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TECHNICAL BULLETIN

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*
Tg 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

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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WARRANTY AND DISCLAIMER

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