DATASHEET

MEDITE® SMARTPLY®
INNOVATIVE TIMBER PRODUCTS

SMARTPLY® MAX

SMARTPLY MAX is a highly engineered, moisture resistant load bearing panel designed for use in humid conditions and is therefore ideal for many structural and non-structural applications in both internal and protected external environments.

Manufactured in accordance with EN 300 performance standard, it is the perfect choice for roofing, flooring, wall sheathing, site hoarding and many other applications where strength and moisture resistance are paramount.

AT A GLANCE > SMARTPLY MAX:

- MOISTURE RESISTANT
- HIGH QUALITY STRUCTURAL PANEL
- HIGH RACKING STRENGTH
- UKCA AND CE MARKED
- NO ADDED FORMALDEHYDE
- FSC® CERTIFIED

www.mdfosb.com

SMARTPLY®
DEFINING THE STANDARD OF OSB

DATASHEET

SMARTPLY® MAX

FEATURES & BENEFITS

- High quality, moisture resistant panel
- Available in Square Edge and Tongue and groove
- No knots or voids
- Manufactured from FSC® certified timber
- High racking strength
- Smooth and consistent quality
- Versatile structural panel
- Manufactured using no added formaldehyde resins

SUITABILITY

EN 300 classifies OSB panels by their properties which relate to their intended use. **SMARTPLY MAX** is classified as follows:

- OSB/3 - load bearing panel for use in humid conditions

Structures comprising **SMARTPLY MAX** should be assigned to service class 1 or 2 as defined in EN 1995-1-1 (Eurocode 5). According to this standard, **SMARTPLY MAX** is suitable for use in both of these service classes.

Moisture conditions can affect the performance of woodbased 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 MAX.

According to EN 300, **SMARTPLY MAX** is suitable for use in Use classes 1 and 2 of EN 335. Furthermore, SMARTPLY's innovative OSB/3 SITEPROTECT (coated hoarding panel) is suitable for use in Use class 3 of EN 335.

SPECIFICATION AND DESIGN

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

a SMARTPLY logo

b UKCA marking
- i. UKCA logo
- ii. Accredited body
- iii. DOP number

c FSC® certification (if applicable)

d CE marking
- i. CE logo
- ii. Notified body
- iii. DOP number

e Relevant Standard (EN13986/EN300) and AVCP level (2+ structural)

f Panel grade (OSB/3 - OSB/4)

g Thickness

h Formaldehyde class (eg - E1)
- i Additional marking:
- i. Date and time stamp
- ii. Main axis arrow
- iii. Product certification (IAB, BBA, WPA, FR BUILD) if applicable

Note: Markings may vary depending on product type.

SMARTPLY® MAX

SIZES

SMARTPLY MAX is available in square edge (SE), tongue and groove 2 (TG2) and tongue and groove 4 (TG4). MAX is available in a variety of sizes, with other sizes available on request (minimum order quantity may apply).

Dimensions	Thickness
2997x1197mm SE	9mm
2697x1197mm SE	9, 11mm
2500x1197mm SE	9mm
2440x1220mm SE	9, 11, 12, 15, 18, 22, 24mm
2397x1197mm SE	9, 11, 18mm

Dimensions	Thickness
2397mmx1200mm TG2	15, 18mm
2440mmx1220mm TG2	15, 18, 22mm
2440mmx590mm TG4	15, 18, 22mm
2400mmx600mm TG4	18, 22mm

SMARTPLY MAX & 'THE GREEN GUIDE TO SPECIFICATION'

'The Green Guide to Specification' provides designers and specifiers with robust information to assist decision-making by translating numerical life cycle assessment data into simple A+ to E scale of environmental ratings, enabling specifiers to make the best environmental choices when selecting construction materials and components. Specifiers using The Green Guide will be aware that OSB/3, of which SMARTPLY is a market leading supplier, consistently scores well for overall environmental impact. Numerous examples are given in the guide where OSB/3 contributes to an overall summary rating for elements of A and A+ and as a result consistently score better than those same elements in which plywood is specified. **SMARTPLY MAX** has been independently assessed by NSAI for compliance to EN 13986:2004 and as a requirement by the Building Research Establishment's Environmental Assessment Method (BREEAM) under section 'Hea 02 Indoor Air Quality' can contribute towards a BREEAM rating / credit.

SMARTPLY® MAX

TABLE 1:
Mechanical and physical properties of SMARTPLY MAX

Mechanical properties	Test method	Unit	Requirement		
Panel thickness	-	**mm**	**6-10**	**11-17**	**18-25**
Mean density tolerance	EN 323	%	+/- 15	+/- 15	+/- 15
Bending strength (MOR) - major axis	EN 310	N/mm²	>22	>20	>18
Bending strength (MOR) - minor axis	EN 310	N/mm²	>11	>10	>9
Modulus of elasticity (MOE) - major axis	EN 310	N/mm²	>3500	>3500	>3500
Modulus of elasticity (MOE) - minor axis	EN 310	N/mm²	>1400	>1400	>1400
Internal bond	EN 319	N/mm²	>0.34	>0.32	>0.30
Swelling in thickness 24h	EN 317	%	<15	<15	<15
Formaldehyde release class	-	-	(E1)	(E1)	(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 ISO 12572	-	150 (wet cup) / 240 (dry cup)		
Reaction to fire (Euroclass)	EN 13501-1 EN 1398	-	(>9 mm) D-s2,d0 (excluding floorings) (>9 mm) DFL-s1 (floorings)		
Charring rate ($\beta_{0,\rho,t}$)	EN 1995-1-2	mm/min	(>20 mm) 0.78		
Thermal conductivity (y)	EN 13986	W/(m.K)	0.13		
Airborne sound insulation	EN 13986	dB	R = 13 x lg (m_s) + 14 : (1-3 kHz at m_s >5 kg/m²)		
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 0.02	Width 0.03	Thickness 0.5

SMARTPLY® MAX

TRANSPORTATION, STORAGE & HANDLING

Careful transportation, storage and handling are important to maintain panels in their correct condition for use. Precautions must be taken during storage, prior to delivery and on site to minimise changes in moisture content of the OSB panels due to weather.

Panels must be stored on dry bases, and packs must be evenly supported on bearers with spacer sticks at regular intervals (depending on panel thickness but max 600cc).

Packs should be sheeted with tarpaulins or other impervious material so arranged to give full cover, but at the same time to permit free passage of air around and through the pack. Care must be taken not to deform stacked panels. Bands should be cut as soon as practical and safe to avoid permanently deforming the panels. During transport and handling it is particularly important to protect edges and corners with suitable coverings to prevent damage from chafing or slings. Where the panels are required to have low moisture contents, it might not be possible to maintain suitable conditions on site other than for short periods, and deliveries must be arranged accordingly.

STRUCTURAL DESIGN OF SMARTPLY MAX

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 MAX are given in Table 2 (below). These can be used for limit state designs to EN 1995-1-1 (Eurocode 5).

When **SMARTPLY MAX** panels are used structurally under Service Class 1 conditions or Service Class 2 conditions, the characteristic values of the mechanical properties given in Table 2 shall apply. To convert these values into design values they should be modified according to EN 1995-1-1 (Eurocode 5) with the relevant factors (kmod, kdef).

SMARTPLY® MAX

TABLE 2:
Characteristic values for strength and stiffness of MAX:

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 to 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 to 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
Mean stiffness values (N/mm²)				
Mean Modulus				
In bending parallel to span	$E_{0,mean}$	4930	4930	4930
In bending perpendicular to span	$E_{90,mean}$	1980	1980	1980
In tension and compression parallel to span	$E_{ct,0,mean}$	3800	3800	3800
In tension and compression perpendicular to span	$E_{ct,90,mean}$	3000	3000	3000
Mean 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

Notes:

- 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.

SMARTPLY® MAX

MOISTURE CONTENT

Moisture content of wood-based panel products varies in accordance with the moisture content of the surrounding environment and is affected primarily by the relative humidity (RH) of the surrounding air. It moves towards and maintains an equilibrium moisture content (emc), i.e. one that is in equilibrium with the surrounding air. This means that the moisture contents of the panel products will vary depending on the situation of use and with time as temperature and humidity conditions change. As required by EN 300, the ex-works moisture content of SMARTPLY OSB panels is in the range of 2 -12 %.

Unconditioned newly manufactured panels can increase in moisture content when installed in a building under construction and subsequently change in moisture content as the building is occupied, heated and dries out, with the consequence of dimensional changes. For guidance purposes it may be assumed that a 1 % change in panel moisture content will cause a dimensional change in panel width, length and thickness as given in Table 1.

CONDITIONING

To minimise dimensional changes, the panels must be conditioned in the service class for the intended use by loose laying or stacking with spacers as appropriate. The length of time allowed for conditioning will vary depending on the panel and the likely condition of use. A minimum period of 48 hours is required but a longer period of up to 1 week is necessary in more extreme conditions. Failure to adequately condition panels can result in buckling of the installed OSB panels.

SMARTPLY® MAX

QUALITY & ENVIRONMENTAL CERTIFICATION

SMARTPLY OSB panels are 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). In addition to the CE mark, SMARTPLY OSB panels are marked 2+ Structural for ease of reference. SMARTPLY OSB is UKCA marked in accordance with the designated standard BS EN 13986.

SMARTPLY OSB panels have technical agreements for Ireland from NSAI and in the UK from BBA. Due to this certification it is permitted for structural use by Homebond (Ireland) and NHBC (UK) when used in accordance with the requirements of the Building Regulations in the country of use. Other quality certification includes KOMO (Netherlands).

SMARTPLY operates under an Integrated Management System (IMS) for Quality (ISO 9001), environment (ISO 14001), Health and Safety (ISO 45001) and Energy (ISO 50001), which is certified by the National Standard Authority of Ireland (NSAI).

All SMARTPLY products are manufactured from Forest Stewardship Council® (FSC®) certified timber.

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

All SMARTPLY products are manufactured using formaldehyde-free resin.

UKCA FSC NSAI Agrément CE KOMO® Cert No. 32685 BBA APPROVAL INSPECTION TESTING CERTIFICATION

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SMARTPLY® MAX

NO ADDED FORMALDEHYDE

SMARTPLY MAX is manufactured using advanced resin technology that results in a high performance, no added formaldehyde panel. This specialist resin formulation provides a supreme bond with the wood strands as it has a reaction with the wood itself, when put under intense heat, creating a chemical weld. This is a different and superior type of bond to the mechanical weld that formaldehyde based products exhibit. Depth of penetration is well beyond the minimum 0.3mm needed for a wood resin to provide adequate adhesive strength. This extra resin penetration also greatly improves the wood's resistance to thickness swell.

EXPLORE OUR SMARTPLY RANGE

For quick reference, see below our table that highlights each product's features and benefits.

PRODUCT	OSB/3	OSB/4*	No added formaldehyde	Available in T&G	Certified Airtight	Low Slip Risk Coating	Pre-cut /Pre-rebated	Primed	Sound Reduction Compliance
SMARTPLY MAX	●		●	●					
SMARTPLY MAX DB	●		●	●					●
SMARTPLY ULTIMA		●	●	●					
SMARTPLY SURE STEP DB	●		●	●	●	●			●
SMARTPLY STRONGDECK		●	●	●					
SMARTPLY AIRTIGHT	●		●		●				
SMARTPLY PATTRESS PLUS	●		●				●		
SMARTPLY SITEPROTECT	●		●					●	

***OSB/4 is approximately 30% stronger and 20% more moisture resistant than OSB/3 making it more suitable for humid and heavy duty load -bearing applications.**

The SMARTPLY OSB range offers an innovative range with added benefits. **SMARTPLY ULTIMA** is an extremely high-performance engineered OSB/4 wood panel, suitable for the most demanding structural applications in offsite manufacturing and construction. Find out more.

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For further information and/or technical advice please contact our dedicated customer service team.

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The recommendations provided in this technical datasheet for the correct use of **SMARTPLY MAX** 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 contractor, experienced with this type of product. **SMARTPLY EUROPE DAC** cannot be held responsible for damages arising from nonadherence to these recommendations, or product failures resulting from inadequate structural design or misuse of this product.

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