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SMART CHEMISTRY
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OPTICALLY CLEAR ENCAPSULANTS FOR UV DISINFECTION LAMPS

- ▶ High light transmittance
- ▶ High UV Stability
- ▶ Room temperature curable
- ▶ Low viscosity

SILICONE ENCAPSULANTS FOR UV LED LAMPS

For many years, UV light has been used in the fight to destroy harmful bacteria and viruses. Mobile and fixed UV light installations have been used to disinfect equipment used in hospitals, dentists, laboratories and in food preparation. Large scale water purification plants have employed the use of UV filters. LED lighting technology is replacing traditional lamps and optically clear silicones are now commonly used to protect the LEDs by encapsulating them.

In more recent years, with the continuing outbreaks of coronavirus pandemics, the focus has turned to the use of these methods across many varied industries. In an effort to halt the spread of these deadly viruses, entire buses and trains are now being disinfected using UV light systems.

These lamps are operating in a high pressure, time sensitive environment and are often subjected to other contaminants from cleaning chemicals and moisture. Silicone encapsulants are a perfect choice to provide protection for the LEDs and delicate electronic circuitry. They provide electrical insulation, physical protection from vibration, and a superb barrier to moisture and chemicals.

CHT has a number of optically clear silicone encapsulants and of particular interest for this application are QSil 214 & QSil 216.

PRODUCT COMPARISON

QSil 216

- ▶ 10:1 mix ratio
- ▶ Long open pot life
- ▶ Resistant to yellowing
- ▶ Lower viscosity

QSil 214

- ▶ 1:1 mix ratio
- ▶ Additional resistance to yellowing
- ▶ UL94 -HB approved



Material Data

Product	Mix Ratio	Mixed Viscosity	Hardness	Elongation	Linear CTE	Working Temperatures
QSil 216	10:1	4500 mPas	40 Shore A	100 %	275 ppm/°C	-55°C to +204°C
QSil 214	1:1	6000 mPas	40 Shore A	100 %	308 ppm/°C	-55°C to +204°C

The data are standard values and not suitable for establishing specifications! Please note that the given values were determined in the laboratory and have to be verified in tests on your own for your specific manufacturing under the conditions in practice. Liability cannot be derived from this information. Liability can be assumed only for the consistently high quality of our product.

LED lighting is an efficient technology; high levels of light output relative to modest energy input. To effectively kill viruses, high intensities of light in the UVC region (200 to 280 nm) are required. Disinfection lamps typically operate at around a wavelength of 250 nm.

Any optically transparent silicone encapsulant chosen for this application requires high transmittance levels at the targeted wavelengths and be resistant to yellowing.

Both QSil 214 and QSil 216 are tough, durable, optically transparent silicone encapsulants with excellent transmittance levels across the UV spectrum and the charts below illustrate this.

More data about these and other suitable or enabling products is available upon request.

UV LIGHT TRANSMITTANCE AT 250 nm

Thickness	QSil 216	QSil 214
0.5 mm	84.60%	92.06%
1.0 mm	71.50%	84.74%
2.0 mm	51.20%	71.81%

