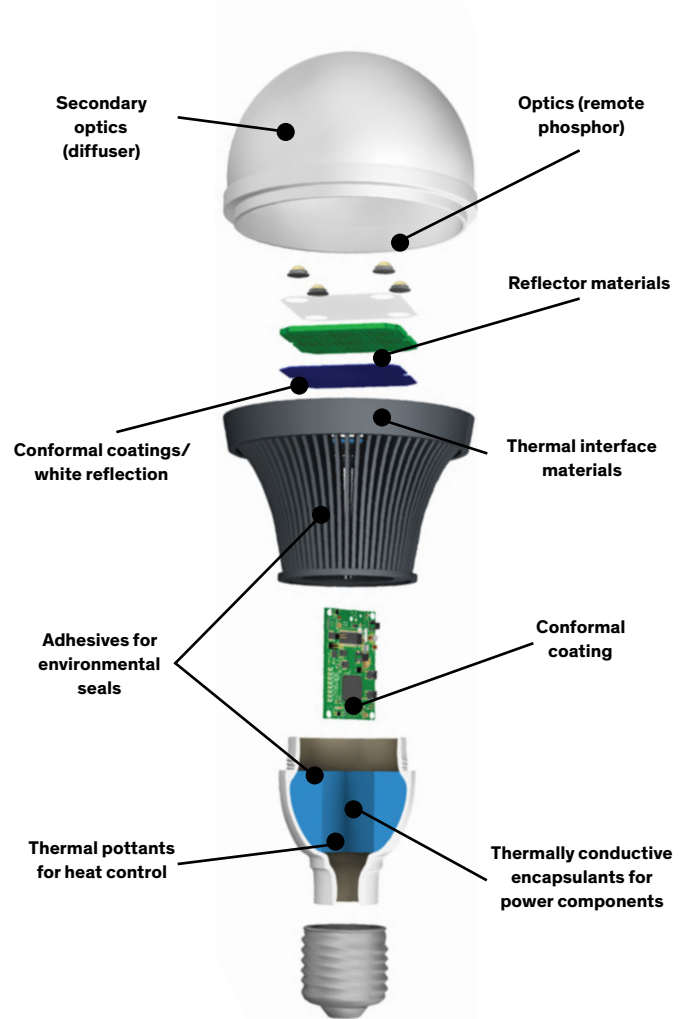
To designers and manufacturers of LEDs and LED lamps and luminaires, we offer:

- More than 70 years of game-changing innovation for the global lighting industry
- Specific expertise in the development of performance-enhancing and enabling technologies for advanced lighting solutions
- An expansive materials tool box of traditional, optical-grade and thermally conductive silicone adhesives, gap fillers, encapsulants, gels and compounds

## Learn More

We bring more than just an industry-leading portfolio of advanced silicone-based materials. As your dedicated innovation leader, we bring proven process and application expertise, a network of technical experts, a reliable global supply base and world-class customer service.

To find out how we can support your applications, visit [consumer.dow.com/lighting](http://consumer.dow.com/lighting).



Images: dow\_40454761249, dow\_40454759257, dow\_40681830707, dow\_40390737162

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Dow's sole warranty is that our products will meet the sales specifications in effect at the time of shipment.

Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

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