## **PRODUCT TECHNICAL SHEET**





High Pressure Laminates (HPL) as per EN 438-2 & 3 : 2016, are available in the standard HGS/VGS and ESD range.

Surface Quality	SR. NO.	Properties	Test Method	Attributes of Performance	Unit of Measurement	Results (As per EN 438-3)
1.1   Surface quality					cation	HGS / VGS
Surface quality	1	SURFACE QUALITY				
2   DIMENSIONAL PROPERTIES   EN 438-2:2016 (Clause-5)   Thickness tolerance   mm   0.5sf<1:20   mm   1sf<2:±0.1				•	mm²/m²	≤1
2.1   Thickness				Fibres, hairs and scratches	mm/m²	≤ 10
2.1   Thickness   Clause-5    EN 438-2:2016 (Clause-6)   EN 438-2:2016 (Clause-6)   Clause-6)   Clause-7    Squareness   EN 438-2:2016 (Clause-8)   Squareness   EN 438-2:2016 (Clause-9)   Flatness (measured on full-size sheet)   Squareness   mm/m   ≤ 1.5	2	DIMENSIONAL PROPERTIES				
2.2 Size (Clause-6) EN 438-2:2016 (Clause-7) Straightness of edges (Clause-7) Straightness of edges (Clause-8) Squareness mm/m ≤ 1.5  2.4 Squareness EN 438-2:2016 (Clause-9) Flatness (measured on full-size sheet) mm/m ≤ 1.5  3.5 Flatness EN 438-2:2016 (Clause-9) Flatness (measured on full-size sheet) mm/m 60  3.6 Resistance to dry heat elevated temperatures (Clause-10) (Clause-10) (Clause-10) Appearance - Other Finishes Rating ≥ 4  3.6 Resistance to Wet Heat (Clause-11) (Clause-12) (Clause-12) (Clause-13) Appearance - Other Finishes Rating ≥ 4  3.7 Resistance to Wet Heat (Clause-12) (Clause-12) (Clause-12) (Clause-13) Appearance - Other Finishes Rating ≥ 4  3.8 Resistance to my the televated temperatures (Clause-13) (Clause-14) Appearance - Other Finishes Rating ≥ 4  3.9 Resistance to impact with Small diameter ball (Clause-13) (Clause-12) (Clause-13) (Clause-23) (Clause-23) (Clause-23) (Clause-23) (Clause-23) (Clause-24) (Clause-25) (Clause-26) (Clause-27) (Clause-27) (Clause-27) (Clause-27) (Contrast Grey scale rating 4 to 5 (Clause-27) (Contrast Grey scale rating 4 to 5 (Clause-27) (Contrast Clause-14) (Clause-15) (Clause-27) (Contrast Clause-16) (Clause-27) (Contrast Clause-18) (Clause-18) (Clause-18) (Clause-27) (Contrast Clause-18) (Clause-18) (Clause-18) (Clause-19) (Clause-27) (Contrast Clause-18) (Contrast Clause-18) (Clause-18) (	2.1	Thickness	(Clause-5)	Thickness tolerance		0.5≤T<1 : ±0.1 1≤T<2 : ±0.15
2.3 Straightness of edges  (Clause-7)  2.4 Squareness  (Clause-8)  2.5 Flatness  (EN 438-2:2016 (Clause-9)  3 PHYSICAL PROPERTIES  3.1 Resistance to surface wear (Clause-10)  3.2 Resistance to immersion in boiling water (Clause-12)  3.3 Resistance to water vapour (Clause-12)  3.4 Resistance to water vapour (Clause-14)  3.5 Dimensional stability at elevated temperatures (Clause-17)  3.6 Resistance to Wet Heat (Clause-18)  3.7 Resistance to Wet Heat (Clause-19)  3.8 Resistance to Impact with Small diameter ball (Clause-20)  3.9 Resistance to Staring (Clause-20)  3.0 Resistance to Staring (Clause-19)  3.1 Resistance to Staring ≥ 4  3.2 Appearance - Other Finishes Rating ≥ 3  3.3 Appearance - Other Finishes Rating ≥ 3  3.4 Appearance - Other Finishes Rating ≥ 3  3.5 Dimensional stability at elevated temperatures (Clause-16)  3.6 Resistance to Wet Heat (Clause-17)  3.7 Small diameter ball (Clause-20)  3.8 Resistance to impact with EN 438-2:2016 (Clause-20)  3.9 Resistance to scratching (Clause-20)  3.9 Resistance to scratching (Clause-20)  3.10 Resistance to staining (Clause-20)  3.11 Light fastness (Xenon arc) (Clause-27)  3.12 Density EN 438-2:2016 (Clause-27)  3.13 Density EN 438-2:2016 (Clause-27)  4.1 Surface Positivase (Clause-20)  5 Point to Point Resistance Ohm, Max (1.0 x 10°)	2.2	Size		Length and width	mm	+ 10 / - 0
Squareness   Clause-8    Squareness   mm/m   ≤ 1.5	2.3	Straightness of edges		Straightness of edges	mm/m	≤ 1.5
PHYSICAL PROPERTIES   Clause-9  Sheet    mm/m   60	2.4	Squareness		Squareness	mm/m	≤ 1.5
3.1 Resistance to surface wear  3.2 Resistance to impact with characters and elevated temperatures  3.3 Resistance to water vapour  3.4 Resistance to water vapour  3.5 Dimensional stability at elevated temperatures  3.6 Resistance to Wet Heat  3.7 Resistance to water vapour  3.8 Resistance to water vapour  3.9 Resistance to water vapour  3.0 Resistance to water vapour  3.1 Resistance to water vapour  3.2 Resistance to water vapour  3.3 Resistance to water vapour  3.4 Resistance to dry heat (Clause-14)  3.5 Dimensional stability at elevated temperatures  3.6 Resistance to Wet Heat  3.7 Resistance to Wet Heat  3.8 Resistance to impact with Small diameter ball  3.9 Resistance to scratching  3.9 Resistance to staining  3.0 Resistance to staining  3.10 Resistance to staining  3.11 Light fastness (Xenon arc)  3.12 Density  3.15 Pinanger and the state of th	2.5	Flatness		*	mm/m	60
Resistance to surface wear   Clause-10    Wear Resistance - Initial Point   Revolutions   ≥ 50 (VGS)	3	PHYSICAL PROPERTIES		,		
Soliling water   Clause-12   Appearance - Other Finishes   Rating   ≥ 4	3.1	Resistance to surface wear		Wear Resistance - Initial Point	Revolutions	≥ 150 (HGS) / ≥ 50 (VGS)
Section   Clause	2.2		EN 438-2:2016	Appearance - Gloss Finish	Rating	≥ 3
3.3       Resistance to water vapour (180°C)       (Clause-14)       Appearance - Other Finishes       Rating Rating       ≥ 4         3.4       Resistance to dry heat (180°C)       EN 438-2:2016 (Clause-16)       Appearance - Gloss Finish Rating       ≥ 3         3.5       Dimensional stability at elevated temperatures       EN 438-2:2016 (Clause-17)       Cumulative dimensional change - Gloss Finish Rating       ≤ 0.55 (HGS) / ≤ 0.75 (VGS)         3.6       Resistance to Wet Heat Small diameter ball       EN 438-2:2016 (Clause-18)       Appearance - Gloss Finish Rating       ≥ 3         3.7       Resistance to impact with Small diameter ball       EN 438-2:2016 (Clause-20)       Spring Force       N       ≥ 20 (HGS) / ≥ 15 (VGS)         3.8       Resistance to cracking under stress       EN 438-2:2016 (Clause-23)       Appearance - Smooth Finishes       Rating       ≥ 4         3.9       Resistance to scratching       EN 438-2:2016 (Clause-25)       Appearance - Textured Finishes       Rating       ≥ 2 (VGS)         3.10       Resistance to staining       EN 438-2:2016 (Clause-26)       Appearance - Group 1 & 2 Rating       ≥ 3 (HGS) / ≥ 2 (VGS)         3.11       Light fastness (Xenon arc)       EN 438-2:2016 (Clause-27)       Contrast       Grey scale rating       4 to 5         3.12       Density       EN 150 1183-1       Density       Point to Poi	3.2		(Clause-12)	Appearance - Other Finishes	Rating	≥ 4
Resistance to dry heat (180°C)	3.3	Resistance to water vapour	EN 438-2:2016	Appearance - Gloss Finish	Rating	≥ 3
3.4			(Clause-14)		Rating	≥ 4
Section   Clause-16   Appearance - Other Finishes   Stating   24	3.4		EN 438-2:2016	Appearance - Gloss Finish	Rating	≥ 3
3.5 Dimensional stability at elevated temperatures   EN 438-2:2016 (Clause-17)   Cumulative dimensional change   Congitudinal % ≤ 0.75 (VGS)			(Clause-16)	Appearance - Other Finishes	Rating	≥ 4
Section   Sec	3.5	•	(Clause-17)	-	Longitudinal %	≤ 0.75 (VGS)
3.6Resistance to Wet Heat(Clause-18)Appearance - Other FinishesRating≥ 43.7Resistance to impact with Small diameter ballEN 438-2:2016 (Clause-20)Spring ForceN≥ 20 (HGS) / ≥ 15 (VGS)3.8Resistance to cracking under stressEN 438-2:2016 (Clause-23)AppearanceRating≥ 43.9Resistance to scratchingEN 438-2:2016 (Clause-25)Appearance - Smooth FinishesRating≥ 2 (HGS) / ≥ 1 (VGS)3.10Resistance to stainingEN 438-2:2016 (Clause-26)Appearance - Textured FinishesRating≥ 3 (HGS) / ≥ 2 (VGS)3.11Light fastness (Xenon arc)EN 438-2:2016 (Clause-27)Appearance - Group 1 & 2 Rating≥ 5 Appearance - Group 3 Rating≥ 43.12DensityEN 438-2:2016 (Clause-27)ContrastGrey scale rating4 to 53.12DensityEN ISO 1183-1 Densitygm/cm³≥ 1.354ELECTROSTATIC DISSIPATIVE PROPERTIES						≤ 1.25 (VGS)
Resistance to impact with Small diameter ball   EN 438-2:2016 (Clause-20)   Spring Force   N   ≥ 20 (HGS) / ≥ 15 (VGS)	3.6	Resistance to Wet Heat				
3.7 Small diameter ball (Clause-20) Spring Force N ≥ 15 (VGS)  3.8 Resistance to cracking under stress EN 438-2:2016 (Clause-23) Appearance Rating ≥ 4  3.9 Resistance to scratching EN 438-2:2016 (Clause-25) Appearance - Smooth Finishes Rating ≥ 2 (HGS) / ≥ 1 (VGS)  Appearance - Textured Finishes Rating ≥ 2 (VGS) / ≥ 2 (VGS)  3.10 Resistance to staining EN 438-2:2016 (Clause-26) Appearance - Group 1 & 2 Rating ≥ 5  Appearance - Group 3 Rating ≥ 4  3.11 Light fastness (Xenon arc) EN 438-2:2016 (Clause-27) Contrast Grey scale rating 4 to 5  3.12 Density EN ISO 1183-1 Density gm/cm³ ≥ 1.35  4 ELECTROSTATIC DISSIPATIVE PROPERTIES  Point to Point Resistance Ohm, Max 1.0 X 10°	0.0		· ' '	Appearance - Other Finishes	Rating	
3.8under stress(Clause-23)AppearanceRating≥ 43.9Resistance to scratchingEN 438-2:2016 (Clause-25)Appearance - Smooth FinishesRating≥ 2 (HGS) / ≥ 1 (VGS)3.10Resistance to stainingEN 438-2:2016 (Clause-26)Appearance - Textured FinishesRating≥ 3 (HGS) / ≥ 2 (VGS)3.11Light fastness (Xenon arc)EN 438-2:2016 (Clause-26)Appearance - Group 1 & 2 Rating≥ 53.12DensityEN 438-2:2016 (Clause-27)ContrastGrey scale rating4 to 53.12DensityEN ISO 1183-1Densitygm/cm³≥ 1.354ELECTROSTATIC DISSIPATIVE PROPERTIES	3.7		(Clause-20)	Spring Force	N	
Appearance - Smooth Finishes Rating ≥1 (VGS) Appearance - Smooth Finishes Rating ≥1 (VGS)  Appearance - Textured Finishes Rating ≥3 (HGS) / ≥2 (VGS)  3.10 Resistance to staining  EN 438-2:2016 (Clause-26) Appearance - Group 1 & 2 Appearance - Group 3 Rating ≥5 Appearance - Group 1 & 2 Rating ≥5 Appearance - Group 3 Rating ≥4  Contrast Grey scale rating 4 to 5  EN 438-2:2016 (Clause-27) Contrast Density BN ISO 1183-1 Density FN 61340 4 1  Point to Point Resistance Ohm, Max 1.0 X 109	3.8	Resistance to cracking under stress		Appearance	Rating	≥ 4
Appearance - Textured Finishes  Rating  ≥ 3 (HGS) / ≥ 2 (VGS)  3.10 Resistance to staining  EN 438-2:2016 (Clause-26) Appearance - Group 1 & 2 Appearance - Group 3  Rating ≥ 5 Appearance - Group 3  Rating ≥ 4  Surface Posittance  EN 438-2:2016 (Clause-27) Contrast  Contrast  Grey scale rating 4 to 5  EN ISO 1183-1 Density  Point to Point Resistance  Ohm, Max  1.0 X 109	3.9	Resistance to scratching	1	Appearance - Smooth Finishes	Rating	
3.10 Resistance to staining (Clause-26) Appearance - Group 3 Rating ≥ 4  3.11 Light fastness (Xenon arc) EN 438-2:2016 (Clause-27) Contrast Grey scale rating 4 to 5  3.12 Density EN ISO 1183-1 Density gm/cm³ ≥ 1.35  4 ELECTROSTATIC DISSIPATIVE PROPERTIES  Point to Point Resistance Ohm, Max 1.0 X 109				Appearance - Textured Finishes	Rating	
3.11 Light fastness (Xenon arc)  EN 438-2:2016 (Clause-27)  Contrast  Grey scale rating ≥ 4  4 to 5  3.12 Density  EN ISO 1183-1  Density  BN ISO 1183-1  Density  Grey scale rating 4 to 5  gm/cm³ ≥ 1.35  ELECTROSTATIC DISSIPATIVE PROPERTIES  Point to Point Resistance  Ohm, Max 1.0 X 109	3.10	Resistance to staining	EN 438-2:2016	Appearance - Group 1 & 2	Rating	≥ 5
3.11 Light fastness (Xenon arc) (Clause-27) Contrast Grey scale rating 4 to 5  3.12 Density EN ISO 1183-1 Density gm/cm³ ≥ 1.35  4 ELECTROSTATIC DISSIPATIVE PROPERTIES  A 1 Surface Resistance FN 61340 4.1			(Clause-26)	Appearance - Group 3	Rating	≥ 4
4 ELECTROSTATIC DISSIPATIVE PROPERTIES  Point to Point Resistance Ohm, Max 1.0 X 109  EN 61340 4.1	3.11	Light fastness (Xenon arc)		Contrast	Grey scale rating	4 to 5
Point to Point Resistance Ohm, Max 1.0 X 10 <sup>9</sup>	3.12	Density	EN ISO 1183-1	Density	gm/cm³	≥ 1.35
I 4.1   Curfoco Posistanco   EN 61240 4.1	4	ELECTROSTATIC DISSIPATIVE F	PROPERTIES			
1 / 1   Curface Posistance   EN 61240 / 1		Surface Resistance	EN 61340-4-1	Point to Point Resistance	Ohm, Max	1.0 X 10 <sup>9</sup>
$_{ m I}$ Surface to Ground Resistance $_{ m I}$ $_{ m I}$ Ohm, Max $_{ m I}$	4.1			Surface to Ground Resistance	Ohm, Max	1.0 X 10 <sup>8</sup>

## Disclaimer:

Stylam HPL complies with the applicable standards as listed above, but the results may vary due to difference in application of product. STYLAM reserves the right to change product composition and characteristics.

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