

Ai Panel™ Product Data Sheet

Ai Panel™ & variant *Ai Panel.Gloss™* – pre-finished metal sheeting having colour finish not exceeding 1 mm – is 100% fire-compliant to Australian National Construction Code (NCC) 2019 (Amdt.1) Volume 1 C1.1(b), C1.9(a) & (e)(v), C1.10(a)(ii) & (viii), C1.14(a), A5.5(2), Schedules 3 & 6, and Volume 2 at 3.7.1.1(e), permitted to use in any Class 1 to 10 buildings of any Type A to C constructions as non-combustible building elements and their components, ancillary elements, internal linings, materials, assemblies and attachments to ceilings, non-loadbearing internal walls, common walls, and external walls.

Delivered as flat sheet with protective laminated films on both sides, approx. 98% of *Ai Panel™* & *Ai Panel.Gloss™* consists of 5052-marine grade solid aluminium alloy dosed with approx. 2.5% magnesium and 0.25% chromium.

Coated with SAS colours and finishes and H32 tempered, *Ai Panel™* & *Ai Panel.Gloss™* has excellent cold machinability, workability, corrosion resistance, fire resistance and low density, ideal for architecture, shopfitting, signage and other general sheet metal work non-loadbearing applications.

Architects, builders, installers, shopfitters and signage providers are requested to use the following information and independently ascertain material suitability for their requirement.

Typical Ai Panel Compositions

Layer	Thickness t mm	Layer Detail
1	≥ 0.025	Polyvinylidene fluoride (PVDF) matte coating – <i>Ai Panel™</i> ; Fluoroethylene vinyl ether (FEVE) gloss coating – <i>Ai Panel.Gloss™</i>
2	≥ 0.025	Polyester paint finish
3	≥ 0.005	Polyurethane resin undercoat
4	1.6 or 2 or 3	5052-grade H32-tempered aluminium alloy panel
5	≥ 0.005	Polyurethane resin undercoat

5052 Solid Aluminium Alloy Chemical Compositions

Element	%	Element	%
Aluminium Al	Balance	Copper Cu	0.10 max
Magnesium Mg	2.2 – 2.8	Manganese Mn	0.10 max
Chromium Cr	0.15 – 0.35	Zinc Zn	0.10 max
Silicon Si	0.25 max	Others, each	0.05 max
Iron Fe	0.40 max	Others, total	0.15 max

Mechanical Properties

Temper	0.2% Proof Stress	Tensile Strength	Elongation
H32	>160 MPa	215 – 265 MPa Thickness dependent	4 – 10 % Thickness dependent

Physical Properties

Property	Value	Property	Value
Density @ 20°C	2,680 kg/m³	Melting Range	607 – 650 °C
Modulus of Elasticity @ 20°C – Tension	69.3 GPa	Thermal Conductivity @ 25°C	138 W / m °C
– Torsion	25.9 GPa	Coefficient of Linear Expansion @ 20°C	23.75 x 10 ⁻⁶ / °C
– Compression	70.7 GPa	Electrical Resistivity @ 20°C	0.05 micro-ohm.m

Combustibility Test Results – based on NCC provisions

Test	Description	Result <i>Ai Panel™</i> & <i>Ai Panel.Gloss™</i>	Applications <i>Ai Panel™</i> & <i>Ai Panel.Gloss™</i>
AS 1530.1-1994	Combustibility test on building materials, components, and structures	Material not deemed combustible	Permitted to use as non-combustible building elements, their components & ancillary elements
AS 1530.3-1999	Simultaneous determination of ignitability, flame propagation, heat & smoke release	Ignitability Index 0 Spread of Flame Index 0 Heat Evolved Index 0 Smoke Developed Index 1	Together with AS 1530.1, permitted to use as non-combustible pre-finished metal sheeting having a combustible finish not exceeding 1 mm thickness
AS 5637.1-2015	AS 3837-1998 tested for heat & smoke release rate for materials & products using an oxygen consumption calorimeter	Group 1 Material	Permitted to use as internal linings, materials, assemblies and attachments to floors, ceilings, internal walls, common walls, external walls

Notes on Workability

Fabrication	Machinability
Not hot worked. Very readily cold formable. For piercing and blanking, punch to die clearance should be about 7% of the thickness. Sharp tools are required. Bending radii = 1 to 1.5t.	Readily machinable by conventional methods. Machine and cut at high and continuous speed with sharp tools of steel or tungsten carbide, and copious lubrication.

Panel Weight

2400 x 1200 x 1.6 mm	3600 x 1200 x 1.6 mm	3000 x 1500 x 1.6 mm	-	-
12.49 kg	18.73 kg	19.51 kg	-	-
2400 x 1200 x 2 mm	3600 x 1200 x 2 mm	3000 x 1500 x 2 mm	4000 x 1500 x 2 mm	-
15.61 kg	23.41 kg	24.39 kg	32.16 kg	-
2500 x 1250 x 3 mm	3200 x 1250 x 3 mm	4000 x 1250 x 3 mm	3200 x 1500 x 3 mm	4000 x 1500 x 3 mm
25.61 kg	32.41 kg	40.51 kg	39.39 kg	48.27 kg

Note: Indicative of average panel weight.

Linear Thermal Expansion

1200 mm length @ 5 °C change	1200 mm length @ 10 °C change	1200 mm length @ 25 °C change	1200 mm length @ 50 °C change
0.1425 mm	0.2850 mm	0.7125 mm	1.4250 mm
2400 mm length @ 5 °C change	2400 mm length @ 10 °C change	2400 mm length @ 25 °C change	2400 mm length @ 50 °C change
0.2850 mm	0.5700 mm	1.4250 mm	2.8500 mm
3600 mm length @ 5 °C change	3600 mm length @ 10 °C change	3600 mm length @ 25 °C change	3600 mm length @ 50 °C change
0.4275 mm	0.8550 mm	2.1375 mm	4.2750 mm

Note: Calculated based on Coefficient of Linear Expansion @ 20°C = $23.75 \times 10^{-6} / ^\circ\text{C}$.