



Tgrease™ 980 Preliminary *Instructions for Use*

Background:

- Laird Technologies Tgrease™ 980 is high performance thermal grease with a thermal conductivity of 3.8 W/mK.
- Tgrease™ 980 is designed to behave differently than traditional thermal greases.
 - Tgrease™ 980 gels upon sitting
 - This feature is designed to improve reliability by reducing pump-out.
- Tgrease™ 980 contains a small amount of solvent to allow for faster application

Storage

- Tgrease™ 980 should be stored upright away from corrosive materials between 20°C and 35°C and below 50% relative humidity.
- Tgrease™ 980 *should not* be refrigerated or frozen.
- Tgrease™ 980 contains solvent to aid in customer application.
 - The lid should be kept tightly closed when not in use.
 - For best results, the lid of the jar and jar lip should be kept clean to ensure a tight seal.
 - Solvent may evaporate over time if the lid is not sealed tightly.
 - *Solvent evaporation does not affect the thermal performance of Tgrease™ 980.*
 - *Solvent evaporation may result in difficulty during application.*
 - Tgrease™ 980 can be stored and reused after opening if the lid is replaced securely.
 - This may require cleaning of the jar or lid lip prior to installation
 - Do not leave jar open for long periods of time or the viscosity will increase as solvent evaporates.
 - Tgrease™ 980 has an open can shelf life of 8 hours
 - If the lid is left off for 8 hours or more the viscosity of the grease will have increased resulting in slower application times.

Instructions for Use:

1) Mix well before using.

- Tgrease™ 980 may appear stiff or dry if it has sat unopened for a long period of time.
 - If the material looks dry the material is still good, but requires thorough mixing.
- Thorough gentle mixing to the bottom of the can is needed prior to each use.
- Tgrease™ 980 should be re-mixed at least every 4 hours of sitting unused.
- *Do not* use high speed or high shear mixing. *It is possible to over mix the grease and cause it to thicken up.*
- Mixing thoroughly by hand using a spatula with a stiff stainless steel blade like that shown in Figure 1.
- A mechanical method may be used, but care should be taken to choose a gentle yet thorough mechanical mixing method. Shaking is an effective gentle method often used to mix paint. Figure 2 shows a typical paint shaking device. Please consult the factory for specific directions.

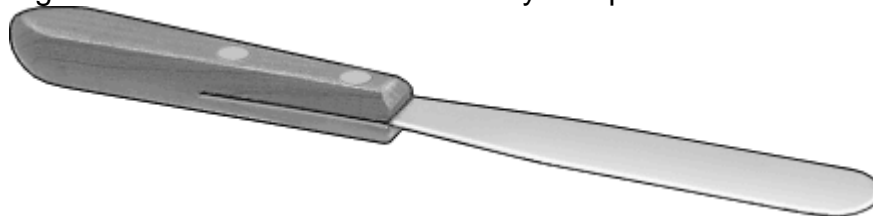


Figure 1. Spatula tool for mixing Tgrease™. Stiff stainless steel blade with wooden handle. Available in-stock from McMaster Carr (www.mcmastercarr.com) part number 3660A19.



Figure 2. Paint shaker with variable time and variable size control suitable for gently mixing Tgrease™.

Application

- For best results a thin uniform coating of Tgrease™ 980 0.002-inches (0.05mm) to 0.010-inches (0.25mm) thick should be used.
- The ideal Tgrease™ 980 thickness is dependent on the heat generating device flatness and heat spreader/sink flatness.
- Spread a uniform coating across the heat-sink in an area large enough to cover the entire component after the heat-sink and component have been assembled and pressure has been applied.
 - Some trial and error may be needed to determine the best thickness and correct area for each unique application.
- For high volume applications, automatic dispensing, stenciling or silk screening is recommended.
- For best results a silk screen with 61 threads per inch (TPI) is recommended.
 - Most current screening or stenciling techniques will work well.
 - If you have no experience screen printing Thermal grease then please refer to Laird document A15637-00 Screen Printing Application Guide.
- When spreading or screening Tgrease™ 980, the grease will spread more evenly and smoothly at slower application rates.
 - Tgrease™ 980 contains solvent to increase the application rates
- Best performance is achieved when using a constant pressure application such as springs.
 - A minimum pressure of 5 psi is recommended
 - Optimum thermal performance is reached at about 20 to 50 psi
 - Pressures over 50 psi will reduce thermal resistance but not as drastically as from 5 to 50 psi.

First Aid:

Safe handling, disposal, and first aid measures are included in the MSDS. Please read the MSDS before using or handling this product. For further questions, please contact Laird Technologies, Inc.