



# VTFA400

## Epoxy Adhesive Film

### Introduction

VTFA400 resin film is designed to give enhanced toughness and great flexibility in component manufacture with cure temperatures between 65°C and 120°C. It is a toughened epoxy resin system that can be supplied with or without fabric support to meet your cost and manufacturing requirements.

**Typical applications:** *General purpose*

### Key Features & Benefits

- Cure temperature from **65°C to 120°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

### 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

### CURE CYCLE OPTIONS:

Temperature	Duration	Tg
65°C (minimum)	16 hours	75°C
80°C	5 hours	90°C
100°C	2 hours	110°C
120°C (maximum)	1 hour	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**.
- Typical Tg:

Test	Results	Standard
DMA	Tg – Storage Modulus Onset	135 °C
	Tg – Tan $\delta$ Peak	147 °C

Tests performed on **VTFA400** neat resin, cured at 120°C



## Cured Material Properties

Tests performed on the following **VTFA400** resin films:

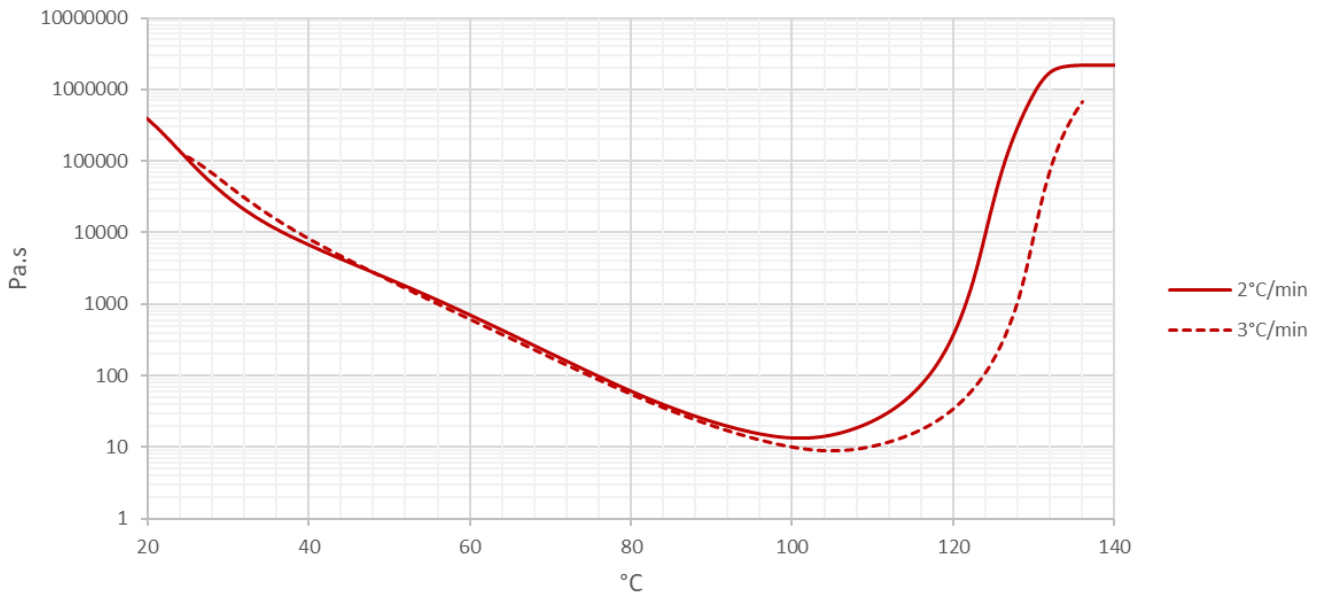
Test	Results	Standard
<b>VTFA400-300GSM-PC13</b> (300g/m <sup>2</sup> supported resin film)		
<b>Climbing Drum Peel</b>	Peel Strength (Longitudinal <sup>(1)</sup> )	<b>524 N/75mm</b> <i>ASTM D1781</i>
<b>VTFA400-150GSM-PC13</b> (150g/m <sup>2</sup> supported resin film)		
<b>Lap Shear</b> <b>120°C cure</b>	Shear strength at: -55°C	<b>23.4 MPa</b> <i>BS EN 2243-1</i>
	Shear strength at: RT	<b>28.3 MPa</b>
	Shear strength at: 80°C	<b>24.1 MPa</b>
	Shear strength at: 120°C	<b>8.8 MPa</b>
<b>Lap Shear</b> <b>120°C cure, Aged <sup>(2)</sup></b>	Shear strength at: RT	<b>30.4 MPa</b> <i>BS EN 2243-1</i>
	Shear strength at: 80°C	<b>23.8 MPa</b>
<b>Lap Shear</b> <b>175°C cure</b>	Shear strength at: -55°C	<b>24.7 MPa</b> <i>BS EN 2243-1</i>
	Shear strength at: RT	<b>29.4 MPa</b>
	Shear strength at: 120°C	<b>6.1 MPa</b>

Mechanical testing carried out at room temperature (RT) unless specified otherwise = 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 have not been normalised. <sup>(1)</sup>: tests performed on sandwich panels: aluminium face sheets (thickness 0.55mm) and aluminium core (foil thickness 0.1mm, cell size 5mm, thickness 12.7mm, density 80Kg/m<sup>3</sup>). Longitudinal = peel in ribbon direction. <sup>(2)</sup>: aged for 1000hrs in water at 50°C. All lap shear testing performed on primed aluminium substrate.



## 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. 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.