# GMS EP-540 PREPREG

## Product

GMS Composites EP-540 is a non-halogenated flame retardant epoxy resin matrix prepreg with long shelf life. The product has a versatile curing cycle from as low as 80ºC or as high as 150ºC, thus enabling the product to be used to produce a wide range of composite items, from large structures to numerous small components. EP-540 is available in a range of substrates such as carbon, glass or aramid. The product is self-extinguishing and certified to UL 94 V-0 classification. The tack of EP-540 can also be varied.

## Applications

EP-540 can be used to produce structural components with carbon, glass or aramid fibres. It can also be used in the construction of sandwich structures. The product is self-extinguishing and is certified to the classification of UL 94 V-0, as such, it can be utilised in industries such as automotive, rail, marine or other transport applications where fire performance is critical.

## Features

- **Flame retardant – self extinguishing**
- **Certified UL94 V-0 Classification**
- **Non-Halogenated**
- **Variable cure cycle 80ºC – 150ºC**
- **Excellent shelf life**
- **Wide range of fibre substrates available**
- **Made in Australia**

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## Curing

The versatility of GMS Composites EP-540 means a range of cure cycles, pressures and ramp up rates can be adopted all of which will depend greatly on the part being produced. Below is a guide to some cure cycles.

Typical cure cycles.

- 8 - 10 hours at 90°C
- 4 - 5 hours at 100°C
- 2 - 3 hours at 110°C
- 1 – 2 hours at 120°C

Heat ramp up rate – 2°C / min
Pressure – 1 bar

## Gel Time

Hot plate

| Temperature (°C) | Time (min) |
|---|---|
| 120 | 6 - 12 |

Values are indicative of small samples of neat resin formulation. Gel times may vary significantly in composites depending on fibre content and laminate thickness.

## Properties

| **Properties of cured, 3mm thick laminate, T300 carbon fibre, 200gsm 2x2 twill fabric**. Cure cycle 1hr at 120°C, vacuum bag.** | **Unit** | **Value** |
|---|---|---|
| Tensile Strength (at 23°C) | MPa | 460 |
| Elongation at Break (at 23°C) | % | 1.18 |
| Tensile Modulus (at 23°C) | GPa | 44.67 |
| Flexural Strength (at 23°C) | MPa | 578 |
| Flexural Modulus (at 23°C) | MPa | 5.69 |
| Izod Impact Strength (at 23°C) | J/m | 229.8 |
| Flammability (UL 94) | Classification | UL 94 V-0 |
| Flammability (UL 94) Total burning time | Sec | 3 |
| Tg, (DSC, 10K/min) | °C | 109 - 116 |

**Resin content 50% pbw and 58% pbv

## Shelf Life

| | |
|---|---|
| Room temperature (23ºC) | > 6 weeks |
| Refrigerated (-18ºC) | 12 months |

## Handling

Customers should ensure appropriate workplace OH&S guidelines are followed when working with this product. Appropriate measures should be taken to avoid contact with skin and eyes. Avoid inhalation of dust or fumes that may be released or created when machining, cutting or curing.



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