

Introduction

Crestafire® P1-8003 is designed for where fireproof performances and natural origins are key to the final product.

- It is derived from sugar cane waste and therefore bio sourced without affecting the planet resources dedicated to animal or human being consumption.
- It is capable of rail EN45545-2 standard highest HL3 requirement performances.
- It can be combined with Scott Bader gelcoat.
- Due to its inherently excellent fire, smoke & toxicity properties (FST), the product can be used in the most demanding FST applications in the railway, building & construction and other public transport industries.
- Crestafire® **P1-8003** is halogen free, does not contain heavy metals. Resin system colour is dark brown / black.

Applications

Crestafire® **P1-8003** has been designed for use in hot cure, closed moulding techniques and is typically used in non-structural or semi-structural components.

The reticulation process is similar to phenolic resins, with a better mould turnaround time and a better aspect of parts once out of the mould depending on curing profile.

Features and benefits

Crestafire® **P1-8003** key features are:

- 100% Plant-based resin
- VOC-free
- Inherently fire resistant with very low flammability and low smoke release properties
- Low toxicity and emissions for improved operator health and safety
- Low environmental impact
- High Tg and stiffness
- Similar mechanical properties to conventional phenolic resins
- Low water uptake in composite applications
- REACH compliant polymer
- Short processing/cycle times and cure temperature as low as 80°C possible
- Compatibility with natural and mineral fibres (e.g., Flax, Hemp, Sisal, Jute, Kenaf, wood-cellulose based fibres such as Rayon, recycled carbon fibre, E-glass)
- Compatibility with Scott Bader Crystic® and Crestafire® gelcoats.
- Room temperature long time storage

Typical properties

Property	Unit	Liquid Resin
Appearance	-	Dark Brown
Viscosity at 25°C	mPa.S	300 - 400
Density	-	1.2
pH	-	4 - 6
Stability from date of manufacture when stored in accordance with storage recommendations	Months	6

Property	Unit	Test method standard	Cured Resin
Hardness	Barcol	ASTM D2583	45 - 50
Curing Shrinkage	% by volume	Internal	5 to 6
Deflection temperature under load (1,80MPa)	°C	ISO 75	Over 200
Flexural strength *	MPa	BS EN ISO 527.2 – 1996	60 to 70
Flexural Modulus *	GPa	BS EN ISO 527.2 – 1996	3.2 to 3.7
Tensile modulus *	GPa	BS EN ISO 527.2 – 1996	2.0 to 2.8

Catalyst cure system and Pot life

Typical cure profile for infusion process is shown below. The catalysts should be added to the resin using a medium/high shear mechanical stirrer to ensure thoroughly dispersion within the resin.

Parts resin	S-type+ (65% wt Para toluene sulfonic acid)	H3PO4 (85% wt Phosphoric acid)	Potlife at 25°C (min)
100	1	4	40 - 50

Typical curing time should be 2 to 3 hours at 50°C following by 1 hours at 60°C and then 3 hours at 80°C.

An additional curing of 3 hours at 110°C is recommended to ensure full performances of the laminate (depending on application).

As soon as the laminate is solidified enough, water must be enabled to escape the laminate, therefore vacuum bags or pressing shall be removed.

Please, consult the safety data sheets for information on safe handling of these catalyst systems.

Note: Scott Bader has a range of catalyst formulations available as well as alternative curing cycles, tailored to suit a variety of applications. The catalyst types and curing cycles suitable are not limited to those listed above, - for more details please seek assistance from our Technical Support Department.

Before use

Crestafire® P1-8003 should be allowed to attain workshop temperature (18°C - 20°C) before use. It requires only the addition of a catalyst to start the curing reaction. The catalyst should be thoroughly incorporated into the resin, using a low shear mechanical stirrer where possible.

Additives

The addition of fillers or pigment pastes can adversely affect the properties of the cured laminate. Users should seek advice from our Technical Support Department before making any additions.

Storage

Crestafire® P1-8003 should be stored between 5°C and 25°C in the original, unopened container in a dry, well-ventilated place. Protect from freezing and direct sunlight. Avoid contact with oxidising agents. If stored outside of these recommendations, shelf life will be significantly reduced.

Packaging

Crestafire® P1-8001 is supplied in 27kg plastic kegs, 240kg drums & 1100kg containers.

Health and safety

Please see separate Safety Data Sheet.