

Introduction

Crestafire® P1-3001PA is a filled, pre-accelerated, fire retardant unsaturated polyester resin. It incorporates a selected grade of Alumina Trihydrate (ATH) which makes it suitable to produce laminates where excellent resin flow, fire retardancy and low levels of smoke & toxic fumes are required.

Crestafire® P1-3001PA is halogen free and does not contain heavy metals.

Approvals

Cured laminates produced with Crestafire® P1-3001PA and gelcoat Crestafire® GCS 1001PA can achieve a rating of **HL2 - R1/R7/R10/R17** according to rail standard EN45545-2:2013.

Applications

Crestafire® P1-3001PA is suitable for use in handlay, contact molding and closed mould applications, including RTM and Vacuum infusion processing techniques. Due to its excellent fire, smoke & toxicity properties, the product can be used in the most demanding applications in the railway, building & construction, and other public transport industries.

Typical properties

Property	Unit	Liquid Resin
Appearance	-	Mauvish pink bit free resin
Viscosity (cone & plate 0-5P) 25°C	Poise	4 - 6
Stability from date of manufacture when stored in accordance with storage recommendations	Months	3

Property	Unit	Cured Resin	Post cured resin (**)
Barcol Hardness	-	48	55
Heat Deflection Test (†)	°C	54.5	78.4
Water Absorption	Mg	17.55	16.25
Tensile strength	MPa	31.9	34.23
Tensile Modulus	GPa	6.64	8.33
Elongation at Break	%	0.63	0.53

**: Curing Schedule – 24 hours at 20°C, 3 hours at 80°C

†: Curing Schedule – 24 hours at 20°C, 5 hours at 80°C, 3 hours at 120°C

Typical properties on a laminate

Property	Unit	Cured CSM	Post cured CSM (**)
Glass content	%	28.6 (*)	28.6 (*)
Tensile Strength	MPa	112.72	110.51
Tensile Modulus	GPa	10.41	12.30
Elongation at Break	%	1.86	1.89
Flexural Strength	MPa	189.25	184.31
Flexural Modulus	GPa	7.99	9.01

*: Made with 4 layers 450gsm CSM

** : Curing Schedule – 24 hours at 20°C, 3 hours at 80°C

NOTE: the results above are issued from Scott Bader R&D laboratory, Customer testing with different laminate lay-up and manufacturing process may give different results.

Pot life

The gelltimes that can be achieved with Crestafire® P1-3001PA depend on the level of catalyst added and the temperature of the resin.

Ambient temperature	Gelttime in minutes using MEKP 50% catalyst		
	1.0%	1.5%	2.0%
15°C	62 min	57 min	58 min
20°C	43 min	37 min	35 min
25°C	27 min	23 min	22 min
30°C	17 min	13 min	11 min

Before use

Crestafire® P1-3001PA is a filled, pre-accelerated resin and must be thoroughly stirred and allowed to attain workshop temperature (18°C - 23°C) before use. It requires only the addition of a catalyst to start the curing reaction. The recommended catalyst is a medium reactivity MEKP type catalyst and should be thoroughly incorporated into the resin, with a low shear mechanical stirrer where possible. When an RTM machine is used the catalyst is added into the resin via the injection equipment.

Acetyl acetone peroxide type catalysts can also be used when faster demould times is required - for more details please seek assistance from our Technical Support Department.

Additives

Crestafire® P1-3001PA is filled with a special grade of Alumina Trihydrate (ATH) to provide good resin flow in closed mould systems and give excellent fire, smoke & toxicity properties. It incorporates anti-settling additives to minimise filler settlement during storage and promote good filler dispersion in the resin.

Post curing

For optimum properties, laminates should be post cured before being put into service. The laminate should be allowed to cure for 24 hours at 20°C, and then be oven cured for 16 hours at 40°C or 3 hours at 80°C.

Storage

Crestafire® P1-3001PA 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® P1-3001PA is supplied in 25kg, 225kg containers.

Health and safety

Please see separate Safety Data Sheet.

