

RAPID CURE LRTM/RTM EPOXY

Description:

Rapid Cure LRTM/RTM Epoxy systems were designed for applications using injection, HPRTM, RTM or small part LRTM using vacuum to pull in the resin. Rapid Cure LRTM/RTM epoxies are designed with an extremely low viscosity for quick injection times while providing a rapid cure at room temperature where heated tooling or ovens are not accessible. Elevated temperatures can increase curing speeds even further to create a rapid cure process. In low fiber volume fraction applications like LRTM with internal flow mediums a part can cure as quickly as 2 hours at room temperature. In high FvF applications like carbon parts in infusion or injection a cure time of 4 hours can be achieved at room temperature. Where required a Flame Retardant (FR) version of this system is also available.

Handling Properties:

	LRTM (A-013/B-223)	LRTM FR (A-033/B-223)
RESIN VISCOSITY, cP (ASTM D 2196)	950	1210
RESIN DENSITY, WPG (ASTM D 792)	9.74	9.89
HARDENER VISCOSITY, cP (ASTM D 2196)	55	55
HARDENER DENSITY, WPG (ASTM D 792)	8.38	8.38
MIXED COLOR	Light Straw	Light Straw
MIX RATIO BY VOLUME	4:1	4:1
MIX RATIO BY WEIGHT	4.65:1	4.72:1
MIXED VISCOSITY, cP (ASTM D 2196)	330	430
MIXED WPG (ASTM D 792)	9.47	9.59
GEL TIME (100g), min (ASTM D 2471)	12	13.5
WORKING TIME*	10	10

*The working time varies according to the temperature of the air, the epoxy and the surface to which it is applied.

Note: Above viscosities/densities measured @ 77°F.

Physical Properties:

HARDNESS, Shore D (@RT) (ASTM D 2240)	87	88
COMPRESSIVE STRENGTH, psi (ASTM D 695)	14,400	14,800
COMPRESSIVE MODULUS, psi (ASTM D 695)	319,000	301,000
TENSILE STRENGTH, psi (ASTM D 638)	9,600	8,600
TENSILE MODULUS, psi (ASTM D 638)	320,000	266,000
ELONGATION @ BREAK, % (ASTM D 638)	2.37	3.80
FLEXURAL STRENGTH, psi (ASTM D 790)	15,800	12,800
T _g DSC Ultimate, °F (°C) (ASTM D 3418)	165 (74)	159 (70.4)
Heat Deflection Temperature, °F (°C) (ASTM D 648)	155 (68.3)	146 (63.5)

Cure Cycle: 7 days at room temperature (for Thermal Tests material was cured at room temperature + 2 hours @ 150°F + 3 hours @ 250°F). Test specimens for above were neat epoxy (without fiber reinforcement).

Mixing:

The storage temperature of Rapid Cure LRTM/RTM will greatly affect the ease of mixing, application and curing time. For best results, Rapid Cure LRTM/RTM should be stored at **60-80 °F (16-27 °C)** for at least 24 hours before use. Rapid Cure LRTM/RTM Epoxy must be thoroughly blended to ensure complete dispersion. The resin and hardener can be measured by volume or weight using the mix ratios listed under the "Handling Properties" section. **DO NOT** mix more material than can be used within the stated working time. **REMEMBER** - you will have less working time at higher temperatures.

SAFETY PRECAUTIONS

Mix and pour in a well-ventilated area. Avoid contact with skin and eyes. If contact does occur, wash skin with soap and water and seek medical help. Read and understand all CAUTIONS on container labels and safety data sheets before using this material.

Avoid breathing of vapors. Forced local exhaust is recommended to effectively minimize exposure. NIOSH approved, organic vapor respirators and forced exhaust are recommended in confined areas, or when conditions (such as heated polymers, sanding) may cause high vapor concentrations. **DO NOT WELD ON, BURN OR TORCH ON OR NEAR, ANY EPOXY MATERIAL. HAZARDOUS VAPOR IS RELEASED WHEN AN EPOXY IS BURNED.**

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