SHIPRADE DIŞ TİCARET

SHIPRADE

S-LAM

S-Lam HPL / CPL Technical Data Sheet

Characteristics	Test method	Tested Value	Required Value
Thickness	EN 438-2 section 5	According to the required thickness	0.5 ≤ t ≤ 1.0 mm : ± 0.10 mm 1.0 < t < 2.0 mm : ± 0.15 mm
Density	ISO 1183 - 1	1.4 gr/cm³	Min. 1.35 gr/cm³
Flatness	EN 438-2 section 9 HGS(1) , HGP(2) VGS(3) , VGP(4)	35 mm 40 mm	60 mm/m max. deviation
Wear Resistance(7)	EN 438-2 section 10 HGS , HGP VGS , VGP	IP = 185 Rev. Wear Value = 485 Rev. IP = 76 Rev. Wear Value = 198 Rev.	Initial Point ≥ 150 Rev. Wear Value ≥ 350 Rev. Initial Point ≥ 50 Rev. Wear Value ≥ 150 Rev.
Scratch Resistance(7)	EN 438-2 section 25 VGS , VGP HGS , HGP	2 N 4 N	Flat Surface Min. 1 N Textured Surface Min. 2 N Flat Surface Min. 2 N Textured Surface Min. 3 N
Impact Resistance	EN 438-2 Small Ball section 20 VGS , VGP HGS , HGP Big Ball section 21 VGS , VGP HGS , HGP	18 N 22 N No Crack , 4.5 mm No Crack , 3.5 mm	Min. 15 N Min. 20 N 600 mm height : no crack , 10 mm Max. 800 mm height : no crack , 10 mm Max.
Dimensional Stability at elevated temp.	EN 438-2 section 17 VGS , VGP HGS , HGP	%L = 0.45 ; %T = 1.08 %L = 0.38 ; %T = 0.92	Max. values %L = 0.75 ; %T = 1.25 %L = 0.55 ; %T = 1.05
Resistance to immersion in Boiling Water	EN 438-2 section 12 VGS , VGP Glossy Surface Finish Other Surface Finish HGS , HGP Glossy Surface Finish Other Surface Finish	4 5 4 5	Rating Min. 3 4 3 4

Characteristics	Test method	Tested Value	Required Value
Resistance to Dry Heat (@ 180ºc)	EN 438-2 section 16 VGS , VGP Glossy Surface Finish Other Surface Finish HGS , HGP Glossy Surface Finish Other Surface Finish	 4 5 4 5	Rating Min. 3 4 3 4
Resistance to Wet Heat (@ 100ºc)	EN 12721:1997 VGS , VGP Glossy Surface Finish Other Surface Finish HGS , HGP Glossy Surface Finish Other Surface Finish	 4 5 4 5	Rating Min. 3 4 3 4
Resistance to water vapor	EN 438-2 section 14 VGS , VGP Glossy Surface Finish Other Surface Finish HGS , HGP Glossy Surface Finish Other Surface Finish	 4 5 4 5	Rating Min. 3 4 3 4
Resistance to Cigarette Burn	EN 438-2 section 30 VGS , VGP HGS , HGP	 4 4	Min. Level 3 3
Resistance to Staining	EN 438-2 section 26 VGS , VGP Group 1 & 2 Group 3 HGS , HGP Group 1 & 2 Group 3	 5 4 5 4	Rating Min. 5 4 5 4
Flatness	EN 438-2 section 9 CGS 2.0 ≤ t < 6.0 mm 6.0 ≤ t < 10.0 mm t ≥ 10.0 mm	 1.23 mm 1.46 mm 1.87 mm	 Max. 8 mm / 1 M length Max. 5 mm / 1 M length Max. 3 mm / 1 M length

Characteristics	Test method	Tested Value	Required Value
Determination of Formaldehyde Release HPL 0.7 mm HGP	EN 717-2 : 1999 Gas Analysis	0.191 mg/m²h	≤ 3.5 mg/m²h
Formaldehyde Emission	EN 717-1 0.7 mm CPL HGP / VGP 0.9 mm HPL HGS / VGS	≤ LOQ[9] mg/m³ ≤ LOQ[9] ppm 0.03 mg/m³ 0.02 ppm	≤ 0.124 0.1 ppm (E0 Class) ≤ 0.124 0.1 ppm (E1 Class)
Release of dangerous substances	UNI EN 16516 : 2020 0.7 mm CPL HGP / VGP 0.9 mm HPL HGS / VGS	0.037 mg/m³ 0.03 ppm 0.075 mg/m³ 0.06 ppm	≤ 0.124 0.1 ppm (E0.5 Class) ≤ 0.124 0.1 ppm (E0.5 Class)
PAH Content (Polycyclic Aromatic Hydrocarbons)	AfPS GS 2014:01 PAK Category 2	< 0.2 mg/kg	< 0.5 mg/kg
Light fastness (Xenon Arc)	EN 438-2 section 27 VGS , VGP HGS , HGP	5 5	Contrast Grey Scale Rating 4 – 5 4 - 5
Formability Radius	EN 438-2 section 31 / 32 HGP , VGP L (Machine Direction) T (Cross Direction)	R5 R6	≤ 10 x laminate nominal thickness ≤ 20 x laminate nominal thickness
Fire Classification[8]	EN 13501-1 t ≥ 0.9 mm CPL HGS/VGS t ≥ 0.6 mm HPL HGF/VGF IMO Resolution[8a] MSC 307(88) (2010 FTP Code) Annex 1: Part 2 & Part 5	B S1 d0 B S1 d0 See S-Lam-Marine TDS	C S2 d0 C S2 d0 See S-Lam-Marine TDS

Characteristics	Test method	Tested Value	Required Value
Resistance To Blister	EN 438-2 section 33 / 34 HGP , VGP $t_2 - t_1$ (Sec)		
	Nominal Thickness < 0.8 mm	15	≥ 10
	Nominal Thickness ≥ 0.8 mm	18	≥ 15
Antiseptics & Sanitizers Surface Resistance	Producer Internal Test Method	See Table below	---
Contact With Food – Overall Migration(6)	EN 1186-3(5) Acetic Acid 3% w/w	9.6 mg/dm²	< 10 mg/dm²
	EN 1186-14(5) Ethanol 10% w/w	4.3 mg/dm²	< 10 mg/dm²
	EN 1186-14(5) Ethanol 95% w/w	< 2 mg/dm²	< 10 mg/dm²
Chlorine Surface Resistance	Producer Internal Test Method	See Table below	---
Hydrogen Peroxide Surface Resistance	Producer Internal Test Method	See Table below	---

Remarks :

HGS = Horizontal Grade Standard Laminate

(2) HGP = Horizontal Grade Post Forming Laminate

(3) VGS = Vertical Grade Standard Laminate

(4) VGP = Vertical Grade Post Forming Laminate

(5) Migration test conducted at 40ºC for 24 hours

(6) CoC available upon request (ISEGA 37314 U 14)

(7) The Wear and Scratch resistance represent an average values between different types of decors and finishes tested with a decorative laminate (HPL / CPL) applied with an Overlay layer. For a specific value of a decorative laminate with /without overlay layer, please contact sales department.

(8) The Fire Classification refer to thin laminates bonded with FR adhesive on Non Combustible a Class Core substrate (such as Calcium Silicate boards). For further detailed information, please refer to Fire Resistance Explanation Sheet.

(8a) Fire classification and certifications for marine use laminates are available within the S-Lam-Marine TDS.

(9) LOQ : Limit Of Quantification (0.02 mg/m³).

Chlorine Surface Resistance Test[6] :

3096[1] / 4596[2] ; 1 mm[3] ; Velur Finish ; 1000 ppm concentration[4]

Duration[5] Decor	1 Hour	2 Hours	4 Hours	8 Hours	12 Hours	24 Hours
3096[1] Rating Scale[7]	0	0	0	0	0	0
4596[2] Rating Scale[7]	0	0	0	0	0	0

3096[1] / 4596[2] ; 1 mm[3] ; Velur Finish ; 10,000 ppm concentration[4]

Duration[5] Decor	1 Hour	2 Hours	4 Hours	8 Hours	12 Hours	24 Hours
3096[1] Rating Scale[7]	0	0	0	0	0	0
4596[2] Rating Scale[7]	0	0	0	0	0	0

Remarks :

(1) 3096 Plain décor HGS

(2) 4596 Printed décor HGS

(3) 1 mm pressed in Velur finish

(4) 1000 and 10,000 ppm water base solutions

(5) Duration according to Tables; Test method according to the below instructions;
Rating Scale according to the below instructions

(6) Test method :

- With a pipette drop 5 drops from the tested concentration and cover with a laboratory glass cover
- After the required duration, remove the glass cover, rains with water and wiper with a dry cotton cloth
- Examine the tested samples according to the below rating scale and advice with a test report

(7) Rating Scale : Level 0 – No Detectable Change for naked eye
Level 1 – Slight Change in Color or Gloss or surface structure
Level 2 – Slight Surface Etching or Severe Staining
Level 3 – Pitting / Cracking / Swelling / Erosion of the surface
Level 4 - Obvious & Significant Deterioration of the surface

Hydrogen Peroxide Surface Resistance Test[1,5] :

3103[2] ; 1 mm Matt Finish[3]

Duration[4] Decor	12 Hours	24 Hours
3103[2] Rating Scale[6]	0	0

Remarks :

1) Hydrogen Peroxide 30% (H_2O_2 30%)
2) 3103 Plain décor HGS
3) 1 mm pressed in Matt Finish
4) Exposure Duration according to Tables.
5) Test method :
   - With a pipette place 5 drops from the tested H_2O_2 30% and cover with a laboratory glass cover
   - After the required duration, remove the glass cover, rains with water and wiper with a dry cotton cloth
   - Examine the tested samples according to the below rating scale and advice with a test report
6) Rating Scale : Level 0 – No Detectable Change for naked eye
   Level 1 – Slight Change in Color or Gloss or surface structure
   Level 2 – Slight Surface Etching or Severe Staining
   Level 3 – Pitting / Cracking / Swelling / Erosion of the surface
   Level 4 - Obvious & Significant Deterioration of the surface

Antiseptics & Sanitizers Surface Resistance Test[1,8] :

3103[2] ; 1 mm Matt Finish[3]

Duration[4] Reagent	12 Hours Rating[9]	24 Hours Rating[9]
Benzethonium Chloride 2%[5]	0	0
Domiphen Bromide 4%[6]	0	0
Benzalkonium Chloride 4%[7]	0	0
Isopropyl Alcohol (IPA 70%)	0	0

Remarks :

1) The surface resistance is tested against common Antiseptics and Sanitizers available and common in the market
2) 3103 Plain décor HGS
3) 1 mm pressed in Matt Finish
4) Exposure Duration according to Tables.
5) Benzethonium Chloride 2% (Antiseptic & Disinfectant)
6) Domiphen Bromide 4% (Antiseptic)
7) Benzalkonium Chloride 4% (Antiseptic)
8) Test method :
   - With a pipette place 5 drops from the tested reagent and cover with a laboratory glass cover
   - After the required duration, remove the glass cover, rains with water and wiper with a dry cotton cloth
   - Examine the tested samples according to the below rating scale and advice with a test report
9) Rating Scale : Level 0 – No Detectable Change for naked eye
   Level 1 – Slight Change in Color or Gloss or surface structure
   Level 2 – Slight Surface Etching or Severe Staining
   Level 3 – Pitting / Cracking / Swelling / Erosion of the surface
   Level 4 - Obvious & Significant Deterioration of the surface