RESINAS CASTRO S. L.
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VTC401

Epoxy Component Prepreg

Introduction

VTC401 is an epoxy resin system designed to give an initial cure at low temperatures or snap cure at high temperatures with enhanced toughness, honeycomb bondability and higher service temperature, giving greater flexibility in component manufacture. It can be supplied on a variety of fabrics in UD format to meet your cost and manufacturing requirements.

Typical applications: *General purpose – Visual*

Available variants *– VTC401B, black pigmented*

– VTC401LV, high tack

Key Features & Benefits

- Cure temperature from **65°C** to **140°C**
- Service temperature up to **120°C**
- Low CTE and shrinkage
- Work life at 20°C: **21 days**
- Storage life at -18°C: **12 months**
- Very low VOC content – no added solvents during manufacture
- ***Snap cure*** *available for hot press moulding – consult SHD for details*

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
65°C	(minimum)	16	hours	75°C
80°C		4	hours	90°C
100°C		1	hour	110°C
120°C		45	minutes	130°C
140°C	(maximum)	15	minutes	130°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).

- Typical Tg:

DMA – Dry Tg	120°C for 1hr	Tg E' Onset	**130**	**°C**	*Modified ASTM D7028*
		Tg Peak Tan δ	**139**	**°C**	*(Single Cantilever)*

*Tests performed on **VTC401-G280T-42%RW-1250** laminates*

21st June 2022

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Cured Material Properties

*Tests performed on **VTC401-C245T-HS-3K-42%RW** laminates* *(245gsm 2x2 twill, T300 3k carbon fabric)*

Test	Results			*Standard*
Vf	Fibre volume fraction	**48.84**	**%**	*BS EN ISO 14127 Method B*
CPT	Cured ply thickness	**0.285**	**mm**	*BS EN ISO 14127 Method B*
Tensile 0°	Tensile strength	**634**	**MPa**	*BS EN ISO 527-4*
	Tensile modulus	**55.7**	**GPa**	
Tensile 90°	Tensile strength	**638**	**MPa**	
	Tensile modulus	**55.1**	**GPa**	
Compressive 0°	Compressive strength	**684**	**MPa**	*prEN 2850 Type B*
Compressive 90°	Compressive strength	**598**	**MPa**	
Flexural 0°	Flexural strength	**873**	**MPa**	*BS EN ISO 14125*
	Flexural modulus	**51.2**	**GPa**	
Flexural 90°	Flexural strength	**854**	**MPa**	
	Flexural modulus	**49.4**	**GPa**	
In-Plane Shear ±45°	In-Plane shear strength (ultimate)	**121.6**	**MPa**	*BS EN ISO 14129*
Interlaminar Shear 0°	Interlaminar shear strength	**71.3**	**MPa**	*BS EN ISO 14130*
Interlaminar Shear 90°	Interlaminar shear strength	**72.2**	**MPa**	
DMA – Dry Tg	Tg E' Onset	**123**	**°C**	*Modified ASTM D7028*
Initial cure	Tg Peak Tan δ	**134**	**°C**	*(Single Cantilever)*

Mechanical testing carried out at 21±2°C. Initial cure: 10mins at 80°C followed by 45mins at 120°C, autoclave 6bar. All figures in this report are actual test results and have not been normalised. Testing was either completed by Castro Composites laboratories, or independently by UKAS approved organisations. Complete test reports can be supplied independently upon request.

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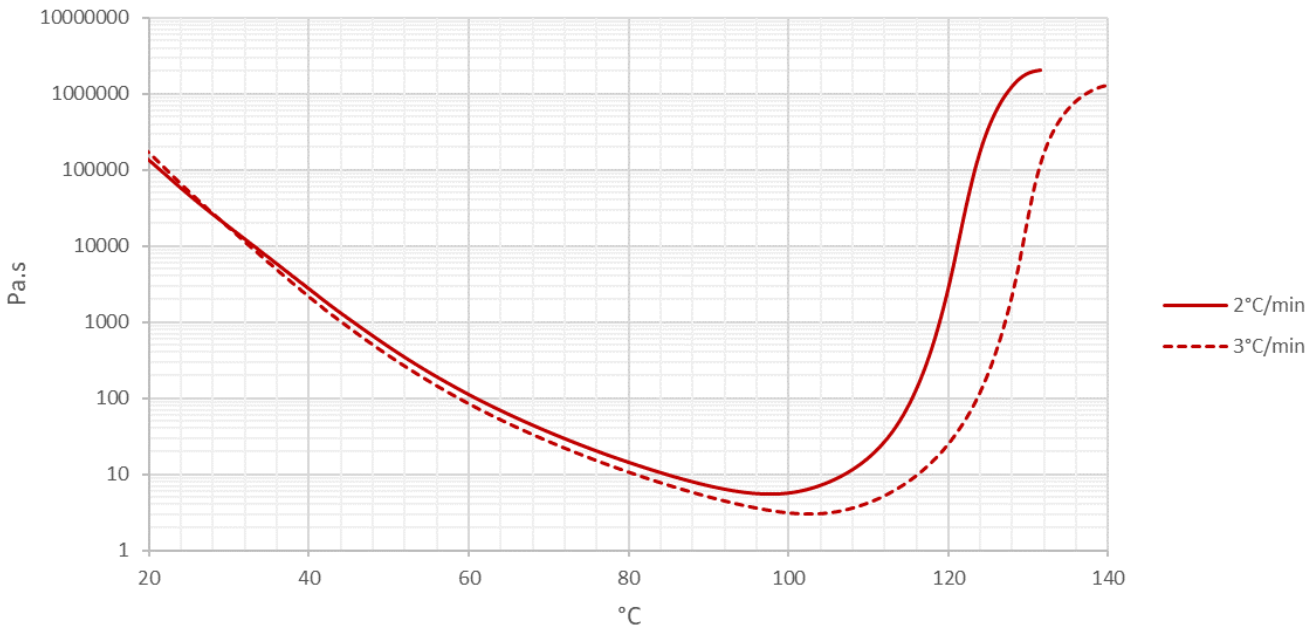
Viscosity Profile

Testing carried out 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 prepregs:

- 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. Castro Composites 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 Castro Composites 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.