

KERAFOL® Gap Filler Liquids

Development.

Production.

Consulting.

As a specialist in Thermal Management we are providing solutions with Thermal Interface Materials and also technical support in the field of dispensing technology.



KERAFOL®
Keramische Folien GmbH & Co. KG
Koppe-Platz 1
D-92676 Eschenbach i.d. OPf. | Germany

www.kerafol.com

© 2014

Next-gen thermal control

Ultra-low viscosity Gap Filler Liquids offer an effective way to introduce thermally conductive and electrical isolating material to any battery space

▶▶ The switch to electric drive systems and the increasing variety of sensors and electronics present completely new challenges for the automotive sector.

Besides the electric powertrain, the battery is one of the most critical parts of the EV or PHEV. A perfect temperature control is crucial for performance and efficiency so therefore the selection and integration of thermal interface materials is essential.

There are many different types of battery cells, modules, manufacturers and requirements on the market, which vary widely. This in turn leads to a lot of different thermal management solutions that can be applied.

Predominantly, the most common solution is to transfer the heat of the cells to the bottom of the module and to connect these cells with a Gap Filler Liquid (GFL), which helps compensate any kind of mechanical tolerances. In addition to this, a thermal connection to the side of the module can be useful.



For electric powertrains, keeping the battery modules cool is crucial to ensuring optimum performance

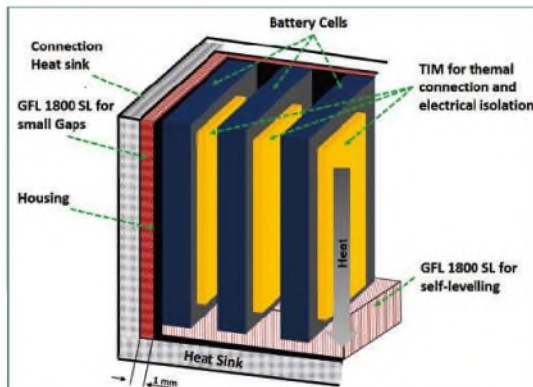
Due to the size of the battery modules, a very large area and in case of the side connection thin gaps that must be covered.

To fulfil that kind of requirement, while at the same time taking into consideration weight, handling and cycle time, Kerafol has created an ultra-low viscosity Gap Filler, the GFL 1800 SL. It is a two-component system with 1.8W/mK, 15kV/mm and a viscosity of <math><5.000\text{ mPas}</math> which is approximately 1/10 the size of comparable Gap Filler systems. As a result of these attributes, the material has a consistency that can flow like water and therefore has the advantage of self-levelling and filling up every corner of the pack, which closely emulates the attributes of a potting material.

For the thermal connection of the side wall, the dispensing must be started at the bottom to avoid any air being let in. To achieve this, a long and very thin dosing needle must be used to fill the small horizontal gap. While it is not possible to fill a gap of 1 mm, for

example, with standard Gap Fillers, the GFL 1800 SL has a special particle size, shape and distribution and can be dispensed by small dosing needles that have an inner diameter of only 0.6mm.

The process takes only a short time to fill the gap and the curing time of 60 minutes at room temperature can be speed up with the introduction of heat. After curing, the GFL 1800 SL, which is based on low volatile silicone, is very stable and at the same time still soft over the whole lifetime, which is ideal to handle the compensation of vibrations and thermal expansion of other components. The GFL 1800 SL combines enhanced thermal, electrical and mechanical properties with a new way of processing, and thanks to its special flow behavior, small gaps that have typically been difficult to work with can now be easily filled. ☺



With a water-like consistency the GFL can fill the smallest of gaps and self-level

FREE READER INQUIRY SERVICE
To learn more about Kerafol, visit: www.magupdate.co.uk/PEHV