Tgrease 2500 Reliability Testing Report

Purpose: The intention of this testing is to confirm that the thermal resistance of Tgrease 2500 remains the same after thermal cycling, thermal baking and thermal baking with high humidity (HAST).

Test summary: Tgrease 2500 was tested under the following conditions:

1. Thermal bake @ 125°C for 1000 hours
2. Thermal cycling -55°C to 125°C for 669 cycles
3. Thermal Bake @ 85°C and 85%RH for 1000 hours (HAST)

Test #1: Thermal Bake @125°C

Procedure:

- The bake samples were tested for thermal resistance using a modified ASTM D5470 prior to baking, and after 250 hrs, 500 hrs, 750 hrs, and 1000 hrs of baking.
- During testing and baking, the samples were maintained between two round aluminum disks of one square inch in surface area.
- During baking (125°C in a forced air oven), clamps were used to hold a constant pressure on the sample.

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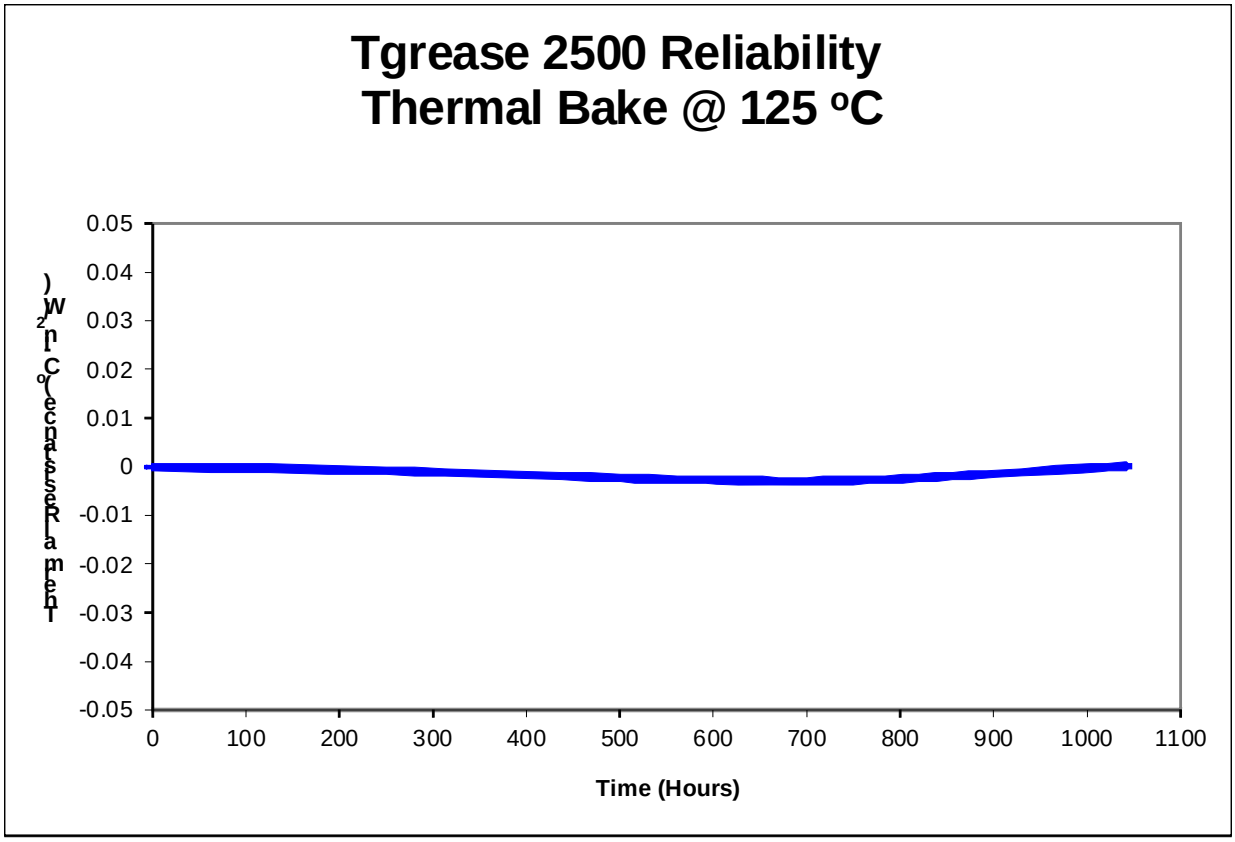
Results:



The thermal bake results at 125°C show almost no change.

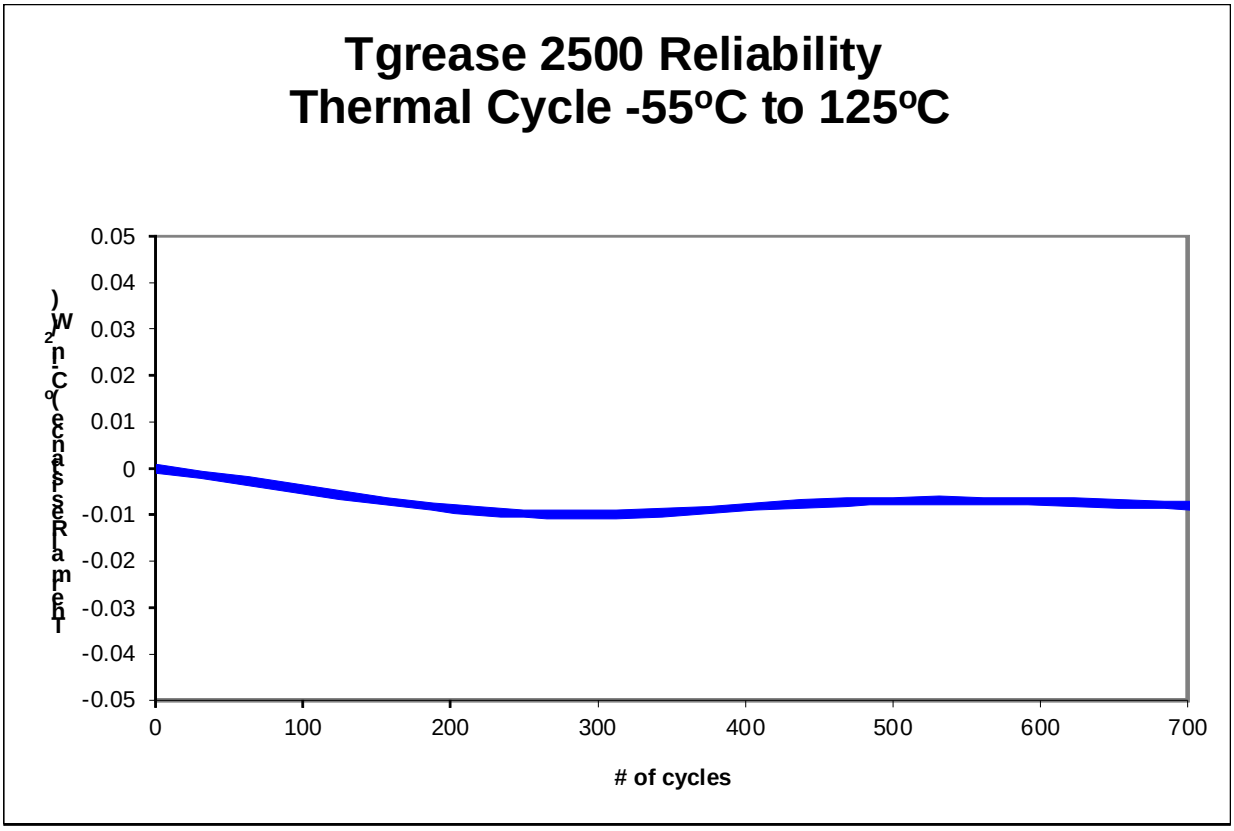
NOTE: **The thermal resistance shown in the above graph is to provide reliability data only. It does not represent the actual thermal resistance of the material because it was tested between aluminum disks instead of directly on the platens of the ASTM D5470.**

Test #2 Thermal Cycling -55°C to 125°C for 669 cycles

Procedure:

- The cycling samples were tested for thermal resistance using a modified ASTM D5470 prior to baking, and after 98 cycles, 274 cycles, 517 cycles, and 669 cycles.
- During testing and cycling, the samples were placed between two round aluminum disks of one square inch in surface area.
- During cycling (-55°C to 125°C in an environmental chamber) clamps were used to hold a constant pressure on the sample.

Results:



The thermal cycling results from -55°C to125°C show almost no change after the 669.

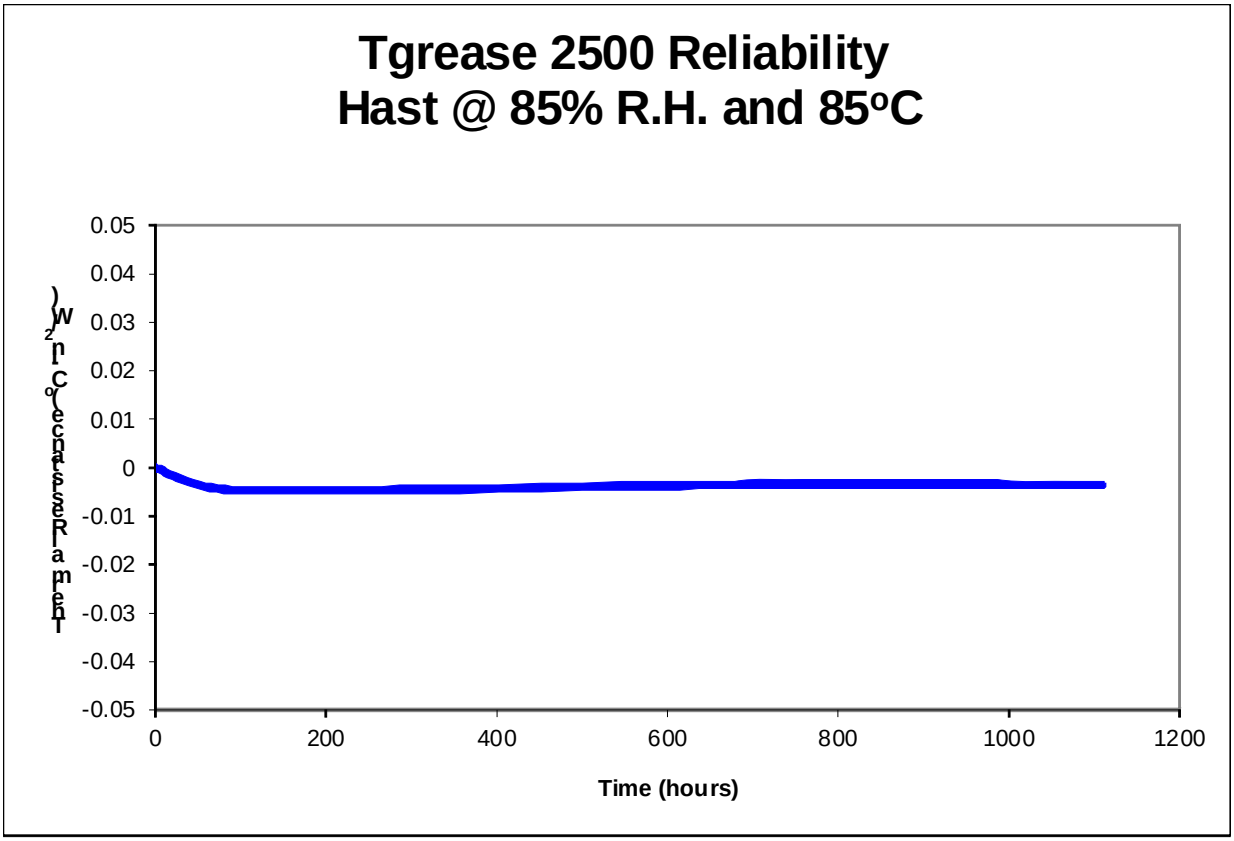
NOTE: **The thermal resistance shown in the above graph is to provide reliability data only. It does not represent the actual thermal resistance of the material because it was tested between aluminum disks instead of directly on the platens of the ASTM D5470.**

Test #3 Thermal Bake @85°C/85% RH (HAST) for 1000 hours:

Procedure:

- The bake samples were tested for thermal resistance using a modified ASTM D5470 prior to baking, and after 90 hrs, 750 hrs, and 1109 hrs of baking.
- During testing and HAST conditions, the samples were placed between two round aluminum disks of one square inch in surface area.
- During HAST conditions (85°C and 85% relative humidity in a HAST chamber) clamps were used to hold a constant pressure on the sample.

Results:



The HAST results from 85°C and 85% relative humidity show almost no change after 1000 hours.

NOTE: **The thermal resistance shown in the above graph is to provide reliability data only. It does not represent the actual thermal resistance of the material because it was tested between aluminum disks instead of directly on the platens of the ASTM D5470.**

Conclusion:

Laird's Tgrease 2500 demonstrates consistent thermal performance after over 669 temperature cycles from -55°C to 125°C, Thermal Bake @ 85°C and 85% RH for 1000 hours, and Thermal Bake @ 125°C for 1000 hours.