

**FOR IMMEDIATE RELEASE**

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**PRESS RELEASE**

**Choosing Between Thermal Greases and Thermal Phase Change Materials**

Providing an adequate thermally conductive interface between a component and its heatsink is essential to achieving long life and reliability. Traditionally, thermal greases have been the material of choice in this area, but interesting new phase change materials are now offering a stable alternative that is easier to apply.

Thermal greases have relatively low thermal resistance and offer excellent thermal performance for a vast range of applications. Their ability to provide that all-important thermal interface has been proven time after time and they have consequently become the material of choice for the thermal management of power electronics. However, greases do have one or two disadvantages, such as application and migration issues, but due to the consistency and performance of Electrolube's new thermal phase change materials, these disadvantages are completely avoidable.

Phase change materials offer subtle differences in properties compared with greases as they store and release thermal energy (latent heat) during the process of changing from one phase (solid) to another (liquid) at the phase change temperature. Heat dissipated from electronic components is effectively stored in the phase change material as it transitions from a solid to a liquid state.

Phase change materials, once heated above their phase change temperature, become highly thixotropic liquids that perform as well as - and sometimes even better than - a traditional thermal grease. As phase change materials offer greater long term stability compared with thermal greases, they are better suited to thermally challenging applications where product life expectancy and reliability may be critical such as LED lighting, automotive electronics and remotely located wind power inverters.

Electrolube recently added two new thermally conductive phase change materials to its thermal management product portfolio: TPM350 and TPM550. Considerable interest has been shown in these advanced new materials, since their launch at Electronica last year. Electrolube's Chinese team has been particularly successful in developing the market for the new phase change materials and is leading the way in developing the market with local manufacturers of power electronics and LED lighting to purchase or trial the new products.

TPM350 has a thermal conductivity of 3.5W/m.K and becomes workable at approximately 50°C. At this 'activation' temperature the material changes state, minimizing contact thermal resistance and improving thermal conductivity. Once it cools, it reverts back to its original state. The RoHS compliant material is exceptionally easy to apply - similar to grease but without the mess and pump-out, and can be screen printed for high volume production applications. TPM350 is also dry to the touch, which is particularly useful for pre-apply applications.

TPM550 has a higher thermal conductivity of 5.5W/m.K and an activation temperature of 45°C. In common with the TPM350 product, TPM550 is also screen printable and thixotropic, which prevents flow outside of defined interfaces. Both TPM350 and TPM550 are silicone-free, have an operating temperature range of -40 to +125°C and can be easily reworked.

Making a choice between traditional thermal greases and one of the new thermal phase change materials is essentially a case of horses for courses, although for some applications, in particular high power electronics and applications with wide ranging thermal cycling, the stability of a phase change material will be of great benefit. Phase change materials completely avoid the problems associated with pump-out and offer highly efficient thermal transfer and enhanced performance with thermal shock cycles. They also provide greater thermal protection where temperature spikes can occur due to their ability to store and release thermal energy during the phase change process

Electrolube's technical support team is renowned for providing helpful advice on product selection depending on customer applications, visit [www.electrolube.com](http://www.electrolube.com) for further product information and contact details.

## **About Electrolube**

Electrolube, a division of H.K. Wentworth Limited, is a leading manufacturer of specialist chemicals for electronics, automotive and industrial manufacturing. Core product groups include conformal coatings, contact lubricants, thermal management materials, cleaning solutions, encapsulation resins and maintenance and service aids.

The extensive range of electro-chemicals at Electrolube enables the company to offer a 'complete solution' to leading manufacturers of electronic, industrial and domestic devices, at all levels of the production process. Through collaboration and research, the company is continually developing new and environmentally friendly products for customers around the world and their commitment to developing 'greener' products has been

endorsed by the ISO 14001 standard for the highly efficient Environmental Management System in place at the company.

Electrolube is represented in over 55 countries with an established network of subsidiaries and distributors. By offering genuine security of scale and a reliable supply chain, the company is able to deliver a truly tailored service.

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