COMPACT LAMINATE

Technical Specifications for Standard grade Compact Laminates

S. NO.	PROPERTIES CLASSIFICATION	UNIT	TEST METHOD AS PER DIN EN 438 PART 2&3: 2005 EN 438-4 - 4	10.00mm Specified value as per BSEN 438-4:	10.00mm GREENLAM VALUES CGS	12.00mm Specified value as per BSEN 438-4:	12.00mm GREENLAM VALUES
1	Thickness	mm	EN 438-2 - 5	10.0 ± 0.50	10.0 ± 0.40	12.0 ± 0.60	12.0 ± 0.40
2	Resistance to Dry Heat at 180°c	Rating	EN 438-2 - 16	Not worse than 4	5	Not worse than 4	5
3	Resistance to Surface Wear	Rev.	EN 438-2 -10	350 (min.)	400	350 (min.)	400
4	Resistance to Immersion in Boiling Water		EN 438-2 - 12				
	a) Mass Increase	%		2.0 (max.)	0.48	2.0 (max.)	0.5
	c) Appearance	Rating		Not worse than 4	5	Not worse than 4	5
	b) Thickness	%		2.0 (max.)	0.7	2.0 (max.)	0.7
5	Dimensional Stability at Elevated Temperature		EN 438-2 - 17				
	a) Longitudinal	%		0.30(max.)	0.15	0.30(max.)	0.15
	b) Transverse	%		0.60 (max)	0.25	0.60 (max)	0.25
6	Resistance to Impact by Large Diameter Ball						
	a) Drop Height	cm	EN 438-2 - 21	1800	2000	1800	2000
	b) Diameter of Indentation	mm		10 (max)	4	10 (max)	4
7	Resistance to Scratching	N	EN 438-2 - 25	2.0 (min.)	2.5	2.0 (min.)	2.5
8	Resistance to staining Group 1 & 2	Rating	EN 438-2 - 26	5	5	5	5
	Group 3	Rating		4	≥ 4	4	≥ 4
9	Resistance to Colour Change						
	In Xenon Arc Light (Grey scale)	Rating	EN 438-2 - 27	4 to 5	6	4 to 5	6
10	Resistance to Cigarette Burns	Rating	EN 438-2 - 30	Not worse than 3	4	Not worse than 3	4
11	Resistance to Water vapour	Rating	EN 438-2 - 14	Not worse than 4	5	Not worse than 4	5
12	Resistance to Crazing	Rating	EN 438-2 - 24	Not worse than 4	5	Not worse than 4	5
13	Flexural Modulus	Mpa	EN ISO 178:2003	9000 (min.)	10000-10500	9000 (min.)	10000-10500
14	Flexural Strength	Mpa	EN ISO 178:2003	80 (min.)	90-100	80 (min.)	90-100
15	Tensile Strength	Mpa	EN ISO 527-2:1996	60 (min.)	70-80	60 (min.)	70-80
16	Density	g/cm3	EN ISO 1183 -1:2004	1.35	1.40	1.35	1.40

Sizes available: 1830 X 3660mm, 1525 X 3660mm

Technical Offering:

PHYSICAL PROPERTIES

PROPERTIES	TEST METHOD AS PER DIN EN 438 Part 2&3:2005	Unit of Measurement	SPECIFIED VALUES AS PER BS EN 438-4 :2005	RESULTS GREENLAM CLADS
	EN 438 Classification		EGS/EDS/EGF/EDF	
Dimensional Tolerances of Panel	EN 438-2 : 9	mm/m	For 2.0 ≤ t < 6.0mm : max 8.0mm/m	3.5
Flatness of Panel		mm/m	For 6.0 ≤ t < 10.0mm : max 5.0mm/m	2.2
Length & Width of Panel	EN 438-2 : 6	mm	+10 mm/-o	+6.0
Thickness	EN 438-2 : 5	mm	5.0≤ t< 8.0mm : max ± 0.4	±0.28
		mm	8.0≤t<12.0mm : max ± 0.5	± 0.30
		mm	12.0≤t 16.0mm : max± 0.6	± 0.40
Straightness of Edges	EN 438-2 : 7	mm/m	1.5mm/m max deviation	1.0
Squareness	EN 438-2 : 8	mm/m	1.5mm/m max deviation	1.0
Resistance to Surface Wear	EN 438-2 -10	Revolutions (min)	350 (min.)	375
Resistance to Immersion in Boiling Water (2 hours)	EN 438-2 - 12			
a) Mass Increase		%	2.0 (max.)	0.45
b) Thickness		%	2.0 (max.)	0.58
c) Appearance		Rating (min)	Not worse than 4	≥ 4
Resistance to Impact by Large Diameter Ball (Shatter resistance)	EN 438-2 - 21			
a) Drop Height		mm	1800 mm (Drop Height)	1800
b) Diameter of Indentation		mm	10 (max)	6
Resistance to Scratching	EN 438-2 - 25	N (Force)	2.0 (min.)	2.2
Resistance to staining Group 1 & 2	EN 438-2 : 26	Rating (min)	5	5
Group 3		Rating (min)	4	4
Dimensional Stability at Elevated Temperature	EN 438-2 : 17			
a) Longitudinal		%	0.30(max.)	0.18
b) Transverse		%	0.60 (max)	0.32
Resistance to Cigarette Burns	EN 438-2 - 30	Rating (min)	Not worse than 3	3
Resistance to water vapour	EN 438-2 - 14	Rating (min)	Not worse than 4	4
Resistance to Crazing	EN 438-2 - 24	Grade (min)	Not worse than 4	4
Panel Surface Visibility	EN 438-2 :4	(Dirt,spots,any similar surface defects).	≤ 2 mm²/m²	<2
		Fibre,hair,scratches similar surface defects,	≤ 20 mm/m²	12
Edge Quality of panel	EN 438-6 :2005	mm	<3mm	1.5

MECHANICAL PROPERTIES

Properties	Test Method As Per DIN En 438 : 2005	Unit	Specified value as per BSEN 438-4: 2005	Greenlam Clads Values
Flexural Modulus (Stress)	EN ISO 178:2003	Mpa	9000 (min.)	≥9650
Flexural Strength (Stress)	EN ISO 178:2003	Mpa	80 (min.)	≥95
Tensile Strength (Stress)	EN ISO 527-2:1996	Mpa	60 (min.)	≥72
Density	EN ISO 1183 -1:2004	g/cm³	1.35	1.38
Resistance to Wet Heat Conditions	EN 438-2-15	% max. in mass increase	5	≤3.2
		Appearance (min)	4	4

Technical Offering:

LIGHT FASTNESS AND WEATHER RESISTANCE

Properties	Test Method As Per DIN EN 438 : 2005	Unit	Specified value as per BSEN 438-4: 2005	Greenlam Values
Resistance To Artificial Weathering Including Light Fastness	EN 438-2-29	Contrast	Grey Scale Rating not worse than 3 after 650 MJ/M2 Radiant Exposure	3 ~ 4
		Appearance	Rating Minimum 4 after 650 MJ/M2 Radiant Exposure	4 ~ 5
Resistance to UV Light	EN 438-2-28	Contrast	Grey Scale Rating not worse than 3 after 1500 hours exposure	3 ~ 4
		Appearance	Rating min 4 after 1500 hours exposure	4 ~ 5
Resistance to climatic shock				
Flexural strength index (Ds)	EN 438-2 : 19	Index	≥ 0.95	≥ 0.95
Flexural modulus index (Dm)	EN 438-2 : 19	Index	≥ 0.95	≥ 0.95
Appearance	EN 438-2 : 19	Rating	≥ 4	≥ 4

FIRE PERFORMANCE PROPERTIES

Properties	Test Method As Per Din EN 438 : 2005	Units	Specified value as per BSEN 438-4: 2005	Greenlam Clads Values
Europe				
Reaction to Fire	Classification Standards EN 438-7 & EN 13501-1:2007 Tested according to EN 13823:2010 & EN 11925-2:2010	Euroclass	Classification t ≥ 6 mm.	B-S2, d0
		Euroclass	Classification t ≥ 8 mm. in (Metal Frame)	B-S2, d0
Reaction to Fire (Germany)	DIN 4102-1	Class	B1	B1
Reaction to Fire (France)	NF P 92-501	Class	M1	M1
North America				
Material Surface Burning Characteristics				
Classification	ASTM E84/UL 723	Class	A	A
Flame Spread Index	ASTM E84/UL 723	FSI	0-25	0-25
Smoke Developed Index	ASTM E84/UL 723	SDI	0-450	0-450
Asia Pacific				
Reaction to Fire (China)	GB 8624	Class	B-S1, d0, t1	B-S1, d0, t1

Please note: Greenlam CLADS is engineered for vertical exterior wall coverings such as façade cladding, balcony panelling. For other applications please contact your local representative.

Warranty:

Greenlam warrants the quality of Greenlam Clads Exterior Grade Compact Laminates is as per the technical specifications and standards as mentioned above and these products are free from any manufacturing defects. In case of claims Greenlam's liability is limited only to the cost of products. Greenlam is expressly not liable for defects in the substructure or defective installation as they have no control over the execution of these. The local building regulations are to be followed without fail – we accept no liability with regard to these. All information corresponds to the current state of the technology. Suitability for particular applications cannot be confirmed in general.