

# CoolTherm® UR-388 FST Flame Retardant Urethane Encapsulant

## Description

LORD CoolTherm® UR-388 FST encapsulant is a two-component urethane system designed for encapsulating and casting applications. CoolTherm UR-388 FST encapsulant cures at room temperature to produce a flame retardant, semi-flexible material.

## 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.

**Room Temperature Cure** – suitable for curing at room temperature; may be mildly heat cured (60°C) to expedite cure.

**Low Exotherm** – exhibits low exothermic heat rise during room temperature cure.

**Environmentally Resistant** – provides excellent thermal shock resistance.

**Low Outgassing** – exhibits low outgassing properties in high vacuum environments.

**Broad Temperature Range** – can be used on parts and devices that experience operating temperatures from -55°C to +130°C.

## Application

**Mixing** – Thoroughly stir each component prior to mixing together. Mix CoolTherm UR-388 FST resin with CoolTherm UR-388 hardener at a 100:20 ratio, by weight (100:24, by volume). Automatic meter/mix/dispense equipment may be used for high volume production.

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

**Curing** – Encapsulant will initially cure in less than 30 minutes at 25°C. Suggested cure schedule is 24 hours to 7 days at 25°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 reaching the target temperature.

## Typical Properties\*

	UR-388 FST Resin	UR-388 Hardener	Mixed
Appearance	Black Liquid	Amber Liquid	Black Liquid
Viscosity, cps @ 25°C	15,000	70	6000
Specific Gravity	1.53	1.24	1.50
Gel Time, min @ 25°C	–	–	5

\*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	7 x 10 <sup>15</sup>
Thermal Conductivity, W/m·K	0.7
Hardness Shore A, ASTM D 2240	88
Tensile Strength, MPa (psi) ASTM D 638	15.58 (2260)
Elongation at Break, % ASTM D 638	50
Dielectric Constant @ 25°C 1 MHz, ASTM D 150	6.2
Dissipation Factor @ 25°C 1 MHz, ASTM D 150	0.013
Outgassing ASTM E 595-77	
Total Mass Loss (TML), %	0.32
Collected Volatile Condensable Materials (CVCM), %	0.02

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

## Shelf Life/Storage

Shelf life of each component is six months from date of manufacture when stored at 25°C in original, unopened container. CoolTherm UR-388 FST resin container must be periodically inverted to prevent settling.

After opening, protect each component from excessive moisture by using dry nitrogen as an inert cover.

If stored or shipped at cooler temperatures, CoolTherm UR-388 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 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.

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.

Information provided herein is based upon tests believed to be reliable. In as much as LORD Corporation has no control over the manner in which others may use this information, it does not guarantee the results to be obtained. In addition, LORD Corporation does not guarantee the performance of the product or the results obtained from the use of the product or this information where the product has been repackaged by any third party, including but not limited to any product end-user. Nor does the company make any express or implied warranty of merchantability or fitness for a particular purpose concerning the effects or results of such use.

CoolTherm is a trademark of LORD Corporation or one of its subsidiaries.

LORD provides valuable expertise in adhesives and coatings, vibration and motion control, and magnetically responsive technologies. Our people work in collaboration with our customers to help them increase the value of their products. Innovative and responsive in an ever-changing marketplace, we are focused on providing solutions for our customers worldwide.

### LORD Corporation World Headquarters

111 Lord Drive  
Cary, NC 27511-7923  
USA

### Customer Support Center (in United States & Canada)

+1 877 ASK LORD (275 5673)

[www.lord.com](http://www.lord.com)

For a listing of our worldwide locations, visit [LORD.com](http://LORD.com).

