

X-23-7762 Thermal Interface Material

Description of Use

Thermal grease (X-23-7762) is a thermal interface material developed by Shin-Etsu Chemical Co., Ltd. to meet the current and future thermal management requirements of high performance microprocessors. It is used to increase heat sink effectiveness by closing the air gap existing between the top of the processor and the fan heat sink. Air is a thermal insulator with a thermal conductivity of 0.027W/mK. The grease is applied to the raised area on top of the processor after the processor is in the socket. The fan heat sink is centered on the processor top, with the raised areas on the bottom of the heat sink and the processor top aligned. The fan heat sink is firmly pressed to evenly distribute the thermal grease until the metal of the heat sink is felt against the metal of the processor top. The excess grease can be removed by wiping with a soft cloth.

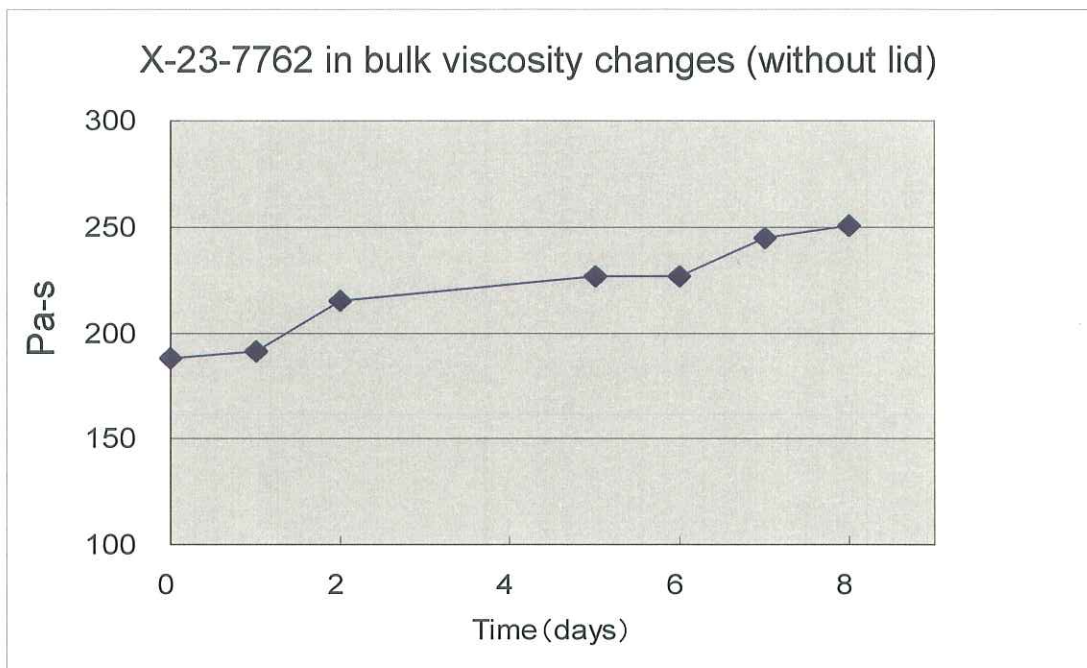
Typical Properties

Appearance	Gray
Viscosity at 25°C(Pa-s)	180
Specific gravity at 25°C	2.55
Volatile Content after 24hrs. at 150°C(%)	2.58
Thermal Conductivity (W/m-°C)	More than 4.0W/m°C(with solvent) More than 6.0W/m°C(w/o solvent as X-23-7732)

Handling instruction

1. Once open the lid and then use it at room temperature below 30 deg C, suggest using up within one day to prevent its viscosity change as minimally as possible. (see Annex-1)
2. Grease is a simple mixture of silicone oil and fillers, and therefore it is natural that some sediment will gradually fall out while keeping of grease for any substantial length of time. It is a natural sedimentation or oil-bleeding phenomenon. Please stir the grease thoroughly before use, to make sure of retaining or restoring the original uniformity of its mixture.
3. X-23-7762 contains 2wt% of solvent as a diluted component for application of screen-printing. Therefore, require removing solvent after putting 7762 on substrate. Please see "Guide to solvent evaporation conditions" in Annex-2.

Viscosity vs. time at room temperature (bulk form in container w/o lid)



< Test Results >

From the experiment using with a typical lot of X-23-7762, observe significant increase of the viscosity after one day.

Guide to solvent evaporation conditions

< Test conditions >

1. Using a metal screen, X-23-7762 was applied in a 25mm x 25mm square (thickness: 120um) to aluminum plate.
2. Each sample was left at various temperature and the change in weight was measure.

< Test Results >

The results below show that even at room temperature, solvent completely evaporates after 8 hours. But if faster evaporation is desired, the drying time can be shortened with the use of drying equipment. (Complete evaporation is possible in roughly 30 minutes at 60 - 80 deg C, or roughly 20 minutes at 105 deg C. For a dryer, use a warm air exchanger circulating type and take care to prevent explosion of the atmosphere inside the dryer)

