



HTC400

Epoxy Component Prepreg

Introduction

HTC400 is an epoxy resin system designed to cure at 180°C. It is a toughened epoxy resin system designed for demanding, high temperature applications. It can be supplied on a variety of fabrics and in UD format to meet your cost and manufacturing requirements.

Typical applications: Aerospace / Automotive

Key Features & Benefits

- Cure temperature of **180°C**
- Service temperature up to **255°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.



Cure Cycles & performances

- Recommended initial cure (preferred for thick laminates):
 - 1st dwell at **120°C** for **2h**, at a ramp rate of **2°C/min**
 - 2nd dwell at **140°C** for **2h**, at a ramp rate of **2°C/min**
 - 3rd dwell at **180°C** for **2h**, at a ramp rate of **2°C/min**
- Alternative initial cure:
 - 1st dwell at **180°C** for **2h**, at a ramp rate of **2°C/min**
- Recommended Post cure: **240°C** for **1h**, at a ramp rate of **0.3°C/min** (where required for high Tg)
 - *Note: material will brown at this temperature*
- 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

Tests performed on **HTC400- C200T-T300-2X2T-3K-42%RW** laminates

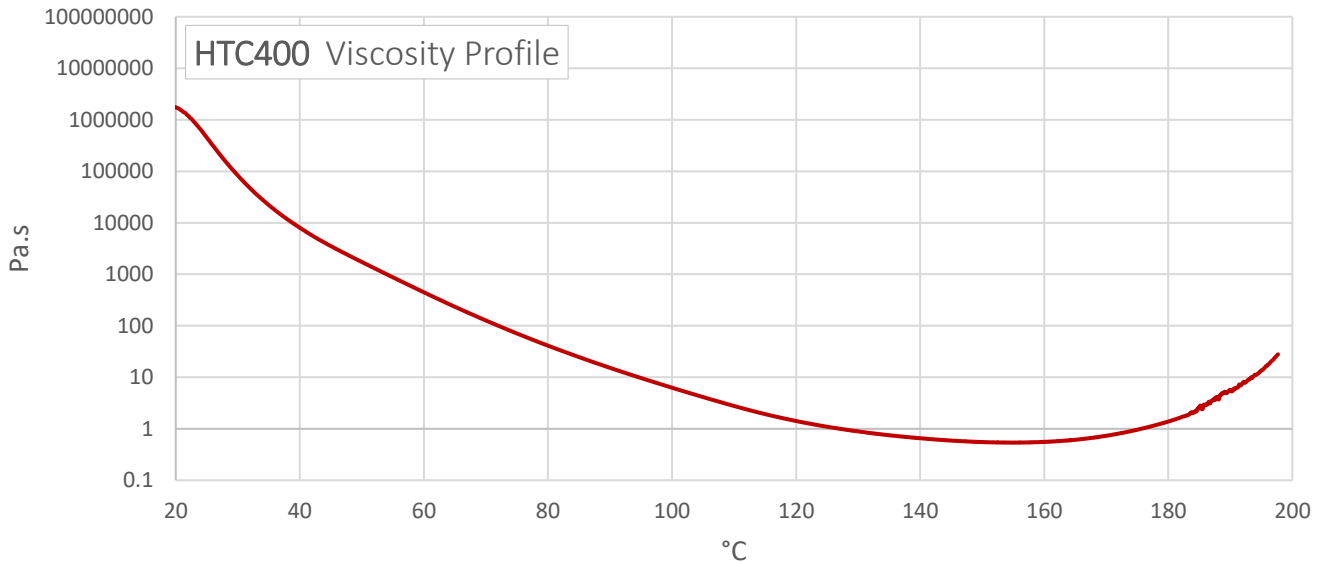
Test	Results	Standard
Compression	Compressive strength 617 MPa	<i>BS EN ISO 14126 : 1999</i>
Compression After Impact	Compressive strength 168 MPa	<i>DIN EN 6038 : 1996</i>
Tension	Tensile strength 516 MPa	<i>BS EN ISO 527-4 : 1997</i>
	Tensile modulus 54.7 GPa	
Flexure	Flexural strength 676 MPa	<i>BS EN ISO 14125 : 1998</i>
	Flexural modulus 51.1 GPa	
	Strain to failure - %	
Interlaminar Shear Strength	Interlaminar shear strength 65.7 MPa	<i>BS EN 2563 : 1997</i>
DMA	Tg – Storage Modulus Onset 263 °C	<i>AITM 1-0003 Issue 3</i>
	Tg – Tan δ Peak 272 °C	

Mechanical testing carried out at 23±2°C, 50±5% RH. All mechanical tests were completed independently by UKAS approved organisations. Complete tests reports can be supplied independently upon request. All figures are actual test results and haven't been normalised.



Viscosity Profile

Testing carried out at $23\pm 2^{\circ}\text{C}$, $50\pm 5\%$ RH. Ramp rate: $2^{\circ}\text{C}/\text{min}$.



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 $3.0^{\circ}\text{C}/\text{min}$ during initial cure and $0.3^{\circ}\text{C}/\text{min}$ 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.