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# BX180-220

## Benzoxazine Tooling Prepreg

### Introduction

BX180-220 Benzoxazine Tooling Prepreg is designed for high temperature large aerospace tooling applications where temperature stability, long outlife and tool durability are key. It can be supplied on a variety of fabrics to meet your cost and manufacturing requirements.

*Typical applications: High temperature aerospace tooling*

### Key Features & Benefits

- Cure temperature **180°C**
- Service temperature to **200°C** after postcure
- Low CTE and shrinkage
- Work life at 20°C: **1 year**
- Store at ambient temperatures
- Excellent handleability in warmer conditions – low tack
- No health and safety concerns

### Storage & Out Life

This material should be stored at ambient temperatures in a cool, dry place. It must be kept sealed in a polythene bag which must not be opened until ready for use.

### Cure Cycles & performances

Recommended cure cycle 2 hours at 160°C followed by 2 hours at 180°C under 6 bar autoclave pressure.

If required for T<sub>g</sub>, a free standing postcure of 2 hours at 200°C can be carried out.

- 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 **1.0°C** per minute during **initial cure**.  
Ramp rates must not exceed **0.3°C** per minute during **post cure** (free standing).

Issued 21<sup>st</sup> June 2017

Note: The information and assistance provided herein is for your consideration without legal responsibility. Users are required to perform verification and testing to confirm that the product meets with their requirements.

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## Resin properties

<b>Mechanical Properties</b>	
Flexural modulus, MPa	4,513
Flexural strength, MPa	105
Ultimate elongation, %	2.1
Tensile modulus, MPa	4,477
Tensile strength, MPa	46
Ultimate elongation, %	1.0
Toughness test4	
K1c, MPaVm	0.57
G1c j/m <sup>2</sup>	82

<b>Thermal Properties</b>		
Tg by DSC, °C		206
Tg by DMA, °C	E'	197
	E''	214
	Tan Delta	226
Water absorption 48 h in boiling water, %		1.16
Tg by DMA In water 48h/100°C	E'	163
	E''	191
	Tan Delta	213
After free standing post cure at 200°C for 2h		
Tg by DSC, °C		224
Tg by DMA, °C	E'	229
	E''	240
	Tan Delta	250
Water absorption 48 h in boiling water, %		1.3
Tg by DMA In water 48h/100°C	E'	197
	E''	216
	Tan Delta	237

NB – based on supplier's data

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## Health and Safety

- 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 1.0°C/min during initial cure and 0.3°C/min during post cure.

SHD Composite Materials Ltd cannot accept any liability for injury or damage where the above precautions have not been taken or where the material is used for any purpose other than its intended use.

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