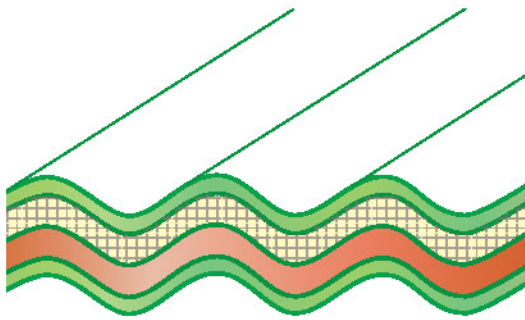


SPACE™ STAR-LITE Series

Fire Retardant Grade

SPACE™ STAR-LITE Series is a specially formulated fire retardant FRP translucent sheet developed for commercial and industrial structures requiring good natural lighting, combined with the need for fire retardant roofing and building materials. This special fire retardant formulation has been conformed with relevant standards. Tested and backed by a 25 year performance warranty.



- Garware UV Polyester Film**
 - Bondable & non peelable • UV protected
 - Glossy lamination protect surface delamination & prolong material lifespan
- E-Glass Chopped Strand Mat**
 - High impact resistance & tensile strength
 - Easy profiling • Even Thickness
- Epoxy Vinyl Ester Resin + Light Diffuser Additive**
 - Excellent flame retardant • Diffuse light evenly
- Garware Standard Polyester Film**
 - Bondable & non peelable • Allow profile stability
 - Glossy lamination protect surface delamination & prolong material lifespan



Proven excellent fire retardant and self-extinguishing requirements



Filters almost 99% of the harmful ultraviolet rays



Big savings in energy costs



Excellent reflection of solar heat and reducing heat transmission



No direct sunlight "shading or spotting" effect



Resistant to numerous kinds of chemicals



Easy installation and maintenance



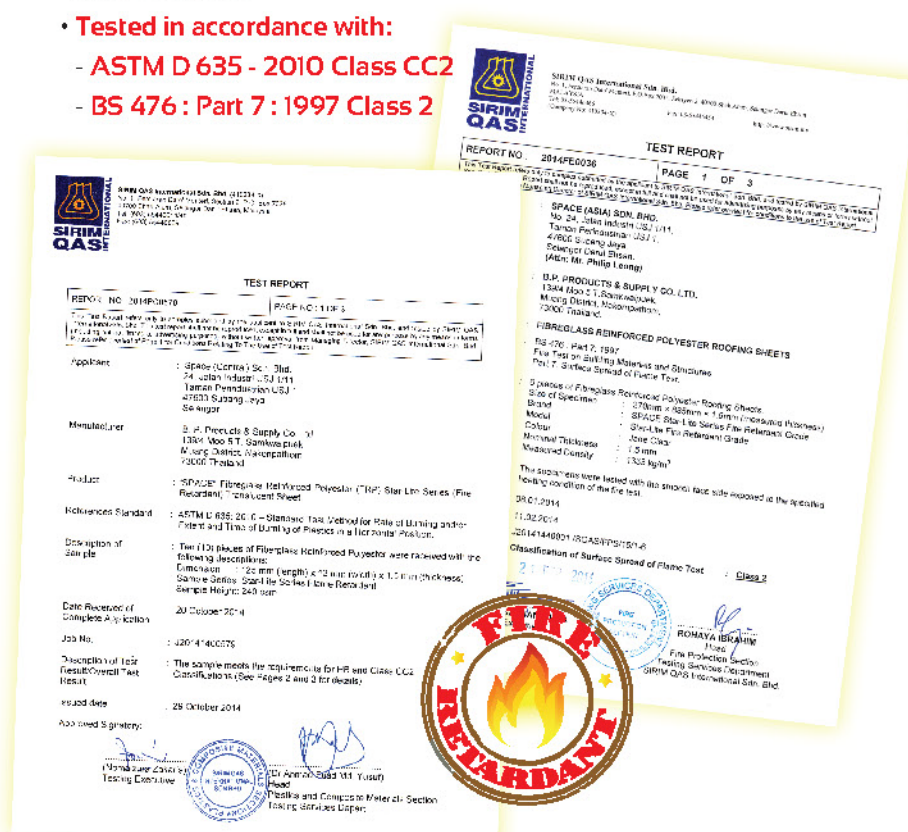
Long lasting, strong and durable



25 year warranty

Highly flame retardant to slow down fire spreading and self extinguishing

- Epoxy Vinyl Ester Resin System
- To prevent flame spreading over sheet
- Self-extinguishing properties
- Heat & UV resistant protection
- Allows transmission of natural light into the interior of a building while providing fire retardant features at minimal additional cost
- Tested in accordance with:**
 - ASTM D 635 - 2010 Class CC2**
 - BS 476 : Part 7 : 1997 Class 2**



PRODUCT SPECIFICATIONS

Description:

SPACE™ Star-Lite Fire Retardant Fibreglass Reinforced Polyester Translucent Sheet.

Surface Coating:

Top: Garware UV Polyester Film.

Weather surface polyester film incorporates UV inhibitors and offers protection against early yellowing and degradation of surface of the sheet.

Bottom: Garware Standard Polyester Film.

Weather surface polyester film incorporates profile stability properties.

E-Glass Chopped Strand Mat:

Reinforced with high quality E-glass chopped fibre strand mat that has the ingredient of high quality binder which acts as the interlink for their own strength and has a good ability to extend and shrink according to the weathering condition.

Resin System:

Epoxy Vinyl Ester Resin provide superior toughness with excellent fatigue resistance due to high heat distortion temperature. Light diffuser additive enables distribution of light evenly.

Quality System:

ISO 9001 : 2008 certificate No. 4799

Profile:

Refer to profiles available.

Weight:

2400, 3050, 3600, 4000, 4800 GSM

Other weights are also available on special order.

Thickness (tolerance of +/- 10%):

- 2400 GSM: 1.5mm
- 3050 GSM: 1.9mm
- 3600 GSM: 2.0mm
- 4000 GSM: 2.3mm
- 4800 GSM: 3.0mm

Sheet Length:

Standard sheet length is 11.9M

Other non standard lengths are available subject to minimum order quantity and shipping parameters.

Colours:

JADE Clear and New Classic Opal.

Other colours are available, subject to minimum order quantity and colour pigment availability.

Applications:

- Aerospace & aeronautical industries
- Marine & shipping industries
- Manufacturing industries
- Oil & gas industries
- Power plants
- Refineries
- Treatment plants

PHYSICAL PROPERTIES

Properties	2400 GSM	3600 GSM	Method
Tensile Strength (MPa)	99	126	ASTM D 5083
Impact Strength (KJ/m ²)	65	98	ASTM D 256
Modulus of Elasticity (MPa)	7840	9000	ASTM D 5083
Flexural Strength (MPa)	216	162	ASTM D 790
Specific Gravity at 23°C	1.44	2.16	ASTM D 792
Thermal Conductivity (watt/mK)	0.031	0.040	ASTM C 177
Water Absorption in 24hrs/23°C (%)	0.20	0.28	ASTM D 570

LOAD DEFLECTION PROPERTIES

Properties	2400 GSM	3600 GSM	Method
Load Deflection \leq 15 mm	6.3 mm	3.7 mm	BS 4154 : Part 1 : 1985

LIGHT TRANSMISSION PROPERTIES

Colour	2400 GSM	Method
JADE Clear	64%	ASTM D 1003 - 2007
New Classic Opal	23%	ASTM D 1003 - 2007

SOLAR TRANSMISSION PROPERTIES

Colour	Grammage	Solar Direct Transmittance	Ultra Violet Transmittance	Total Solar Energy Transmittance	Method
JADE Clear	2400 GSM	6.34%	0.01%	0.30	ISO 9050 : 2003

FLAMMABILITY PROPERTIES

Colour	Grammage	Linear Burning Rate	Method
JADE Clear	2400 GSM	9 mm / min	ASTM D 635 - 2010
New Classic Opal	2400 GSM	8 mm / min	ASTM D 635 - 2010

Defination:

A fire retardant is a substance that reduces flammability of fuels or delays their combustion. Fire retardants reduce the flammability of materials by either blocking the fire physically or by initiating a chemical reaction that stops the fire.

Source : http://en.wikipedia.org/wiki/Fire_retardant

ASTM D 635 - 2010 Class CC2:

- 1) The specimens meet the HB Classification requirements
 - The flame front passes the 25 mm reference mark but does not reach the 100 mm reference mark.
- 2) The specimens meet the Class CC2 Classification requirements
 - Plastics materials that have a burning rate of 2.5 inches per minute (1.06 mm/s) or less where tested at a nominal thickness of 0.060 in. (1.5 mm), or in the thickness intended for use in accordance with this test method.

BS 476 : Part 7 : 1997 Class 2:

Class 2: Surfaces of Low Flame Spread.

Those surfaces on which during the first 1½ minutes of test, the mean spread flame is not more than 375 mm and the final spread does not exceed 450 mm.

Source : Uniform Building By-Laws 1984 [G.N. 5178/85] (as st 20th November 2000)