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COMPOSITE DECKING: HD PRO PROFILE MATERIAL SAFETY DATA SHEET

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PRODUCT AND COMPANY IDENTIFICATION

Product Information:

Brite Decking HD Pro - Wood-Plastic Composite Decking

Product Usage:

Recommended usage: Used for building materials
Limit usage: None

COMPOSITION / INFORMATION

WPC CORE MATERIAL COMPONENT BY WEIGHT

ITEMS	WEIGHT IN PERCENTAGE
HDPE Particles (Recycle)	30%
Wood Powder	50%
Pigment / Reinforcing Filler	15%
Additives: Antioxidant, Lubricant, etc.	5%

WPC CAPPING MATERIAL COMPONENT BY WEIGHT

ITEMS	WEIGHT IN PERCENTAGE
Modified Polyolefin Plastic	70%
Functional Plastic	25%
Pigment Masterbatch	3%
Additives: Antioxidants, Anti-Ultraviolet Agent, Lubricant, etc.	2%

PHYSICAL PROPERTIES

Density:1307kg/m^3 (ASTM D792-20)

As per client's requirements, with reference to ASTM D792-20, the submitted samples were subjected to the following tests:

Sample Description: Board

Initial Inspection: No any damage was found

Executive Summary:

TEST ITEM	TEST METHOD	TEST RESULT
Density	Test Method: As per client's requirements, with refernce to ASTM D792-20 Distilled water 23±2 °C	1307 kg/m3

STRUCTURAL STABILITY

Concentrated Actions: 29.2Mpa (AS/NZS 1170)

As per client's requirements, with reference to AS/NZS 1170. 1: 2022 Section 3.4 Concentrated Actions, the submitted samples were subjected to the following tests.

Sample Description: Board

Initial Inspection: No any damage was found

Executive Summary:

TEST ITEM	TEST METHOD	TEST RESULT
Concentrated Actions	Test Standard: as per client's requirements, with reference to AS/NZS 1170. 1: 2022 section 3.4 Concetrated Actions Profile Type: Solid Specimen: 520mm x 140mm x 23.3mm Testing Speed: 17.0mm/min Span: 369mm Conditioning and Test Conditions: 23±2 °C, 50±5 %RH	Concentrated Actions: 29.2 MPa

Uniformly Distributed Actions:AS NZS 1170

As per client's requirements, with reference to AS/NZS 1170. 1: 2022 Section 3.4 Uniformly Distributed Actions, the submitted samples were subjected to the following tests.

Sample Description: Board

Initial Inspection: No any damage was found

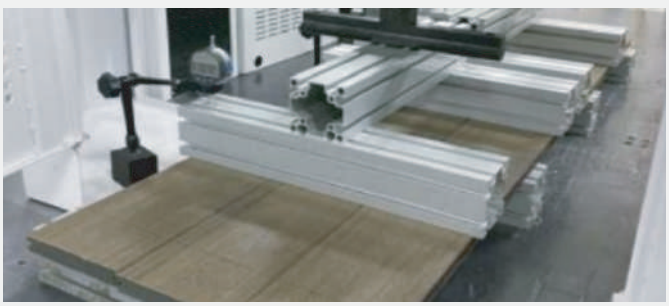
Executive Summary:

TEST ITEM	TEST METHOD	TEST RESULT
Uniformly Distributed Actions	Test Standard: as per client's requirements, with reference to AS/NZS 1170. 1: 2022 section 3.4 Uniformly Distributed Actions Profile Type: Solid Floor Specimen Size: 1508mm x 140mm x 23.3mm Testing Speed: 5mm/min Span: 450mm Conditioning and Test Conditions: 23±2 °C, 50±5 %RH	See Test Data

Test Concluded

TEST NO.	LOAD (kN)	PRESSURE (kPa)	AVERAGE DEFLECTION	FAILURE MODE
1	4.0	20.0	0.65mm	No Failure Observed
2	6.0	30.0	0.92mm	No Failure Observed
3	8.0	40.0	1.19mm	No Failure Observed
4	10.0	50.0	1.46mm	No Failure Observed
5	12.0	60.0	1.74mm	No Failure Observed
6	14.0	70.0	2.03mm	No Failure Observed

Photo Reference



SURFACE PROPERTIES

Slip Resistance (Oil-wet): R11 (AS4586-2013)

As per client's requirements, with reference to AS4586-2013 slip test classification of new pedestrian surface materials: Appendix D, the submitted samples were subjected to the following tests:

Sample Description: Board

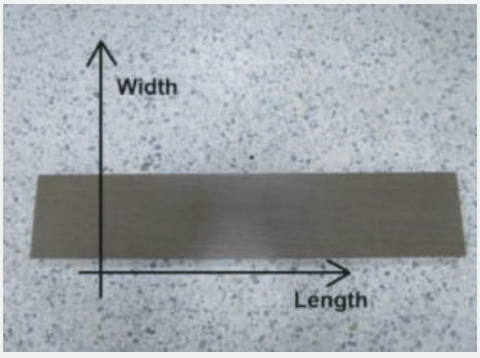
Initial Inspection: No any damage was found

Sample Size: 1005mm x 140mm x 23.3mm

Executive Summary:

TEST ITEM	TEST METHOD		TEST RESULT
	Classifications	**Angle, Degrees**	
Slip resistance (Oil-wet inclining platform test)	No Classifications	<6°	Classification: R11 (Length direction: 19.5° Width Direction: 23°
	R9	≥6° <10°	
	R10	≥10° <19°	
	R11	≥19° <27°	
	R12	≥27° <35°	
	R13	≥35°	

Photo Reference



Slip resistance (Oil-wet): P4/P5 (AS4586-2013)

Slip Resistance (Wet Pendulum Test)

As per client's requirements, with reference to AS4586-2013 slip resistance classification of new pedestrian surface materials: Appendix A, the submitted samples were subjected to the following tests:

Sample Description: Board

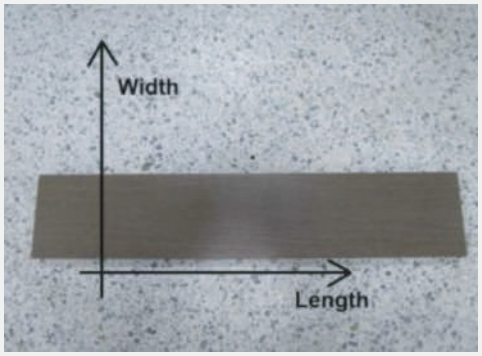
Initial Inspection: No any damage was found

Sample Size: 1005mm x 140mm x 23.3mm

Executive Summary:

TEST ITEM	TEST METHOD		TEST RESULT
	Classifications	**Angle, Degrees**	
Slip resistance (Wet Pendulum Test)	P5	>54	Classification: R11 Length direction: P4 (46 SRV); Width Direction: P5 (55 SRV)
	P4	45 - 54	
	P3	35 - 44	
	P2	25 - 34	
	P1	12 - 24	
	P0	<12	

Photo Reference



Resistance to Scratching:

Rating 1 (EN 438-2:2016+A1:2018 section 25)

Test Item: Resistance to Scratching

Test Method: EN 438-2:2016+A1:2018 Section 15

Conditioning: Condition the test specimen at (23±2) °C and (50±5)% relative humidity for at least 72h

Test Result:

Rating Scale: Rating 1

RATING SCALE	DISCONTINOUS SCRATCHES, OR FAINT SUPERFICIAL MARKS, OR NO VISIBLE MARKS	≥90% CONTINOUS DOUBLE CIRCLE OF SCRATCH MARKS CLEARLY VISIBLE
Rating 5	6N	>6N
Rating 5	4N	6N
Rating 5	2N	4N
Rating 5	1N	2N
Rating 5	-	1N

Abrasion/Wear Resistance: 40.6 (ASTM D4060-19)

Test Item: Abrasion / Wear Resistance

Test Method: ASTM D4060-19

Conditioning: Condition the test specimen at (23±2) °C and (50±5)% relative humidity for at least 24h

Test Condition:

Rotation Frequency: 60 r/min
Abrasive Wheels: CS-17
Load on each wheels: 1000g
Test Revolutions: 1000r

Test Result:

PARAMETER	SPECIMEN 1	SPECIMEN 2	SPECIMEN 3
Mass / Weight Loss, (mg)	41.7	37.0	43.1
Average Value, (mg)	40.6		

Note:

1. Abreviation "r" = revolutions / cycles
2. Test condtions were specified by client

MECHANICAL PROPERTIES

Brinell hardness test: Shore D:66.2 (ASTM D2240-15[2021])

Test Item: Hardness

Test Method: ASTM D2240-15(2021)

Conditioning: Condition the test specimen at (23±2) °C and (50±5)% relative humidity for at least 24h

Test Result:

Average Value:	Shore D: 66.2
Max Value:	Shore D: 68.2
Min Value:	Shore D: 64.2

Flexural Properties: Strength(MOR): 26.8Mpa (ASTM D7032-21) Stiffness(MOE): 3779Mpa (ASTM D6109-19)

Test Items, Methods and Results:

Test Item: Flecural properties

Sample Condition: 40 hours a temperature of at 23±2 °C and relatively humidity of 50±5%

Test Span: 368mm

TEST ITEMS	TEST METHOD	TEST RESULTS
Flexural Properties	ASTM D7032-21 Section 4.4 ASTM D6109-19 Method A	Flexural Strenght (MOR): 26.8MPa Flexural Stiffness (MOE): 3779 MPa

Creep-Recovery: 81.6% (ASTM D7032-21)

As per client's requirements, with reference to ASTM D7032-21 Section 5.4, the submitted samples were subjected to the following tests:

Sample Description: Board

Initial Inspection: No any damage was found

Executive Summary:

TEST ITEM	TEST METHOD	TEST RESULT
Creep-Recovery	Test Method: as per client's requirements, with reference to ASTM D7032-21 Section 5.4 Specimen Size: 500mm x 140mm x 23.3mm Load Span: 123mm Support Span: 369mm Condition: 894N, 24h -->recover with no loadfor 24h	81.6%

Note:

1. Total deflection is deflection after application of load for 24h
2. Residual deflection is deflection after 24h reriodecove
3. Percent recovery, % = (Total deflection - Residual deflection) / Total deflection x 100

Impact Resistance: No crack (EN15534-1)

Impact Resistance - Solid Profile Test

As per client's requirements, with reference to EN115534-1: 2014+A1: 2017 Section 7.1.2.1, the submitted samples were subjected to the following tests:

Sample Description: Board

Initial Inspection: No any damage was found

Executive Summary:

TEST ITEM	TEST METHOD	TEST RESULT
Impact Resistance - Solid Profile Test	Test Method: as per client's requirements, with reference to EN115534-1: 2014 + A1: 2017 Section 7.1.2.1 Specimen: 312mm x 140mm x 23.3mm Weight of steel ball: 1000g Diametre of steel ball: 50mm Falling height: 700mm Span : 200mm	No Crack

WEATHER RESISTANCE

UV Exposure Test: Grey Scale 4.5 (ASTM G154-23)

As per client's requirements, with reference to ASTM G154-23 Standard Practice for Fluorescent Ultraviolet (UV) Lamp apparatus for Exposure of Materials - Cycle 1

Operating Conditions:

(1) Lamp = UVA-340
(2) Typical Irradiance - 0.89W/(m^2.nm)
(3) Approximate wavelength = 340nm
(4) Exposure Period = 8h UV at 60(+30)°C black panel temperature.; 4h condensation at 50(+3)°C black panel temperature

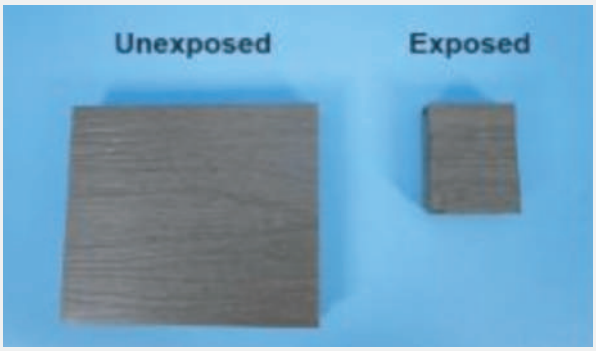
Assessment Method:

Colour change was assessed with reference to ISO 105-A02:1993 (grey scale)
Colour difference was measured by the spectrophotometre

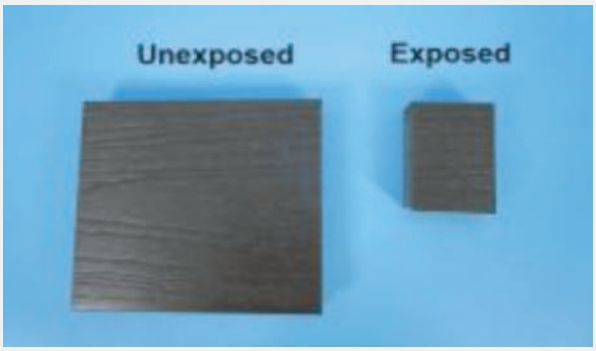
TEST SRUFACE	GRADE OF COLOURFASTNESS (GREY SCALE)	COLOUR DIFFERENCE	APPEARANCE
Front Side	4.5	△E = 1.13	No Blistering, No Craccking
Back Side	4.5	△E = 2.16	No Blistering, No Craccking

Note: The grey scale was determinedunder the D65 standard light, the grade 5 is the best and the grade 1 is the worst.

Photo Reference:



After Test
(Front Side)



After Test
Side)

Mositure Content: 0.31% (ASTM D4442-20)

Test Item: ack Moisture Content

Test Method: ASTM D4442-20 Method B

Conditioning: Dry conditioning at a relative humidity to 50±5% and a temperature 23±2 °C

Test Condition: Dry in oven at 103±2 °C to end point

Results:

Moisture Content: 0.31%

Thermal Expansion: 0.31% (ASTM D7031-11)

As per client's requirements, with reference to ASTM D7031-11 (2019) Section 5.18 and ASTM D1037-12 (2020) Section 24, the submitted samples were subjected to the following tests:

Sample Description: Board

Initial Inspection: No Any damage was found

Executive Summary:

TEST ITEM	TEST METHOD	TEST RESULT
Thermal Expansion	Test Method: as per client's requirements, with reference to ASTM D7031-11 (2019) Section 5.18 and ASTM D1037-12 (2020) Section 24. Specimen: 305mm x 140mm x 23.3mm Conditioning: 20 °C, 50% RH, 48h ---> 20 °C 90% RH, 48h Lab Environment Condition: (23 ± 2 °C, (50 ± 5) %RH	Change rate in Length: 0.043% Change rate in Width: 0.036%

Note: Change rate, % = (value after condition - value before condition) / value before condition x 100

Moisture Resistance Under Cyclic Test Conditions: (EN15534)

Bending strength after cyclic test (arithmetic mean value): 35.9MPa

Bending strength after cyclic test (minimum individual values): 35.7MPa

Executive Summary:

TEST ITEM	TEST METHOD	TEST RESULT	CONCLUSION
Moisture resistance under cyclic test	Test Method: as per EN 15534-4: 2014 and EN 15534-1: 2014 + A1: 2017 Section 7.3.2 and 8.3.1 Profile Type: Solid Profile Specimen Size: 450mm x 141mm 22.8mm Testing Speed: 10mm.min SpanL 350mm Cyclic Condition: Immerse in 20±1°C water for 28±1d --> Freezing in -12 ~ -25°C for 24±1h --> Drying in 70±2°C for 72±1h --> Immerse in 20±1°C water for 72±1h --> Freezing in -12 ~ -25°C for 24±1h --> Drying in 70±2°C for 72±1h --> Immerse in 20±1°C water for 72±1h --> Freezing in -12 ~ -25°C for 24±1h --> Drying in 70±2°C for 72±1h --> 23±2°C, 50±5%RH for 72h EN 15534-4: 2014 Requirement: - Mean of decrease of bending strength ≤ 20% - Individual decrease ofbednding strength ≤ 30%	Bending strength before cycling test (arithmenttic mean value): 37.9MPa Bending strength before cyclic test (maximum individual values): 38.1MPa Bending strength after cyclic test (arithmetic mean value): 35.9MPa Bending strength after cyclic test (minimum individual values): 35.7MPa mean of decrease of bending strength: 5.3% Max individual decrease of bending strength: 6.3%	Pass

Fire Classification Test on Board: C_{fl} (EN1350-1 and EN ISO 11925-2)

Fire Classification Test on Board

As per client's requirements, with reference to EN 13501-1:2018 Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests, the submitted samples were subjected to the following tests:

Sample Description: Board

Initial Inspection: No Any damage was found

Test Concluded:
EN 13501-1:2018 Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests. And the test methods as following:
ENISO 9239-1:2010 Reaction to fire tests for floorings, Part 1: Determination of the burning behaviour using a radiant heat source.
EN ISO 11925-2:2020 Reaction to fire tests - Ignitability of proucts subjected to direct impingement of flame - Part 2: Single-flame source test.

Mounting and fixing (for EN ISO 9239-1):
Fibre cement board density about 1800kg/m^3, thickness about 8mm, is as the substrate.
The specimens were fixed mechanically to the substrate.

Test Results:

TEST ITEM	PARAMETRE	TEST RESULT	CONCLUSION
EN ISO 9239-1	Critical Flux (kW/m^2)	3	4.7
	Smoke (% x minutes)		112.3
EN ISO 11925-2 Expossure = 15s	Fs≤150mm within 20s (Yes/No)	6	Yes

Remark:
Above value is the mean value for the critical flux (CHF) from the three same orientation specimens.

Classification and direct field of application
This classification has been carried out in accordance with EN 13501-1:2018

Classification:

TEST ITEM	SMOKE PRODUCTION		
C_{fl}	---	S	1

Bushfire attack level: BAL29 (AS/NZS 3837-1998)

fti = failed to ignite

Test were conducted with a wire frid placed over the sample during testing.
This was done to contain intumescing sample within the sample holder.

These test results relate only to the behaviour of the product under the conditions of the test, they are not intended to be the sole criterion for assessment of performance under real fire conditions.

Specimens tested failed to ignite within 10 minutes and testing was ceased as per section 2.5.2(i).

Tests were conducted with an Irradiance of 25kW/m^2. All calculations are based on ignition +10 minutes as per AS 3959 Appendix F.

Compliance to AS 3959-2018 Appendix F2

Requirement: Peak heat release rate 100kW/m^2 maximum.
Average heat release rate for 10 minutes following ignition shall not be greater than 60kW/m^2

Complies
Compliance to AS 3959-2018, Clause 7.7.2.4 BAL29 - Decking, stairs treads and the trafficable surfaces of ramps and landings
Complies