



# MTFA400

## Epoxy Resin Film

### Introduction

MTFA400 resin film is designed to give enhanced toughness and higher service temperature, giving great flexibility in component manufacture. 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: Resin film***

### Key Features & Benefits

- Cure temperature from **80°C to 150°C**
- Service temperature up to **160°C**
- 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

### CURE CYCLE OPTIONS:

Temperature	Duration	Tg
80°C (minimum)	16 hours	90°C
100°C	4 hours	110°C
120°C	1 hour	130°C
175°C (maximum)	1 hour	180°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. It is recommended that small scale trials are carried out before larger cures carried out.**

Ramp rates must not exceed **2.0°C** per minute during **initial cure**.

Ramp rates must not exceed **0.3°C** per minute during **post cure** (free standing).

- Typical Tg:

Test	Results	Standard	
DMA	Tg – Storage Modulus Onset	<b>180 °C</b>	Modified ASTM D7028 (Single Cantilever)
	Tg – Tan $\delta$ Peak	<b>199 °C</b>	

Tests performed on **MTFA400** neat resin, cured at 175°C



## Cured Material Properties

Tests performed on the following **MTFA400** resin films:

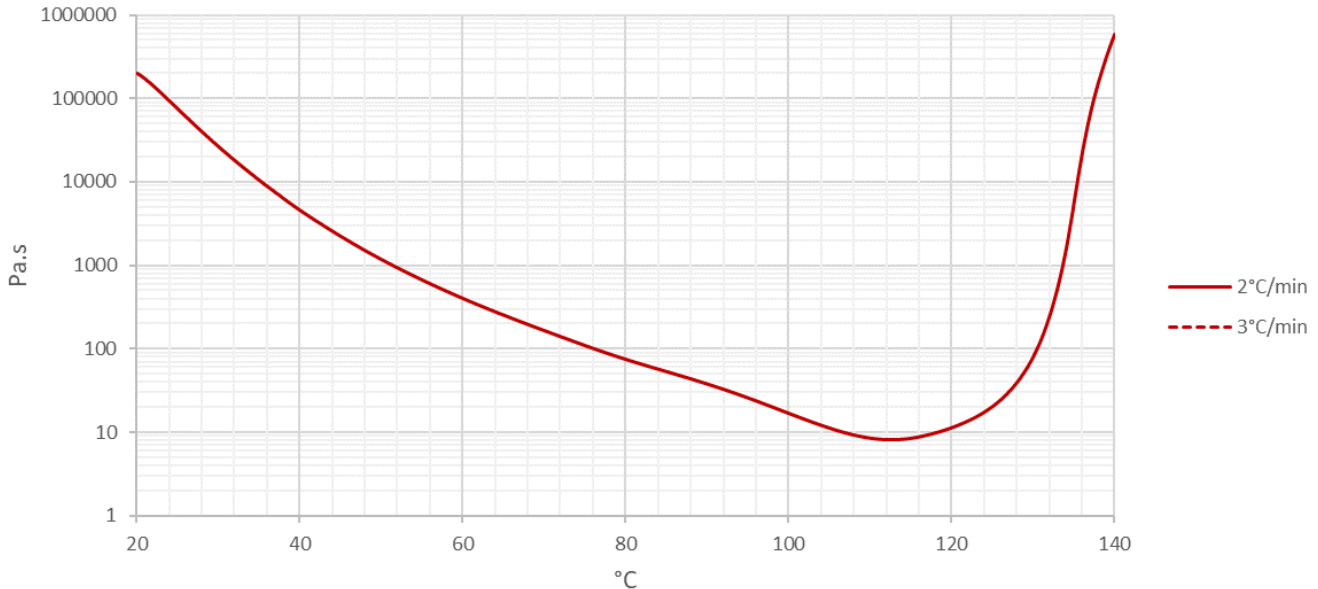
Test	Results	Standard
<b>MTFA400-150GSM-PC13</b> (150g/m <sup>2</sup> supported resin film)		
<b>Lap Shear</b>	Shear strength at: -55°C	<b>15.9 MPa</b> <i>BS EN 2243-1</i>
<b>175°C cure</b>	Shear strength at: RT	<b>20.8 MPa</b>
	Shear strength at: 120°C	<b>22.1 MPa</b>
	Shear strength at: 150°C	<b>17.9 MPa</b>
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<b>Lap Shear</b>	Shear strength at: RT	<b>25.3 MPa</b> <i>BS EN 2243-1</i>
<b>175°C cure, Aged <sup>(1)</sup></b>	Shear strength at: 120°C	<b>15.8 MPa</b>
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<b>MTFA400-150GSM-UNSUPPORTED</b> (150g/m <sup>2</sup> non-supported resin film)		
<b>Lap Shear</b>	Shear strength at: RT	<b>29.4 MPa</b> <i>BS EN 2243-1</i>
<b>175°C cure</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>: aged for 1000hrs in water at 70°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.