

SmartPly OSB2

SmartPly OSB2 is an engineered, load-bearing panel designed for use in both structural and non-structural applications in dry conditions. It is a versatile, strong and cost-effective panel. Manufactured in accordance with EN 300 performance standard, it is ideal for furniture, packaging, pallet tops, garden sheds, boarding up, van fit-outs and other similar applications.



Quality and Environmental Certification:

SmartPly OSB is manufactured in accordance with the requirements of EN 300: Oriented Strand Boards (OSB) – *definitions, classification and specifications*.

SmartPly OSB is CE marked in accordance with the harmonised standard EN 13986: *Wood-based panels for use in construction – characteristics, evaluation of conformity and marking*. This standard is a technical specification for wood-based panels which implements the provisions of the Construction Products Regulation (CPR) formerly the Construction Products Directive (CPD). In addition to the CE mark, SmartPly OSB panels are marked 2+ Structural for ease of reference.

SmartPly OSB2 is certified by the Irish Agrément Board (IAB) and KOMO for use in construction and other applications. Due to this certification it is permitted for structural use when

used in accordance with the requirements of the Building Regulations in the country of use.

SmartPly has achieved I.S. EN ISO 9001:2008, the internationally recognised quality management system which is certified by the National Standards Authority of Ireland (NSAI).

SmartPly has Forest Stewardship Council (FSC) Chain of Custody certification for its manufacturing, processing, sales and distribution processes.

SmartPly operates under an Integrated Pollution Prevention Control (IPPC) licence, which is monitored by the Environmental Protection Agency (EPA) in Ireland.



Specification and Design: As design values can vary between manufacturers, it is important to ensure that the SmartPly OSB2 panels specified by the designer are those used on site. All SmartPly panels are clearly marked with the following information:

- (a) Major axis (length of panel, direction of laying arrows)
- (b) Production identification number
- (c) Product Certification mark (e.g. IAB)
- (d) CE marking
 - i. Manufacturer's name / Logo (SmartPly)
 - ii. Notified body identification number
 - iii. Quality standard (EN 300, EN 13986)
 - iv. Panel type (e.g. OSB2)
 - v. Thickness (e.g. 18mm)
 - vi. Formaldehyde class (e.g. E1)
- (e) Additional marking for ease of reference (e.g. 2+ Structural)
- (f) FSC certification

Note: Markings may vary depending on product type.

Suitability: EN 300 classifies OSB panels by their properties which relate to their intended use. SmartPly OSB2 is classified as a load-bearing panel for use in dry conditions.

Structures comprising SmartPly OSB2 should be assigned to service class 1 as defined in EN 1995-1-1 (Eurocode 5). According to this standard, SmartPly OSB2 is suitable for use in this service class.

Moisture conditions can affect the performance of wood-based panels. Therefore, it is important that the correct type of OSB is specified for a particular service class. Always check current regulations specific to the country of use.

As well as conditions in service, consideration must also be given to the construction phase where high levels of moisture or humidity often exist. Consideration should also be given to end-use applications that may be at risk of short-term wetting, such as from burst water pipes or leaking appliances. In such conditions SmartPly strongly recommends the use of OSB3.

According to EN 300, SmartPly OSB2 is suitable for use in Use class 1 of EN 335.



Table 1 Mechanical and physical properties of SmartPly OSB2

Mechanical properties	Test method	Unit	Requirement		
Panel thickness	—	mm	6-10	11-17	18-25
Density	EN 323	kg/m ³	≥ 600	≥ 600	≥ 600
Mean density tolerance	EN 323	%	+/- 15	+/- 15	+/- 15
Bending strength (MOR) - major axis	EN 310	N/mm ²	≥ 22	≥ 20	≥ 18
Bending strength (MOR) - minor axis	EN 310	N/mm ²	≥ 11	≥ 10	≥ 9
Modulus of elasticity (MOE) - major axis	EN 310	N/mm ²	≥ 3500	≥ 3500	≥ 3500
Modulus of elasticity (MOE) - minor axis	EN 310	N/mm ²	≥ 1400	≥ 1400	≥ 1400
Internal bond	EN 319	N/mm ²	≥ 0.34	≥ 0.32	≥ 0.30
Swelling in thickness 24h	EN 317	%	≤ 20	≤ 20	≤ 20
Formaldehyde release - perforator value	EN 120	mg/100g	≤ 8.0 (E1)	≤ 8.0 (E1)	≤ 8.0 (E1)
Moisture content - ex works	EN 322	%	2-12	2-12	2-12
General tolerances	Test Method	Unit	Requirement		
Length	EN 324-1	mm	+/- 3.0	+/- 3.0	+/- 3.0
Width	EN 324-1	mm	+/- 3.0	+/- 3.0	+/- 3.0
Thickness (un-sanded)	EN 324-1	mm	+/- 0.8	+/- 0.8	+/- 0.8
Thickness (sanded)	EN 324-1	mm	+/- 0.3	+/- 0.3	+/- 0.3
Edge straightness	EN 324-2	mm/m	+/- 1.5	+/- 1.5	+/- 1.5
Squareness	EN 324-2	mm/m	≤ 2.0	≤ 2.0	≤ 2.0
Building physics calculation values	Test Method / Reference standard	Unit	Calculation value		
Water vapour resistance factor (μ-value)	EN 12524 EN 13986	—	30 (wet cup μ) / 50 (dry cup μ)		
Reaction to fire (BS)	BS 476-7 AD B 2006	—	Class 3		
Reaction to fire (Euroclass)	EN 13501-1 EN 1398	—	(≥ 9 mm) D-s2,d0 (excluding floorings) (≥ 9 mm) DFL-s1 (floorings)		
Charring rate (β ₀ ,ρ,t)	EN 1995-1-2	mm/min	(≥ 20 mm) 0.78		
Thermal conductivity (λ)	EN 13986	W/(m.K)	0.13		
Airborne sound insulation	EN 13986	dB	R = 13 x lg (m _A) + 14 : (1-3 kHz at m _A >5 kg/m ²)		
Sound absorption coefficients	EN 13986	—	0.10 (frequency range 250 Hz to 500 Hz) 0.25 (frequency range 1000 Hz to 2000 Hz)		
Dimensional change at 1% change in panel moisture content	EN 318 DD CEN/TS 12872	%	Length 0.03	Width 0.04	Thickness 0.7

Structural design of SmartPly OSB2:

BS 8103-3 provides “deemed to satisfy” tables and other structural design guidance to enable supervisory/technical staff of building companies to determine the thickness, type and any limitations of OSB components for floors and roofs of dwellings of limited size. A structural engineer should be employed where the building falls outside the scope of this part of BS 8103. Further technical guidance is provided in the relevant SmartPly product technical data sheets.

Characteristic values for strength and stiffness of OSB2 are given in Table 2 (below). These can be used for limit state designs to EN 1995-1-1 (Eurocode 5). For permissible stress designs to BS 5268, conversion factors are given in BS

5268-2 to convert these characteristic strength and stiffness values into grade strength and stiffness values. The properties listed include bending, tension, compression and shear.

When OSB2 is used structurally under service class 1 conditions, the characteristic values of the mechanical properties given in Table 1 shall apply. To convert these values into design values they should be modified according to EN 1995-1-1 (Eurocode 5) for duration of load (k_{mod} , k_{def}).

Table 2 Characteristic values for strength and stiffness of OSB2:		Taken from BS EN 12369-1		
Property	Designation	Thickness range (mm)		
		>6 - 10	>10 – 18	>18 - 25
Characteristic Strength Properties (N/mm²)				
Bending strength				
Parallel to span	$f_{m,0,k}$	18	16.4	14.8
Perpendicular to span	$f_{m,90,k}$	9.0	8.2	7.4
Tensile strength				
Parallel span	$f_{t,0,k}$	9.9	9.4	9.0
Perpendicular to span	$f_{t,90,k}$	7.2	7.0	6.8
Compressive strength				
Parallel span	$f_{c,0,k}$	15.9	15.4	14.8
Perpendicular to span	$f_{c,90,k}$	12.9	12.7	12.4
Shear strength				
Panel (as a racking panel)	$f_{v,k}$	6.8	6.8	6.8
Planar (as in floor decking)	$f_{v,r,k}$	1.0	1.0	1.0
Stiffness Properties (N/mm²)				
Modulus of elasticity				
Mean, in bending parallel to span	$E_{0,mean}$	4930	4930	4930
Mean, in bending perpendicular to span	$E_{90,mean}$	1980	1980	1980
Mean, in tension and compression parallel to span	$E_{ct,0,mean}$	3800	3800	3800
Mean, in tension and compression perpendicular to span	$E_{ct,90,mean}$	3000	3000	3000
Shear modulus				
Panel (as in a racking panel)	$G_{v,mean}$	1080	1080	1080
Planar (as in floor decking)	$G_{r,mean}$	50	50	50
<u>Notes:</u>				
• $_0$ = in the direction of the major axis.				
• $_{90}$ = in the direction of the minor axis.				
• These properties relate to an equilibrium moisture content of the test pieces conditioned at a temperature of 20°C and a relative humidity of 65%.				
• The 5th percentile characteristic values for stiffness should be taken as 0.85 x the mean values given in the table.				

Important notes: The recommendations provided in this technical data sheet for the correct use of SmartPly OSB2 are specifically designed to ensure longevity and performance of this quality product in service. It is therefore essential that these recommendations are strictly followed. The product is designed to be installed by a competent general builder or contractor, experienced with this type of product. SmartPly Europe Ltd cannot be held responsible for damages arising from non-adherence to these recommendations, or product failures resulting from inadequate structural design or misuse of this product.

In order to provide comprehensive guidance for the correct use of SmartPly OSB2, this technical datasheet makes reference to relevant BS and EN standards. SmartPly Europe Ltd cannot be held responsible for claims arising from the use of any information that has been extracted from such sources.

For further information and/or technical advice please contact your local SmartPly Sales Representative or SmartPly Technical Support Personnel through any of our European offices.

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