Unit 4
The Reservation
Sleaford Enterprise Park
Sleaford
Lincolnshire
NG34 7BY

www.shdcomposites.com

Tel: +44 (0) 1529 307629
sales@shdcomposites.com

MTE500

Epoxy Component Prepreg

Introduction

MTE500 prepregs represent an evolution in handling, processing, and cost-efficient performance for a wide range of advanced composite applications. The MTE500 resin system delivers good mechanical properties, while offering superior handling (particularly on heavier weight reinforcements), excellent cosmetic quality, a long work/storage life, and broad processing versatility with various reinforcements and prepreg formats.

This resin system is available combined with an extensive range of woven fabric and unidirectional tape reinforcements.

Typical applications: *General purpose, cosmetic applications*

Key Features & Benefits

- Cure temperature of **120°C (± 5°C)**
- Glass transition temperature above **120°C**
- Low CTE and shrinkage
- Work life at 20°C: **60 days**
- Storage life at -18°C: **24 months**
- Very low VOC content – no added solvents during manufacture

Reinforcement Types

MTE500 is available with a wide range of reinforcement types in both fabric and UD formats. Carbon, glass, aramid and natural fibre types are typical but please request information from SHD Technical Support for your specific requirements.

MTE500 is also made available in a limited range of carbon fibre NSR (Non-Specific Reinforcement) prepregs where extra cost competitiveness may be possible.

Unit 4
The Reservation
Sleaford Enterprise Park
Sleaford
Lincolnshire
NG34 7BY

www.shdcomposites.com

Tel: +44 (0) 1529 307629
sales@shdcomposites.com

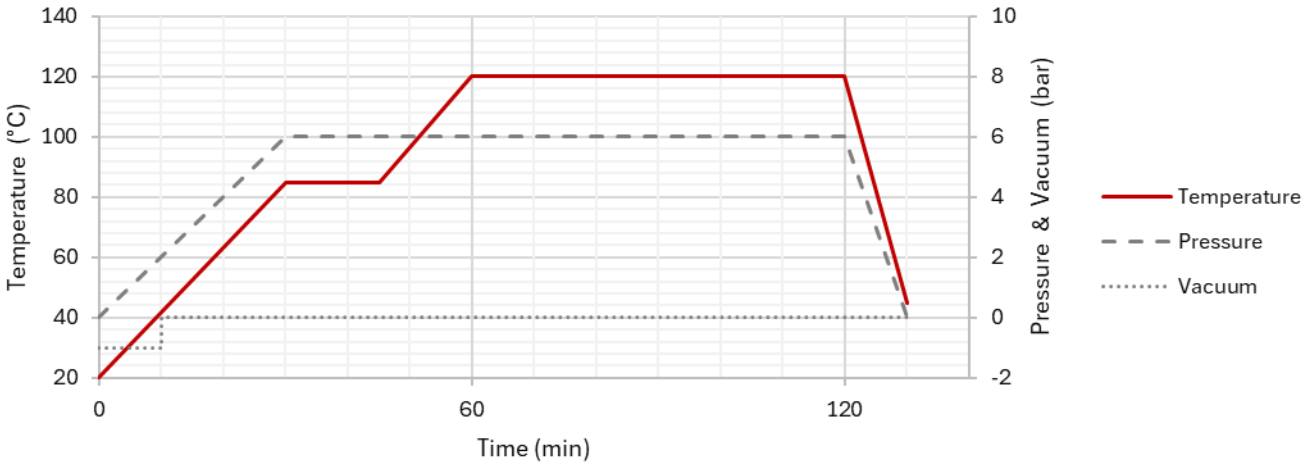
Storage & Out Life

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 Cycle

For optimum results SHD Composites advises to follow the recommended cure cycle below.

- Recommended Initial cure:
  - Ramp up to **85°C** at a rate of **2-3°C/min**
  - 1st dwell at **85°C** for **15mins**
  - Ramp up to **120°C (± 5°C)** at a rate of **2-3°C/min**
  - 2nd dwell at **120°C (± 5°C)** for **1h**
- Ensure full pressure (6 bar) is reached prior to the 1st dwell (85°C).
- Maintain full vacuum until 2 bar pressure is reached, then vent vacuum to atmosphere.



- The above 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 cure
- Contact the SHD Technical team for further advice on alternative cures

Unit 4
The Reservation
Sleaford Enterprise Park
Sleaford
Lincolnshire
NG34 7BY

www.shdcomposites.com

Tel: +44 (0) 1529 307629
sales@shdcomposites.com

Mechanical Properties

	SHD Part:	MTE500-C200T-HS-3K-42%RW-1250	MTE500-C415T-HS-12K-38%RW-1250	MTE500-C650T-HS-12K-35%RW-1250		
	Fabric Type:	200gsm 2x2 twill	415gsm 2x2 twill	650gsm 2x2 twill		
	Fibre Type:	HS 3K carbon fibre	HS 12K carbon fibre	HS 12K carbon fibre		
Test	**Typical Results**				**Unit**	**Typical Method**
Vf	Fibre volume fraction	**45.52 – 51.67**	**49.17 – 55.52**	**51.25 – 57.71**	**%**	BS EN ISO 14127
CPT	Cured ply thickness	**0.219 – 0.248**	**0.415 – 0.469**	**0.626 – 0.705**	**mm**	BS EN ISO 14127
Density	Density	**1.46 – 1.50**	**1.50 – 1.54**	**1.51 – 1.55**	**g/cm³**	ASTM D792
Tensile	0° Strength	**> 550**	**> 700**	**> 600**	**MPa**	BS EN ISO 527-4
	0° Modulus	**50 – 60**	**55 – 65**	**53 – 60**	**GPa**	
	0° Poisson's ratio	**0.04 – 0.09**	**0.03 – 0.07**	**0.05 – 0.12**		
	90° Strength	**> 550**	**> 700**	**> 600**	**MPa**	
	90° Modulus	**50 – 60**	**55 – 65**	**53 – 60**	**GPa**	
	90° Poisson's ratio	**0.04 – 0.09**	**0.03 – 0.07**	**0.05 – 0.12**		
Compressive	0° Strength	**> 600**	**> 550**	**> 450**	**MPa**	EN 2850 Type B
	0° Modulus	**46 – 55**	**50 – 60**	**44 – 53**	**GPa**	
	90° Strength	**> 600**	**> 550**	**> 450**	**MPa**	
	90° Modulus	**46 – 55**	**50 – 60**	**44 – 53**	**GPa**	
Flexural	0° Strength	**> 800**	**> 800**	**> 680**	**MPa**	BS EN ISO 14125
	0° Modulus	**48 – 57**	**50 – 60**	**45 – 53**	**GPa**	
	90° Strength	**> 800**	**> 800**	**> 680**	**MPa**	
	90° Modulus	**48 – 57**	**50 – 60**	**45 – 53**	**GPa**	
In-Plane Shear (±45°)	Strength, 5% strain	**> 55**	**> 55**	**> 55**	**MPa**	BS EN ISO 14129
	Strength, ultimate	**> 95**	**> 85**	**> 85**	**MPa**	
	Modulus	**3.0 – 3.8**	**3.0 – 4.0**	**3.0 – 4.0**	**GPa**	
Interlaminar Shear	0° Strength	**> 60**	**> 50**	**> 50**	**MPa**	BS EN ISO 14130
	90° Strength	**> 60**	**> 50**	**> 50**	**MPa**	
Dry Tg (DMA)	Tg E' Onset	**120 – 140**	**120 – 140**	**120 – 140**	**°C**	ASTM D7028
	Tg Peak Tan δ	**130 – 155**	**130 – 155**	**130 – 155**	**°C**	
Wet Tg* (DMA)	Tg E' Onset	**80 – 100**	**80 – 100**	**80 – 100**	**°C**	
	Tg Peak Tan δ	**90 – 110**	**90 – 110**	**90 – 110**	**°C**	

*For specimens conditioned by being submerged in water at 70°C for 14 days.

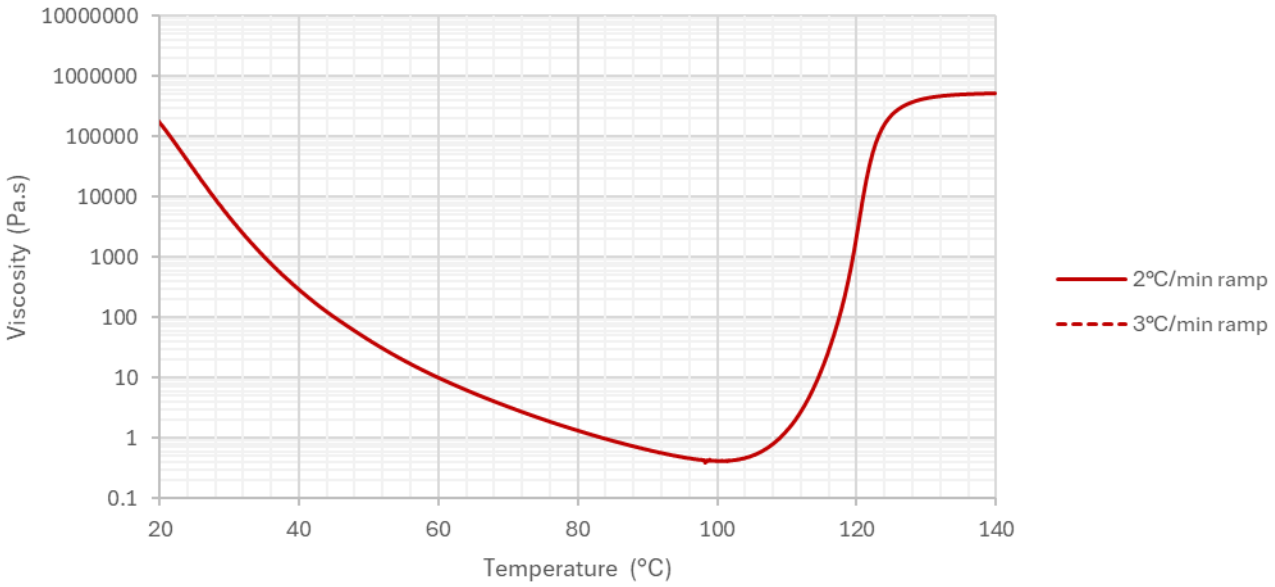
The figures above are typical properties expected from these materials, cured under the recommended conditions of temperature and pressure. They are indicative only. Actual test reports demonstrating these figures can be supplied independently upon request.

Unit 4
The Reservation
Sleaford Enterprise Park
Sleaford
Lincolnshire
NG34 7BY

www.shdcomposites.com

Tel: +44 (0) 1529 307629
sales@shdcomposites.com

Viscosity Profile



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 cure.