



CEL100-1

Cyanate Ester Component Prepreg

Introduction

CEL100-1 is a cyanate ester prepreg designed to cure at low temperatures, whilst producing durable components with excellent high temperature performance. It can be supplied on a variety of fabrics to meet your cost and manufacturing requirements.

Typical applications: *High service temperature – Aerospace / Motorsport*

Key Features & Benefits

- Cure temperature from **70°C** to **90°C**
- Service temperature up to **290°C** and localised exposure up to **320°C** after post cure
- Low CTE and shrinkage
- Work life at 20°C: **2 days**
- Storage life at -18°C: **6 months**
- Very low VOC content – no added solvents during manufacture
- **High service temperature**

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.

Important Note:

If bags are opened before fully cured, condensation may form on the material. Cyanate ester prepreps may react with moisture, which can affect the curing reaction and cause voidage. Great care must be taken to avoid contact with water. Thoroughly dry all tooling and fixtures before commencing lay-up.



Cure Cycles & performances

- Recommended Initial cure:
 - **70°C for 22h**, at a ramp rate of **0.5°C/min**
- Recommended Post cure:
 - 1st dwell at **250°C for 2h**, at a ramp rate of **0.3°C/min**
 - 2nd dwell at **300°C for 2h**, at a ramp rate of **0.3°C/min** (where required for high Tg)

Note: may produce charring and reduce service life

CURE CYCLE OPTIONS:

Temperature		Duration	Tg
70°C	(minimum)	22 hours	80°C
80°C		11 hours	90°C
90°C	(maximum)	6 hours	100°C
250°C	Post Cure	2 hours	250°C
300°C	Post Cure	2 hours	300°C

Important Note:

It is recommended that post curing is carried out immediately after initial cure. This will remove the risk of performance degradation due to moisture absorbance.

- 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).

Cured Material Properties

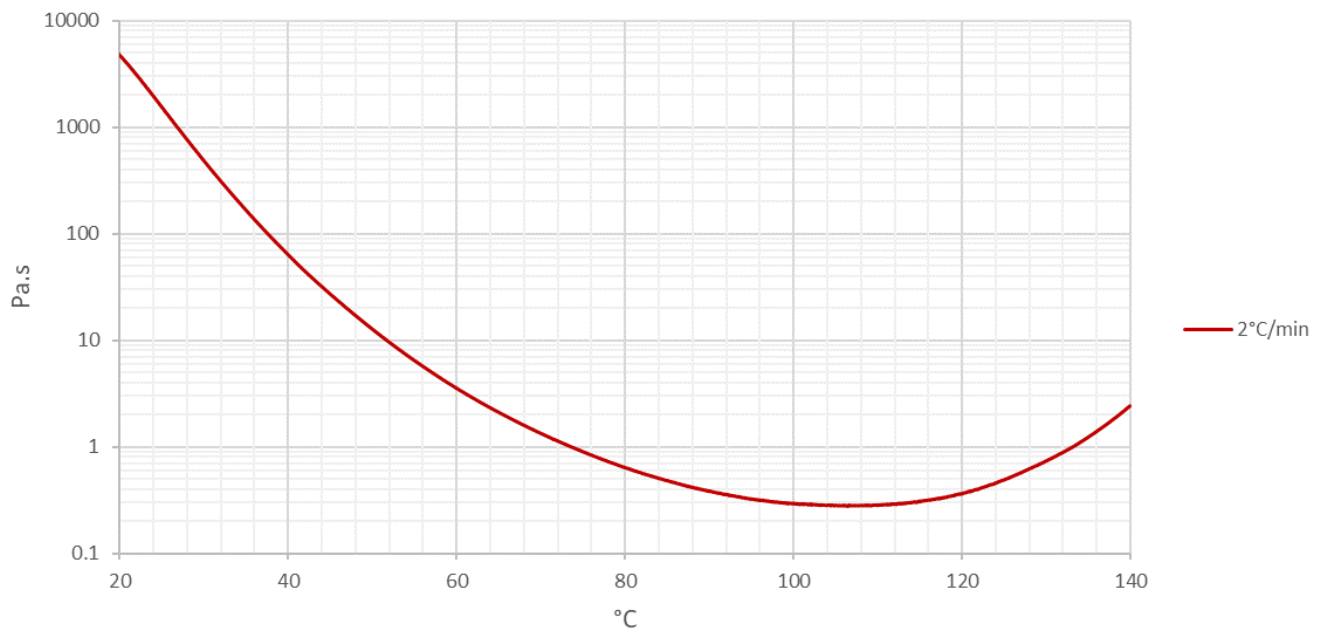
Test	Results		Standard
DMA	Tg – Storage Modulus Onset	296 °C	ASTM D7028
	Tg – Tan δ Peak	311 °C	

Data obtained after a 300°C, 2h post cure.



Viscosity Profile

Testing carried out using a rotational rheometer.



Health and Safety

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

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