

# Thermoset UR-105 Urethane Encapsulant

## Description

LORD Thermoset UR-105 urethane encapsulant is a two-component system designed for encapsulation of fragile, pressure sensitive microelectronic components. Thermoset UR-105 encapsulant cures to a soft, flexible gel using either room temperature or heat cure.

## Features and Benefits

**Low Stress** – exhibits low shrinkage and stress on components as it cures.

**Low Viscosity** – maintains low viscosity for complete and void-free encapsulation.

**Excellent Adhesion** – provides excellent pressure-sensitive adhesion to most substrates.

**Environmentally Resistant** – provides excellent thermal shock resistance; exhibits exceptional hydrolytic stability.

**Broad Temperature Range** – can be used on parts and devices that experience operating temperatures from -80 to +130°C.

## Application

**Mixing** – Thoroughly stir each component prior to mixing together. Mix Thermoset UR-105 resin with Thermoset UR-105 hardener at a 100:9 ratio, by weight (100:7, by volume). Automatic meter/mix/dispense equipment may be used for high volume production.

**Applying** – Apply urethane encapsulant using handheld cartridges or automatic meter/mix/dispense equipment.

**Curing** – Allow encapsulant to cure for 24 hours at 25°C, or for 3 hours at 75°C. 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 actually reaching the target temperature.

## Typical Properties\*

	UR-105 Resin	UR-105 Hardener	Mixed
Appearance	Black Liquid	Amber Liquid	Black Paste
Viscosity, cps @ 25°C	2500	100	1500
Specific Gravity	0.91	1.23	0.94
Gel Time, hr @ 25°C	–	–	2
Working Life, min @ 25°C	–	–	30

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

# LORD TECHNICAL DATA

## Typical Cured Properties\*

Volume Resistivity, ohm-cm @ 25°C ASTM D 257	3 x 10 <sup>16</sup>
Hardness Shore A, ASTM D 2240	25
Tensile Strength, MPa ASTM D 638	0.83
Elongation at Break, % ASTM D 638	130
Storage Modulus, MPa	0.45
Moisture Absorption, % @ 25°C ASTM D 570	0.18
Dielectric Constant @ 25°C 60 Hz, ASTM D 150	3.08
Dissipation Factor @ 25°C 60 Hz, ASTM D 150	0.017

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## Shelf Life/Storage

Shelf life of each component is one year from date of manufacture when stored at 25°C in original, unopened container.

After opening, protect each component from excessive moisture by installing desiccant cartridges and/or using dry nitrogen as an inert cover.

If stored or shipped at cooler temperatures, Thermoset UR-105 hardener may crystallize. If crystals appear, gently warm hardener at 30-50°C to melt crystals before mixing with resin. Limit heating period to less than three hours as excessive heating will cause dimerization.

## Cautionary Information

Before using this or any LORD product, refer to the Material Safety Data Sheet (MSDS) 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.

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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