



Interview

Electrolube filled thermal pastes

Reliably applied using ViscoTec dosing pumps

Electrolube manufactures electro-chemical products for the electronics industry. These include thermal management products, compounds, coatings, lubricants and cleaning agents. With its expansive product range of formulated chemical products, Electrolube supplies manufacturers of electronic, industrial and domestic devices for a variety of industries, thus offering the 'complete solution' at all levels of production. Because Electrolube is represented in over 50 countries, its network of established subsidiaries and distributors can therefore guarantee a robust, secure, accurate and reliable supply chain.

The application of thermal paste and the dissipation of heat from sensitive components are crucial for the functionality of the component, particularly in the manufacture of electronics. The thermal conductivity of the products can be ensured through the high amounts of filler. However, this leads to a high mechanical corrosiveness of the pastes used and the dosing component - also referred to as abrasiveness. Through its high level of know-how with respect to rheology and the behavior of fluids, plus its close cooperation with material manufacturers, ViscoTec is in a strong position to meet the high demands of the dosing of complex materials.

As part of ViscoTec's close cooperation with material manufacturers, Electrolube has agreed to comment on its status, the properties and abrasiveness of thermal pastes and also addresses the challenge of dosing. Many successful projects using Electrolube materials and ViscoTec dosing systems form the basis of a conversation between Franz Kamhuber, Business Development Manager for Aerospace at ViscoTec and Jade Bridges, Global Technical Support Manager at Electrolube:

Kamhuber: Mrs. Bridges, What is the range of application for thermal conductive pastes of Electrolube, particularly in the field of little dosing amounts?



Bridges: Electrolube thermally conductive pastes are extremely versatile. As a non-curing system they can be applied using a variety of methods and therefore are suitable for a wide range of applications, including both small and large surface areas. For small surface areas, the paste can be applied accurately using dosing equipment. The amount of paste needed can be calculated from running a series of trials to enable the optimum dosage to be calculated; ideally, a thin, uniform layer of paste is needed between the two contact surfaces. It is also possible to accurately dispense gap filling, thermal pastes, such as HTCPX, into hard to reach areas. In these cases, the gap between the heat generating component and the outer case or metal heat sink may be larger than that found on a normal interface application. It is therefore important to ensure the vibration stability of the material applied, hence the use of a gap filling paste.

Kamhuber: How is the typical structure (chemically/mechanically) of a thermal conductive paste of Electrolube? How high is the share of solids in your products?

Bridges: Very simply explained, a thermal paste is a dispersion of thermally conductive fillers in a carrier oil. Depending on the grade of thermal paste used, the type of filler used and the quantity of filler as well as used oil will vary within the Electrolube products. This is to give the most suitable combination of properties for a variety of applications. The most common balance is between thermal conductivity and viscosity, ensuring the resultant thermal path offers the lowest possible thermal resistance.

Kamhuber: What are the main challenges when it comes to the application of your products? What should be the key focus for the processing of the material?

Bridges: Due to the highly filled nature of these products, it is important to ensure that the dispensing systems are set up correctly for dealing with high viscosity products. In some cases, considerations may need to involve the type of hose material (ensuring that no abrasion or wear of the pipes is experienced) and also pressures required (this is in conjunction with hose length to ensure the material is not being pumped over long distances).



Reducing pressure and using the correct hose material and connectors will prevent and separation of the thermal paste, ensuring consistent application of the material.

Kamhuber: What is the difference between thermal conductive pastes of Electrolube and competitors? Where do they stand out?

Bridges: Electrolube have a wide range of thermally conductive products, based on both silicone and non-silicone technology. The range offers a variety of viscosities and thermal conductivities, which combined with Electrolube's conscientious approach to customer support, provides the end-user with multiple options and information to ensure the most efficient heat transfer is achieved in their application. Electrolube are continually developing their products and have recently introduced a novel material to the market, SCTP. Electrolube SCTP is a surface-cure material which is solvent-free, extremely stable during thermal shock testing, eliminating issues with 'pump out' arising from changes in the consistency of the thermal management material. Unlike RTV materials, SCTP remains reworkable and does not require any delays in the production process waiting for through cure to occur.

Kamhuber: Do you take measures to reduce the abrasiveness of your thermal conductive pastes in order to improve the capability of dosing your product?

Bridges: Yes, we use the raw materials that offer the best combination of performance and ease of processing. Abrasiveness of filler materials is one of the things that we consider and can offer advice to customers through consultation with equipment suppliers such as yourselves.

Kamhuber: What are your reasons for choosing ViscoTec and its technology as a partner? Where are the main advantages of a collaboration?

Bridges: ViscoTec is clearly focused at dispensing solutions and offer a wide range of equipment suitable for dispensing thermal management products as well as other materials from the expansive Electrolube range. Having worked with ViscoTec on a number of projects,



collaboration has always been key to our success. Electrolube are always looking to work with companies who can form part of our external team, ensuring the customer gets full support from product suggestions right through to full implementation.



Franz Kamhuber



Jade Bridges

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ViscoTec - Perfectly dosed!

ViscoTec primarily deals in systems required for conveying, dosing, applying, filling and emptying medium to high-viscosity media. The headquarters of the technological market leader is in Töging (Upper Bavaria, in the district of Altötting). In addition, ViscoTec has subsidiaries in the USA, in China and in Singapore and employs about 120 people worldwide. Many traders around the world extend this international distribution network. In addition to sophisticated solutions even in the most complicated tasks, ViscoTec offers all components for a complete application from one source: from procurement, through to product preparation to dosage. This guarantees a successful interaction of all components. All fluids with a viscosity of up to 7.000.000 mPas can be conveyed and dosed almost pulsation-free and with extremely low pressure. For each application there is comprehensive consultation - and where necessary in collaboration with the customer - extensive tests are carried out. ViscoTec dosing pumps and dosing systems are optimally adjusted to the respective application: in food applications, in the automotive, aerospace, medical, pharmaceutical and in many other industries.

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