



MTC400

Epoxy Component Prepreg

Introduction

MTC400 is an epoxy resin system designed to cure between 80°C and 135°C allowing flexibility in component manufacture. It is a toughened epoxy resin system designed for component manufacturing that can be supplied on a variety of fabrics and in UD format to meet your cost and manufacturing requirements.

Typical applications: *Motorsport / Aerospace*

Key Features & Benefits

- Cure temperature from **80°C** to **135°C**
- Service temperature up to **220°C** after post cure
- Low CTE and shrinkage
- Work life at 20°C: **30 days**
- Storage life at -18°C: **12 months**
- Very low VOC content – no added solvents during manufacture

Storage & Out Life

This material should be kept frozen at -18°C. It must be kept sealed in a polythene bag which must not be opened until fully thawed to room temperature. If the material is not fully used, then the material must be resealed in the polythene bag to prevent moisture absorption.

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Cure Cycles & performances

CURE CYCLE OPTIONS:

Temperature	Duration	Tg
80°C (minimum)	16 hours	90°C
90°C	8 hours	100°C
100°C	4 hours	110°C
110°C	2 hours	120°C
135°C (maximum)	1 hour	145°C
180°C Post Cure	2 hours	225°C

- Curing Schedule is meant to be a guide only and is subject to local conditions.
- To avoid exotherm particular care must be taken with thick laminates.
Ramp rates must not exceed **3.0°C** per minute during **initial cure**.
Ramp rates must not exceed **0.3°C** per minute during **post cure** (free standing).



Cured Material Properties

PLY: 200gsm 2x2 twill 6k, 42% resin weight

Material description: MTC400-C200T-T800-42%RW-1250 (SHD0390-1250)

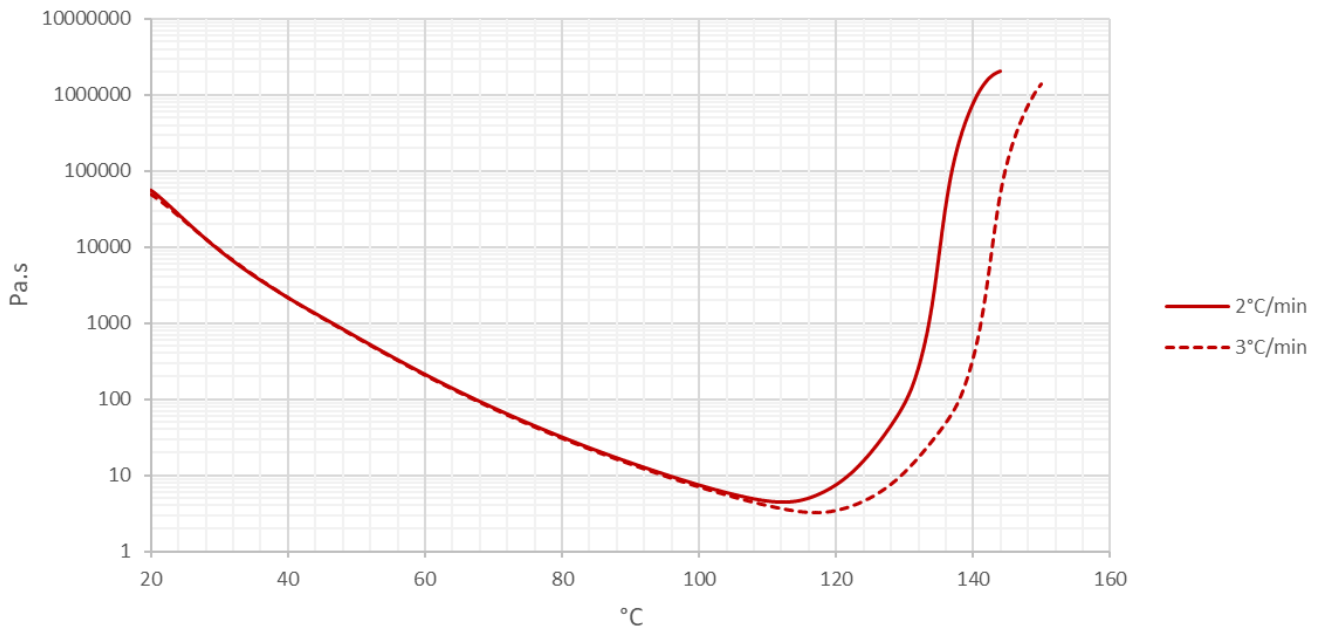
Test	Results			Standard
Vf	Fibre volume fraction	47.09	%	<i>BS EN ISO 14127 Method B</i>
CPT	Cured ply thickness	0.235	mm	<i>BS EN ISO 14127 Method B</i>
Tensile 0°	Tensile strength	907	MPa	<i>BS EN ISO 527-4</i>
	Tensile modulus	64.5	GPa	
	Poisson's ratio	0.07		
Tensile 90°	Tensile strength	871	MPa	
	Tensile modulus	63.0	GPa	
	Poisson's ratio	0.07		
Compressive 0°	Compressive strength	744	MPa	<i>prEN 2850 Type B</i>
	Compressive modulus	60.1	GPa	
Compressive 90°	Compressive strength	720	MPa	
	Compressive modulus	57.9	GPa	
Flexural 0°	Flexural strength	937	MPa	<i>BS EN ISO 14125</i>
	Flexural modulus	58.7	GPa	
Flexural 90°	Flexural strength	955	MPa	
	Flexural modulus	59.9	GPa	
In-Plane Shear ±45°	In-Plane shear strength (5% strain)	93.8	MPa	<i>BS EN ISO 14129</i>
	In-Plane shear strength (ultimate)	113.8	MPa	
	In-Plane shear modulus	3.88	GPa	
Interlaminar Shear 0°	Interlaminar shear strength	85.2	MPa	<i>BS EN ISO 14130</i>
Interlaminar Shear 90°	Interlaminar shear strength	85.2	MPa	
Fracture Toughness	G _{1c}	328	J/m²	<i>prEN 6033</i>
DMA – Dry Tg	Tg E' Onset	146	°C	<i>Modified ASTM D7028 (Single Cantilever)</i>
	Tg Peak Tan δ	242	°C	

Cure schedule: 15 mins @ 85°C then 90 mins @ 135°C, 2°C/min ramp rate (solid release, autoclave cured, 6 bar). All figures in this table are actual test results and have not been normalised. Complete test reports can be supplied independently upon request.



Viscosity Profile

Measured using a rotational rheometer



Health and Safety

This material contains epoxy resin which can cause allergic reactions with skin contact and must avoid repeated and prolonged skin contact.

Please refer to the product Safety Data Sheet before using this material. The following precautions must be taken when using epoxy resin preregs:

- Overalls must be worn.
- Impervious gloves must be worn.
- Curing schedule is meant to be as a guide only and is subject to local conditions.
- To avoid exotherm, particular care must be taken with thick laminates.
- Ramp rates must not exceed 3.0°C/min during initial cure and 0.3°C/min during post cure.

Disclaimer: Technical advice, instruction, data or recommendation, whether verbal or in writing, is given in good faith. The SHD company providing any such advice gives no warranty or guarantee, whether express or implied, in relation to such advice.

Customers must carry out their own tests and assessments as necessary in order to determine the quality and suitability of the product for their particular application and circumstances. Such testing should be performed under conditions identical to those to which the final component/product may be subjected. Values listed in any SHD document are for typical properties of the product or substance in question and are not intended to be used in establishing either statistical specifications nor engineering basis values. They do not constitute either minimum or maximum values for the product or substance in question.