



ALSYNITE PARAPHEN

GLASS REINFORCED PHENOLIC SHEETING



ALSYNITE PARAPHEN® is an Australian innovation, manufactured in Sydney, Australia by Alsynite Specialty Products. Years of research and development have generated a specially engineered glass fibre reinforced phenolic sheet material offering superior fire resistant properties to conventional plastics, including fire and smoke related attributes such as:

- ▶ low ignitability
- ▶ minimal smoke production rates
- ▶ no fire propagation characteristics
- ▶ low toxic smoke production
- ▶ minimal heat release rates

These attributes make the product ideal for use as a wall and ceiling lining material in confined spaces.

PARAPHEN® is manufactured using a continuous process to produce either a flat sheet or profiled section. It is easily painted or can be supplied with an integral high performance graffiti and chemical resistant Tedlar® film finish.

Composite panels incorporating **PARAPHEN®** have been engineered for customer specific applications in marine, rolling stock and infrastructure projects such as secondary wall linings. All products are backed by extensive fire testing to the appropriate local and international regulatory requirements including reaction to fire tests, fire resistance tests, smoke and toxicity tests, and the International Maritime Organisation's FTP code tests.

KEY FEATURES

- ▶ Excellent Fire Protection
- ▶ High Strength Characteristics
- ▶ Low Electrical Conductivity
- ▶ Low Thermal Conductivity
- ▶ Low Heat Transmission
- ▶ Chemical Resistant
- ▶ Impact Resistant
- ▶ Easily Painted
- ▶ Available as a Profiled Sheet
- ▶ Easily Bonded and Framed
- ▶ Easily Machined and Cut
- ▶ Project-Specific Warranties

PARAPHEN PHYSICAL PROPERTIES

Thermal Properties

The thermal expansion of phenolic sheet is similar to steel and commonly used alloys. This reduces the risk of differential movement when used with metal frames or panels in service. Heat transmission is low.

Thermal Properties Of Phenolic Composites	
Coefficient of Linear Thermal Expansion (0-200°C)	5 to 15x10 ⁻⁵ C ⁻¹
Thermal Conductivity	0.20-0.24 W/m.K
Heat Distortion Temperature	>250°C

Strength To Weight Ratio

When compared with other 'fire retardant' systems which use mineral fillers or metal structures, phenolic composites can be up to 40% stronger and lighter.

GENERAL BENEFITS

In a country prone to catastrophic bushfires and other fire categories, the newly released ALSYNITE PARAPHEN Glass Reinforced Phenolic Sheet provides a timely solution for those designers and manufacturers looking to minimise fire dangers and to maximise fire safety.

Here at last is a wall of fire-retardant phenolic sheet which can be easily integrated or retrofitted to meet a wall of fire. Low ignitability. Safer egress. Smoke suppression. Non propagation. Low heat release. These are some of the immediate benefits!

Alsynite Phenolic Sheet is available PROFILED in a weight of either 1800, 2400 or 3000 g/m².

It is also available FLAT in a thickness of either 1mm, 1.5mm or 2mm featuring a maximum width of up to 1220mm. Long lengths are available on application.



A Cone Calorimeter testing unit



IMO A.653 (16) Fire Hazard Test conducted at CSIRO



Alsynite Phenolic Based Glass Reinforced Sheet is an all-purpose flat or profiled fire-retardant lining product which achieved the following results (to July 2004) in Spread of Flame Toxicity Test. Alsynite's testing programme continues. Results will be posted on the Alsynite website.

SPREAD OF FLAME AND TOXICITY TEST	
IMO Resolution A.653 (16)	Approved for use in confined spaces
ISO 5660 Part 1 & 2	Cone Calorimeter Fire Test
AS/NZS 3837	Cone Calorimeter Fire Test
BCA C1.10A	Group 1 Classification
AS 3959	Bush Fire Prone Areas
AS 1530.3	Results 0,0,0,1

FIRE PERFORMANCE OF PARAPHEN

Key Parameters

- Does not propagate or spread flame
- Low smoke generation, toxic fumes or flammable vapours produced
- Does not contribute to developed fire
- Low fire load and heat release
- A large proportion of structural integrity is retained during and after a fire

Ignitability

- Material does not ignite easily

Smoke Generation

- Paraphen does not generate toxic fumes
- Helps prevent loss of life in a fire

GENERAL INFORMATION

- CHEMICAL RESISTANCE:** Good, in selected environments. Resistant to oils, petrol, aromatic solvents, non-oxidising acid and water. NOT suitable for oxidising materials.
- NATURAL COLOUR:** Light orange with white swirls.
- SURFACE OPTIONS AVAILABLE:** On application.
- PAINTING:** May be painted with acrylics, epoxies and urethanes. Consult Alsynite to ensure fire performance is not degraded.
- BONDING:** Most common bonding agents (eg. silicones, epoxies, phenolics etc.) are suitable. Take care not to degrade fire performance by bonding agent or substrate.
- CUTTING & FABRICATION:** Can be easily cut and trimmed on-site using conventional tools. Normal precautions against dust inhalation are recommended.
- TOXICITY:** Generally non toxic. (Special treatment needed if required for storage of drinking water).

Typical Results For 'Ignitability' Of Phenolic Composites

TEST	RESULT
Oxygen Index ASTM D2863	>55%
Temperature Index	>420°C
Small Flame Ignition Source	VO (no ignition)

Summary Of Fire Performance Of Composites

	Resistance to Flame Spread	Burn Through Resistance	Structural Integrity Retention	Low Smoke Production
Phenolic Resin	Excellent	Good	Good	Good