

# Technical Data Sheet

## Evopreg EPC300

Medium temperature cure epoxy prepregs for component applications

### Introduction

Evopreg EPC300 component prepregs are based on a medium temperature curing, toughened epoxy resin system, formulated specifically for high performance, ease of lay-up and excellent surface finish.

The prepregs can be supplied with a range of reinforcement fibres and fabric constructions. They can be consolidated by vacuum bagging, autoclave or press moulding and are designed for a range of applications including automotive, motorsport, sporting goods and general industrial.

### Key Features & Benefits

- Flexible cure temperature 80-120°C
- Service temperature up to 130°C
- Suitable for vacuum bag/oven, autoclave and press moulding
- 30 days out-life at room temperature
- 12 months storage life at -18°C
- Good tack and drape
- Toughened
- Excellent adhesion to core materials, including honeycomb
- Excellent surface finish
- Available on a wide range of reinforcement fabrics

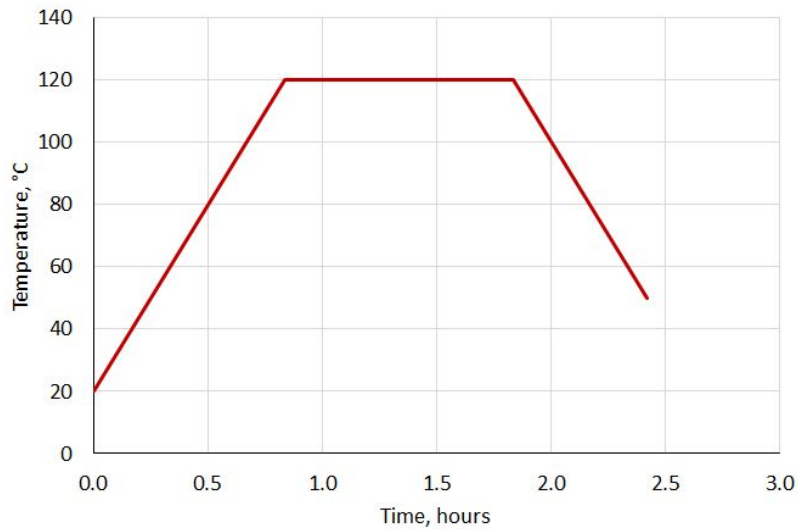
### Processing & Curing

The prepregs can be processed using standard techniques including vacuum bag/oven, autoclave and press moulding. Suggested cure cycles are shown below.

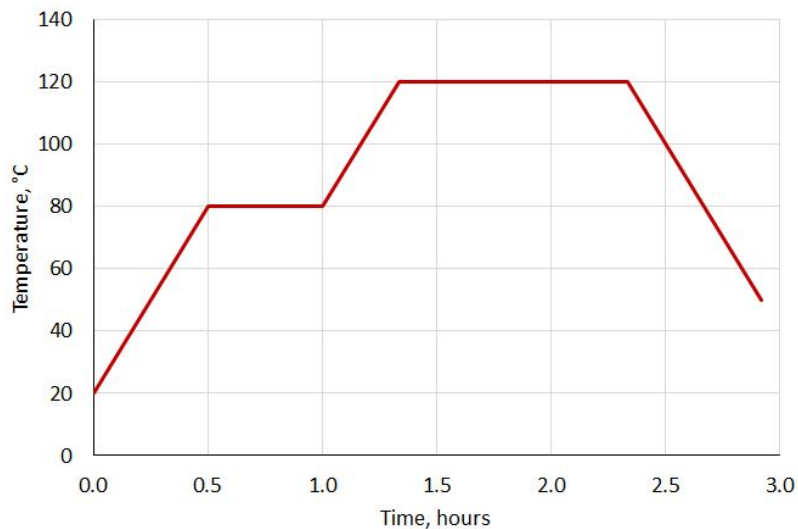
| Cure temperature | Minimum cure time | Glass transition temperature, Tg |                |
|------------------|-------------------|----------------------------------|----------------|
|                  |                   | Tg, onset E'                     | Tg, peak tan δ |
| 80°C             | 12 hours          | 88°C                             | 107°C          |
| 120°C            | 1 hour            | 123°C                            | 142°C          |

- Recommended ramp rate 1-3°C/min
- Cure times may need to be extended to account for thermal lag in large tools
- Optional post-cure 130°C for 1 hour - Tg onset E' 124°C, Tg peak tan δ 145°C
- Tg data for laminates made from a woven carbon-reinforced epoxy prepreg (Evopreg EPC300-C205T-HS-3K-42)

Suggested cure cycle for standard autoclave cures at 120°C:

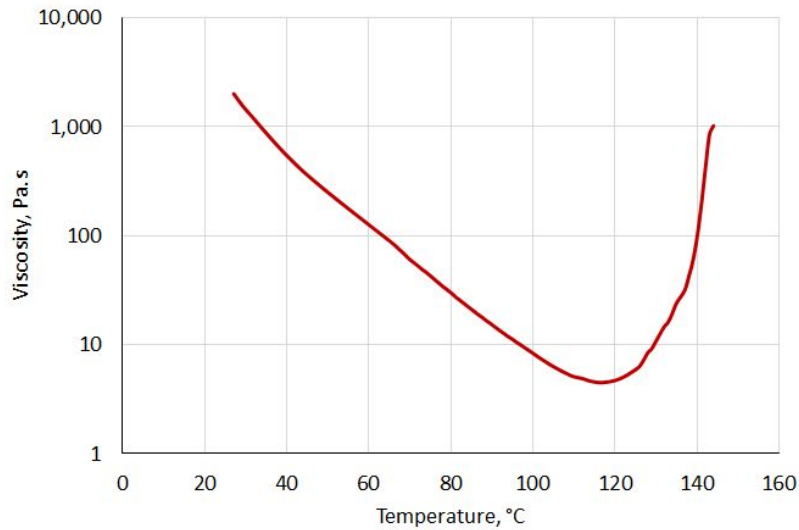


Alternative cure cycle to optimise surface finish for vacuum bag/oven cures at 120°C:



## Viscosity Profile

Plate-on-plate, ambient temperature 25°C, shear rate 20s<sup>-1</sup>, ramp rate 2°C/min:



## Composite Properties

Typical data for laminates made from woven carbon-reinforced epoxy prepreg (Evopreg EPC300-C205T-HS-3K-42) cured in an autoclave for 1 hour at 120°C.

| Property  | Result                 | Result, normalised 50% Vf | Test method |
|---|------------------------|---------------------------|-------------|
| Fibre content by volume, Vf                     | 47%                    | 50%                       | -           |
| Density   | 1.48 g/cm <sup>3</sup> | 1.50 g/cm <sup>3</sup>    | -           |
| Flexural strength, 0°                           | 827 MPa                | 885 MPa                   | ISO 14125   |
| Flexural modulus, 0°                            | 48.2 GPa               | 51.6 GPa                  | ISO 14125   |
| Tensile strength, 0°                            | 617 MPa                | 669 MPa                   | ISO 527-4   |
| Tensile modulus, 0°                             | 59.2 GPa               | 64.1 GPa                  | ISO 527-4   |
| Compressive strength, 0°                        | 631 MPa                | 675 MPa                   | ISO 14126   |
| Compressive modulus, 0°                         | 49.2 GPa               | 52.6 GPa                  | ISO 14126   |
| Apparent interlaminar shear strength (ILSS), 0° | 70.8 MPa               | -                         | ISO 14130   |
| In-plane shear strength                         | 109 MPa                | -                         | ISO 14129   |

## Available Products

Evopreg EPC300 prepregs are available with a wide range of reinforcements, including woven, non-woven, non-crimp stitched and unidirectional fabrics in the following fibres:

- Carbon
- Glass
- Flax
- Aramid
- Hybrids

## Storage

The material should ideally be stored in a freezer at -18°C and sealed in a polythene bag. To avoid moisture condensation, allow the material to defrost fully and reach room temperature before opening the polythene bag. Typical thaw time for full roll is 4-6 hours. Keep material sealed in polythene bag when not in use to prevent moisture absorption. Out-life at room temperature is 30 days. Storage life at -18°C is 12 months.

## Packaging

The material is typically delivered in rolls and with a silicone coated release paper on the bottom and a polythene release film on the top. Typical packaging - 76mm (3") diameter cardboard core, polythene bag, cardboard box and end supports. Where relevant, multiple boxes are typically stacked on a standard wooden pallet, strapped and covered with stretch wrap. Other packaging may be available on request.

## Health & Safety

Please refer to Safety Data Sheet (SDS) before use. This material contains epoxy resin and fibres which can cause irritation to skin and eyes and allergic reactions. Wear appropriate PPE including overalls and impervious gloves, and ensure adequate ventilation. Exothermic reactions can occur when curing epoxy resins, and particular care must be taken when curing thick laminates.

## Disclaimer

The information provided here is believed to be accurate but should be considered indicative only. It is the responsibility of the customer to check the suitability of the product for their specific application prior to use.

*Evopreg EPC300 TDS v2 23/01/2019*