Ecopreg Glass/PFA 300g/m^2 2x2 twill
Preliminary Technical Data Sheet
November 2013

Introduction

Ecopreg PFA prepregs are a range of sustainable, pre-impregnated composite materials based on PFA (Polyfurfuryl Alcohol) bioresin. PFA is a thermosetting bioresin derived from hemicellulose crop waste such as sugar cane bagasse and is similar in nature to a phenolic resin. Aside from its environmental credentials, PFA has fire retardant properties equivalent to phenolics, as well as excellent chemical resistance and temperature resistance.

The prepregs can be supplied with a range of reinforcement fibres, including woven glass and flax as standard, and other fibre types (e.g. carbon, basalt, jute) and fabric constructions (e.g. unidirectional, multiaxial) on request.

The materials offer a combination of light weight, high mechanical properties, excellent fire retardant properties and low environmental impact. The prepregs can be consolidated by vacuum bagging, autoclave or press moulding and are designed for a range of applications in mass transport, aerospace, furniture and construction.

Resin Properties

Typical properties of the PFA resin:

PFA resin properties	
Density	1.24g/cm^3
Max service temperature	>200°C
Tensile modulus	2.8GPa
Tensile strength	29.2MPa
Tensile strain at break	1.2%

Reinforcement Specifications

Typical specifications for standard reinforcement fabrics (others available on request):

Fabric specifications	Standard	On request
Fibre type	Glass	Others (carbon, basalt, jute etc.)
Fibre density	2.56g/cm^3	Depends on fibre type
Fabric construction	2x2 twill	Others (plain, satin, UD, biax etc.)
Areal weight	300gsm	200-1000gsm
Width	600mm	Up to 1250mm

Prepreg Specifications

Typical specifications for Ecopreg PFA (others available on request):

Prepreg specifications	Standard	On request
Resin content (by weight)	40%	30-60%
Cured ply thickness	0.2mm	0.1-1.0mm
Consolidated density	1.80g/cm^3	

Processing

Ecopreg PFA prepregs can be processed using standard techniques including vacuum bagging, autoclave and press moulding. Typical curing cycle 140°C for 30 minutes. More details available on request.

Composite Properties

Typical properties of composite laminates made from Ecopreg PFA:

Property	Ecopreg Glass/PFA laminate* (0 dir)	Test Method
Fibre content by vol	42%	
Density	1.80g/cm^3	
Tensile modulus	26GPa	ISO 527-4
Tensile strength	360MPa	ISO 527-4
Tensile elongation	1.8%	ISO 527-4
Flexural modulus	20.7GPa	ISO 14125
Flexural strength	384MPa	ISO 14125
Charpy impact	340kJ/m^2	ISO 179-1 U
UL94 fire rating	V-0	UL94-V
Euroclass fire rating (predicted)	A2/B	Predicted from cone calorimeter ISO 5660

*Data for press moulded laminates made from Ecopreg PFA prepregs with 300gsm 2x2 twill woven reinforcements

Packaging

The prepreg is typically delivered on 3” diameter cardboard cores, with release film and wrapped in polythene film. Other packaging options are possible on request. Orders for multiple rolls are typically packed on a standard wooden pallet and covered with stretch wrap.

Storage

As with other prepreg materials, Ecopreg PFA should ideally be stored in a freezer (e.g. -18°C), although they do have a shelf life of approximately 1 month at ambient temperature (20°C). Following removal from cold storage, allow prepreg to reach room temperature before opening the polythene bag, to avoid moisture condensation. Typically the thaw time for a full roll of material will be 4 to 6 hours.

Safety

Ecopreg PFA prepregs are based on renewable biomass and have fewer health and safety concerns than many conventional alternative materials. However, typical precautions should be taken when handling the material including using appropriate PPE and adequate ventilation. See MSDS for details.

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.