TECHNICAL DATA SHEET

PROGRESSIVE SURFACE TECHNOLOGY

ZERO®

ZERO® PST Technical Data Sheet

Characteristics	Test method	Tested Value	Required Value
Thickness	EN 438-2 section 5 HGS[1] , CGS[2]	According to the required thickness	0.9 ≤ t < 2.0 mm : ± 0.10 mm 2.0 ≤ t < 3.0 mm : ± 0.20 mm 3.0 ≤ t < 5.0 mm : ± 0.3 mm 5.0 ≤ t < 8.0 mm : ± 0.4 mm 8.0 ≤ t < 12.0 mm : ± 0.5 mm 12.0 ≤ t < 16.0 mm : ± 0.6 mm 16.0 ≤ t < 20.0 mm : ± 0.7 mm 20.0 ≤ t < 25.0 mm : ± 0.8 mm 25.0 ≤ t : According To Agreement customer / producer
Density	ISO 1183 - 1	1.4	Min. 1.35 gr/cm^3
Gloss Level @ 60°	ISO 2813	1.5	——
Wear Resistance	EN 438-2 section 10 HGS[1] , CGS[2]	IP = 433 Rev. Wear Value = 725 Rev.	Initial Point ≥ 150 Rev. Wear Value ≥ 350 Rev.
Scratch Resistance	EN 438-2 section 25 HGS[1] , CGS[2]	6 N	Flat Surface Min. 2 N
Micro Scratch Resistance	EN 16094-2012 Procedure B on Dark Color Procedure B on Light Color	MSR-B3 MSR-B1	——
Thermal Healing	Gentas Internal test[3]	Rating 5[4]	——
Impact Resistance	EN 438-2 Small Ball section 20 HGS(1) 0.9 ≤ t < 2.0 Big Ball section 21 CGS(2) 2.0 ≤ t < 6.0 mm t ≥ 6.0 mm	25 N No Crack , 4.5 mm No Crack , 3.5 mm	Min. 20 N 1400 mm height : no crack, 10 mm Max. 1800 mm height : no crack, 10 mm Max.
Resistance To Crazing (20 Hours @ 80°c)	EN 438-2 section 24 CGS[2]	Level 4	Min. level 4

ZERO® PST Technical Data Sheet

Characteristics	Test method	Tested Value	Required Value
Resistance to Dry Heat at 180°c	EN 438-2 section 16 HGS[1] , CGS[2]		
	Other Surface Finish	Level 5	Min. Level 4
Resistance to Water Vapor	EN 438-2 section 14 HGS[1] , CGS[2]		
	Other Surface Finish	Level 5	Min. Level 4
Resistance to Immersion in boiling water	EN 438-2 section 12 HGS[1]	Level 5	Minimum Level 4
	CGS[2] Other Surface Finish	1.1% 0.3%	Max. 5% in weight Max. 2% in thickness
	Appearance	Level 4	Min. Level 4
Resistance to Cigarette Burn	EN 438-2 section 30 HGS[1], CGS[2]	Level 4	Min. Level 3
Resistance to Chemicals	SEFA 8-1999	See attached Table	——
Resistance to Staining	EN 438-2 section 26 HGS[1], CGS[2]		
	Group 1 + 2	Level 5	Min. level 5
	Group 3	Level 5	Min. level 4
Resistance to Finger Print	Gentas Internal test[5]	Rating 5[6]	——
Flatness	EN 438-2 section 9 CGS(2)		
	$2.0 \leq t < 6.0$ mm	1.23 mm	Max. 8 mm / 1 M length
	$6.0 \leq t < 10.0$ mm	1.46 mm	Max. 5 mm / 1 M length
	$t \geq 10.0$ mm	1.87 mm	Max. 3 mm / 1 M length
Light fastness	EN 438-2 section 27 HGS[1], CGS[2]		
	Grey Scale	Level 5	Min. level 4

ZERO® PST Technical Data Sheet

Characteristics	Test method	Tested Value	Required Value
Dimensional stability at elevated temp. (70°c)	EN 438-2 section 17 CGS(2) 2.0 ≤ t ≤ 5.0 mm t ≥ 5.0 mm	L : 0.22 mm W : 0.35 mm L : 0.18 mm W : 0.23 mm	L : Max. 0.4 mm W : Max. 0.8 mm L : Max. 0.3 mm W : Max. 0.6 mm
Tensile Strength	EN ISO 527 – 2 CGS[2]	85 MPa	Min. 60 MPa
Flexural Strength	EN ISO 178 CGS[2]	114 MPa	Min. 80 MPa
Flexural Modulus	EN ISO 178 CGS[2]	16,522 MPa	Min. 9000 MPa
Coefficient Of Linear Thermal Expansion (COTE)	ASTM D696-08[3] CGS[2] 6 mm	6.0 x 10-6 mm / mm °c	——
Thermal Conductivity	ASTM C 518 CGS[2] 6 mm	0.416 W/mK	——
Electrostatic Property	EN 61340-4-1 HGS[1], CGS[2] Surface Resistance (Rs)	$R_s \geq 1x10^9\Omega$	——
Total Volatile Organic Compound Emission	ASTM D5116 6 mm	< 0.010 mg/m²/hr	< 0.5 mg/m²/hr

Remarks:

(1) HGS = Horizontal Grade Standard Laminate
(2) CGS = Compact Grade Standard Laminate
(3) Gentas Internal test procedure for thermal healing is available upon Request only
(4) Rating 5 : No visible change in gloss and surface finish
(5) Gentas Internal test procedure for resistance to finger Print is available upon Request only
(6) Rating 5 : Surface unchanged comparing to reference sample (No moisture / oily residue)

Chemical Resistance According To SEFA 8-1999 (Ref. 2006)

Test No	Chemical Reagent	Test Method[1],[2]	Test Result[3]
1	Hydrochloric Acid 10%	B	0
2	Hydrochloric Acid 37%	B	0
3	Sulphuric Acid 33%	B	0
4	Sulphuric Acid 98%	B	1
5	Nitric Acid 30%	B	0
6	Nitric Acid 65%	B	0
7	Phosphoric Acid 85%	B	1
8	Acetic Acid 99%	B	1
9	Hydrofluoric Acid 40%	B	0
10	Chromic Acid 10%	B	0
11	Ammonium Hydroxide 28%	B	1
12	Sodium Hydroxide 46%	B	0
13	Silver Nitrate 1%	B	1
14	Potassium Permanganate 10%	B	2
15	Ferric (III) Chloride 10%	B	0
16	Copper Sulphate 10%	B	0
17	Sodium Hypochlorite 16%	B	1
18	Sodium Chloride 10%	B	0
19	Formaldehyde 10%	A	0
20	Furfural	A	0
21	Formic Acid 90%	B	1
22	Phenol 90%	A	0
23	Acetone	A	2
24	Mono Ethylene Glycol	A	0
25	Ethyl alcohol	A	0
26	Ethylene Glycol Mono Butyl Ether	A	0
27	Methyl Ethyl Ketone	A	2
28	Dichloromethane	A	1
29	Ethylacetate	A	2
30	n – Butyl Acetate	A	2
31	n – Hexane	A	2
32	Methyl Alcohol	A	1
33	Methyl Isobutyl Ketone	A	2
34	TetraHydroFurane (THF)	A	2
35	Toluene	A	1
36	Tri Chloro Ethylene	A	2
37	Xylene	A	1
38	Iodine Tincture	B	2
39	Hydrogen Peroxide 3%	A	1
40	Malachite Green Oxalate 1%	B	1
41	Methylene Blue 1%	B	1
42	Methyl Violet 2B 1%	B	2
43	Wright Stain 1%	B	2
44	Chlorine 5 PPM	B	0

Remarks:

(1) Method A: Saturate a cotton ball with the chemical reagent . Place the saturated cotton ball on the Surface of the laminate and cover the saturated cotton ball with a watch glass 10 cm Diameter . leave the covered reagent For 24 hours . after 24 hour wash the panel with Water , clean with detergent and rinse With de-ionized water . Leave the tested laminate For 24 hours and evaluate according to the level chart(3) .

(2) Method B: Place 5 drops of the chemical reagent on the decorative surface of the tested laminate and Cover the chemical reagent with a watch glass 10 cm Diameter . leave the covered reagent For 24 hours . after 24 hour wash the panel with water , clean with detergent and rinse With de-ionized water . Leave the tested laminate For 24 hours and evaluate according to The level chart(3) .

(3) Level Chart:

Level No.	Description
0	No detectable stain, loss of gloss or change to the surface of the laminate
1	Slight stain or loss in gloss but no change to the surface of the laminate
2	Severe stain or slight change to the surface of the laminate
3	Swelling, Pitting, cracking or erosion to the surface of the laminate

Cleaning and Maintenance

ZERO PST, provides an advanced ultra matt surface, low light reflectivity, anti-fingerprint, soft touch surface and healing of micro scratches. This unique product can easily be cleaned and do not require special effort. The surface itself is resistant to mold, it has enhanced anti-bacterial feature, resistant to rub, scratches and abrasion, as well as to acid , bases and solvents.

ZERO PST surface should be cleaned with a damp cloth with warm water or mild household detergents. Better to use a melamine foam sponge - aka magic sponge - for regular cleaning of the surface. If it can not be cleaned with normal detergents, non-aggressive organic solvents (acetone) can be used. Micro scratches should be solved by thermal healing instructions shown on our web page.

www.liri.it

EN-438 ICDLI SAVE THE NATURE ISEGA