

CoolTherm® UR-2002 Thermally Conductive Urethane Gap Filler

Technical Data Sheet

CoolTherm® UR-2002 gap filler is a two-component thermally conductive urethane system designed to provide thermal conductivity for electronic applications. CoolTherm UR-2002 gap filler cures at room temperature to produce a flame retardant, compliant material.

Features and Benefits:

Thixotropic Viscosity – maintains low viscosity during dispensing, with minimal flow after dispensing.

Flame Retardant – provides excellent flame retardancy.

Room Temperature Cure – suitable for curing at room temperature; may be mildly heat cured (65°C) to expedite cure.

Reworkable – material compliance allows for reworkability of cured parts.

Application:

Mixing – Mix CoolTherm UR-2002 resin with CoolTherm UR-2002 hardener at a 1:1 ratio, by volume (100:125, by weight). Handheld cartridges or automatic meter/mix/dispense equipment should be used to avoid any air entrapment in the material. Manual mixing is not recommended.

Applying – Apply material using handheld cartridges or automatic meter/mix/dispense equipment.

- Handheld Cartridges
 1. Load the cartridge into the applicator gun and remove the end caps.
 2. Level the plungers by expelling a small amount of material to ensure both sides are level.
 3. Attach mixing tip and expel a mixer's length of material.
 4. Apply material to substrate and mate the parts within the working time of the gap filler. Clamp in position until material reaches handling strength.
- Meter/Mix/Dispense Equipment
 1. Ensure the correct style/type of MMD system is used with this material.
 2. Warming the dispense lines will lower viscosity, increase dispensing speed, and maintain consistency in the dispensing environment. Keep temperature below 45°C to prevent self-polymerization of the hardener.
 3. Contact your Parker LORD representative if assistance is needed with selecting and using equipment.
 4. Refer to Meter/Mix/Dispensing of LORD Urethane Gap Filler Materials technical tip for additional information.

Typical Properties*

	UR-2002 Resin	UR-2002 Hardener	Mixed
Appearance	Gray Paste	White Paste	Light Gray Paste
Viscosity, cP @ 30°C Parallel Plate, 1/sec Shear Rate	230,000	300,000	200,000
Specific Gravity ASTM D 1475	2.35	2.95	2.65
Working Life**, minutes @ 30°C	–	–	60

*Data is typical and not to be used for specification purposes.

**Time to double viscosity.



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Curing – CoolTherm UR-2002 gap filler will reach full cure in 24 hours at room temperature. Cure can be expedited at 65°C for 2 hours. This time-at-temperature profile refers to the time the material should be allowed to cure once it reaches the target temperature. Allowance should be made for oven ramp rates, parts with large thermal mass and other circumstances that may delay material reaching the target temperature.

Shelf Life/Storage:

Shelf life is six months for CoolTherm UR-2002 resin and four months for CoolTherm UR-2002 hardener when stored in clean, dry environment at 5-30°C in original, unopened container.

When stored at cooler temperatures, containers may need to be gently warmed before dispensing for ease of use. Limit heating period to less than three hours as excessive heating will cause dimerization of the hardener.

After opening, protect each component from exposure to moisture by using dry nitrogen as an inert cover each time material is removed. Do not return dispensed material to its original container.

Cautionary Information:

Before using this or any Parker LORD product, refer to the Safety Data Sheet (SDS) and label for safe use and handling instructions.

For industrial/commercial use only. Must be applied by trained personnel only. Not to be used in household applications. Not for consumer use.

Typical Cured Properties*

Thermal Conductivity, W/m·K Hot Disc Transient Method, ISO 22007-2	2.0
Glass Transition Temperature (T _g), °C by DMA, ASTM D 5418	-32
Hardness Shore OO, ASTM D 2240	78
Elongation at Break, % ASTM D 638	33
Dielectric Strength, kV/mm (V/mil) ASTM D 149	12 (305)

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Values stated in this technical data sheet represent typical values as not all tests are run on each lot of material produced. For formalized product specifications for specific product end uses, contact the Customer Support Center.

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