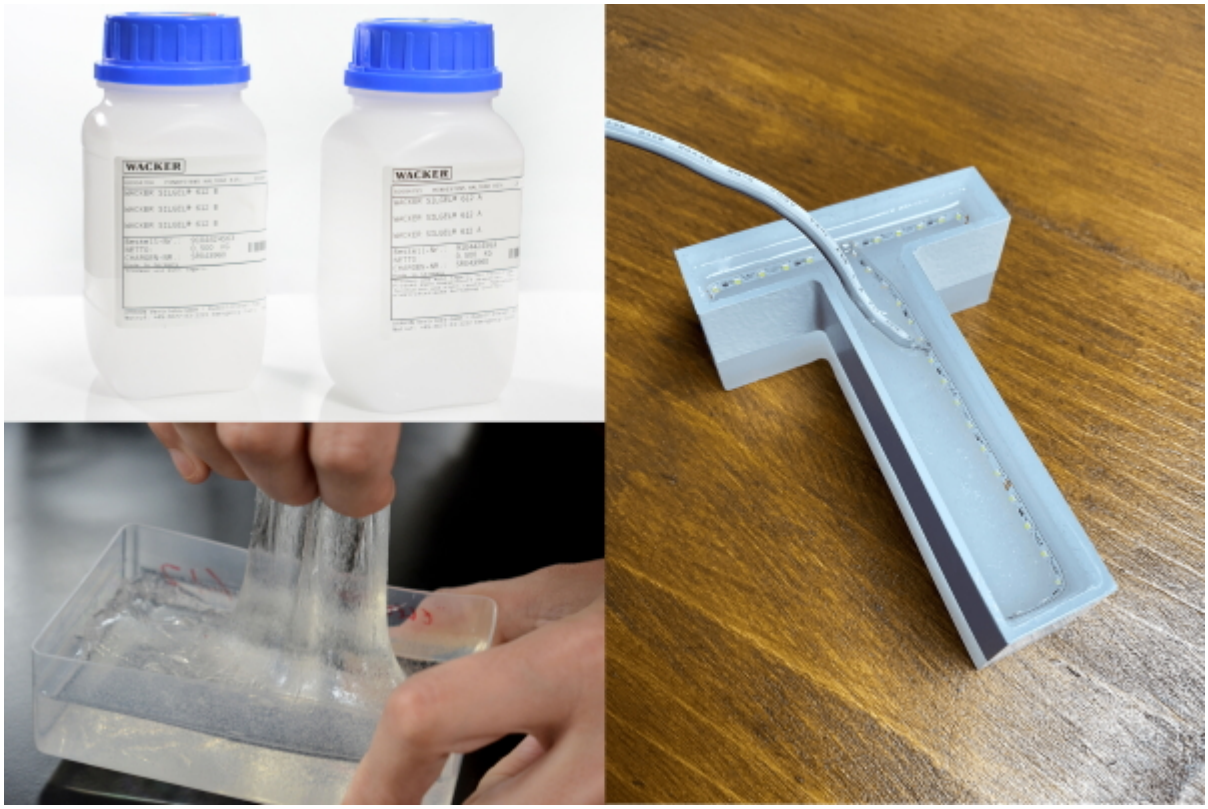
Case study: using silicone gels to protect outdoor LED signage

LED-based lighting technology is being used for manifold and diverse applications, including illuminations outside. For outdoor signage, manufacturers may need to use potting or encapsulation materials to protect LEDs against water, moisture and other environmental factors. Here is a case study of how a manufacturer of outdoor signage used **Wacker SilGel 612** to protect its LEDs.

The company is a manufacturer of outdoor signage and lighting products. They had decided to encapsulate their LED strips to protect them from the weather and other external factors, but had experienced quality issues with the materials tested to date, including delamination of the compound from the substrates; this was aesthetically unacceptable (altering the colour temperature of the light output) and posed the potential for future functional failure.

Case study: using silicone gels to protect outdoor LED signage



We recommended that they evaluate **Wacker's SilGel 612 Silicone Gel Potting Compound**. This silicone potting compound has good adhesion to multiple substrates and is crystal clear, so it provides good light transmission. **SilGel 612** has a simple one-to-one mix ratio, is completely transparent and non-yellowing, and cures to a soft gel at room temperature. The curing process can be accelerated with heat. It has a wide operating temperature range of -50° to 180°C, suitable for all external conditions, as well as resisting the thermal rise from the LEDs themselves.

Case study: using silicone gels to protect outdoor LED signage

SilGel 612 is waterproof and its gel-like texture means that it can absorb shock or vibration that could damage the electronic circuits inside, as well as stresses from thermal cycling. We have a great video describing its consistency and properties.

“We needed to find a suitable resin or silicone to protect the LED lighting we fit inside our signage,” explained the manufacturer that approached us. “Having trialled almost every encapsulation option there is to embed LEDs for water protection, **SilGel 612** has been our saviour. It’s easy to use and we don’t have any issues with heat dissipation. Importantly, we don’t get any shrinkage or discoloration over time.”

As the LED industry continues to grow, manufacturers are looking for ways to protect their products, particularly when they are situated in harsh environments. Silicone gels like **SilGel 612** can be an effective way of encapsulating and protecting them from vibration, shock, water and other environmental factors. Working with an experienced supplier will help you to consider all the available options and make an appropriate choice. Download this case study or read some more of our application stories.

Supplied by:

intertronics

INTERTRONICS
12a Station Field Industrial Estate, Banbury Road, Kidlington
Oxfordshire England OX5 1JD
t 01865 842842 e info@intertronics.co.uk

Last updated: August 2020