

G-Bio Technical Data Sheet (1)

Characteristics	Test Method	Tested Value	Required Value
Thickness	EN 438-2 section 5	According to the required thickness	$2.0 \leq t < 3.0 \text{ mm} : \pm 0.20 \text{ mm}$ $3.0 \leq t < 5.0 \text{ mm} : \pm 0.3 \text{ mm}$ $5.0 \leq t < 8.0 \text{ mm} : \pm 0.4 \text{ mm}$ $8.0 \leq t < 12.0 \text{ mm} : \pm 0.5 \text{ mm}$ $12.0 \leq t < 16.0 \text{ mm} : \pm 0.6 \text{ mm}$ $16.0 \leq t < 20.0 \text{ mm} : \pm 0.7 \text{ mm}$ $20.0 \leq t < 25.0 \text{ mm} : \pm 0.8 \text{ mm}$ $25.0 \leq t : \text{According To Agreement customer / producer}$
Density	ISO 1183 - 1	1.4 gr/cm ³	Min. 1.35 gr/cm ³
Wear Resistance	EN 438-2 ⁽¹⁾ section 10 CGS ⁽²⁾	IP = 185 Rev. Wear Value = 485 Rev.	Initial Point \geq 150 Rev. Wear Value \geq 350 Rev.
Scratch Resistance	EN 438-2 section 25 CGS	3 N 4 N	Flat Surface Min. 2 N Textured Surface Min. 3 N
Impact Resistance	EN 438-2 Büyük Bilye section 21 CGS $2.0 \leq t < 6.0 \text{ mm}$ $t \geq 6,0 \text{ mm}$	No Crack , 4.5 mm No Crack , 3.5 mm	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	Level 4	Min. level 4

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Characteristics	Test Method	Tested Value	Required Value
Resistance to Dry Heat at 180°C	EN 438-2 section 16 CGS Flat / Textured Surface Finish	Level 5	Min. level 4
Resistance to Boiling Water	EN 438-2 section 12 CGS $2.0 \leq t < 5.0$ mm $t \geq 5,0$ mm Flat / Textured Surface Finish	2.2% 3.1% 0.55% 0.65% Level 5	Max. 5% in weight Max. 6% in thickness Max. 2% in weight Max. 2% in thickness Level 4

G-Bio Technical Data Sheet (2)

Characteristics	Test Method	Tested Value	Required Value
Resistance to Water Vapor	EN 438-2 section 14 CGS		
	Flat / Textured Surface Finish	Level 5	Min. Level 4
Resistance to Cigarette Burn	EN 438-2 section 30 CGS	Level 4	Min. Level 3
Resistance to Staining	EN 438-2 section 26 CGS		
	Group 1+2 Group 3	Level 5 Level 5	Min. level 5 Min. level 4
Resistance against chemicals (Acid / Base / Organic solvent / Inorganic Salt)	SEFA 8 - 1999	See attached List	---
Resistance against detergents, disinfectants ⁽⁹⁾ and Anti Microbial Agent ⁽¹¹⁾	SEFA 8-1999	See attached list	---
Flatness	EN 438-2 section 9 CGS		
	1.0 ≤ t 2.0 mm <	1,23 mm	Max. 8 mm / 1 M length
	6.0 ≤ t 10.0 mm< t ≥ 10,0 mm	1,46 mm 1,87 mm	Max. 5 mm / 1 M length Max. 3 mm / 1 M length
Light Fastness	EN 438-2 section 27 CGS Grey Scale	 Level 5	 Min. level 4
High Temp. Stability 70°C	EN 438-2 section 17 CGS		
	1.0 ≤ t ≤ 2.0 mm t ≥ 5,0 mm	L: 0.22% W: 0.35% L: 0.18% W: 0.23%	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	85 MPa	Min. 60 MPa
Flexural Strength	EN ISO 178 CGS	114 MPa	Min. 80 MPa

G-Bio Technical Data Sheet (3)

Characteristics	Test Method	Tested Value	Required Value
Flexural Modulus	EN ISO 178 CGS	16.522 Mpa	Min. 9000 MPa
Thermal Conductivity	ASTM C 518	0.416 W/mK	---
Coefficient Of Linear Thermal Expansion (COTE)	ASTM D696-08 ⁽³⁾	6.0×10^{-6} mm / mm °c	---
Total Volatile Organic Compound Emission	ASTM D5116	< 0.010 mg/m ² /saat	< 0.5 mg/m ² /hr
Antibacterial Activity ⁽³⁾	<u>JIS Z 2801 : 2000</u>		
	Staphylococcus Aureus (ATCC 6538p)(6)	R ⁽⁴⁾ = 2.84	R ⁽⁴⁾ = 2.84
	Pseudomonas Aeruginosa (ATCC 12924)(6)	R ⁽⁴⁾ = 3.00	R ⁽⁴⁾ = 3.00
	E. Coli (ATCC 25922)(6)	R ⁽⁴⁾ = 3.11	R ⁽⁴⁾ = 3.11
	Salmonella Cholearesuis (ATCC 10708)(6)	R ⁽⁴⁾ = 2.90	R ⁽⁴⁾ = 2.90
	<u>ISO 22196 : 2011</u>		
	Escherichia Coli (ATCC 25922)(6)	R ⁽⁷⁾ ≥ 4.1	R ⁽⁷⁾ ≥ 4.1
	MRSA NCTS(8) 13142	R ⁽⁷⁾ ≥ 4.1	R ⁽⁷⁾ ≥ 4.1
	Staphylococcus Aureus (ATCC 6538p)(6)	R ⁽⁷⁾ = 4.0	R ⁽⁷⁾ = 4.0
	Pseudomonas Aeruginosa (ATCC 9027)(6)	R ⁽⁷⁾ ≥ 4.1	R ⁽⁷⁾ ≥ 4.1
Salmonella Cholearesuis (ATCC 10708)(6)	R ⁽⁷⁾ = 2.90	R ⁽⁷⁾ = 2.90	
Fire Classification ⁽¹⁰⁾	EN 13501-1 10 mm	B s1 d0	B s2 d0

G-Bio Technical Data Sheet (4)

Characteristics	Test Method	Tested Value	Required Value
Available Decors ⁽⁵⁾	- Snow White 3000 - Office Grey 3153	---	---

Remarks :

- (1) Required Values Based on 438-4
- (2) CGS = Compact Grade Standard Laminate
- (3) The Antibacterial activity is tested with 4 & 5 different types in each test method of bacteria and test reports are available upon request
- (4) R = Value of Antimicrobial Activity
- (5) For any other décor – only after technical approval
- (6) ATCC = American Type Culture Collection
- (7) Log10 reduction from initial CFU cm-2
- (8) NCTC = National Collection of Type Cultures
- (9) Surface resistance against most common detergents and disinfectants used in hospitals , surgery room And Biological laboratories .
- (10) FR grade is produced only upon customer request
- (11) 5 Types of Anti Microbial Agent commonly used in hospital , chemical lab and biological lab. Test Method according to SEFA 8 1999
- (12) Cleaning recommendations : See Attached

Chemical Resistance According To SEFA 8-1999 (Ref. 2006) & SEFA 3-2010 (1) :

Test No	Chemical Reagent	Test Method ^{(1),(2)}	Test Result ⁽³⁾
1	Acetate, Amyl	A	0
2	Acetate, Ethyl	A	0
3	Acetic Acid, 98%	B	0
4	Acetone	A	0
5	Acid Dichromate , 5%	B	0
6	Alcohol, Butyl	A	0
7	Alcohol, Ethyl	A	0
8	Alcohol, Methyl	A	0
9	Ammonium Hydroxide, 28	B	1
10	Benzene	A	0
11	Chloroform	A	0
12	Chromic Acid, 60%	B	1
13	Dichloroacetic Acid	A	0
14	Dimethylformamide	A	0
15	Ferric (III) Chloride 10%	B	0
16	Formaldehyde, 37%	A	0
17	Formic Acid, 90%	B	0
18	Furfural	A	0
19	Gasoline	A	0
20	Hydrochloric Acid, 37%	B	0
21	Hydrofluoric Acid, 37%	B	0
22	Hydrofluoric Acid, 48%	B	0
23	Hydrogen Peroxide, 3%	B	0
24	Hydrogen Peroxide, 30%	B	0
25	Iodine Tincture	B	2
26	Methyl Ethyl Ketone	A	0
27	Methylene Blue 1%	B	1
28	Methylene Chloride	A	0
29	Methyl Isobutyl Ketone	A	0
30	Methyl Violet 2B 1%	B	1
31	Mono Chlorobenzene	A	0
32	Naphtalene	A	0

Chemical Resistance According To SEFA 8-1999 (Ref. 2006) & SEFA 3-2010 (1) :

Test No	Chemical Reagent	Test Method ^{(1),(2)}	Test Result ⁽³⁾
33	Nitric Acid, 30%	B	0
34	Nitric Acid, 70%	B	0
35	Phenol, 90%	A	0
36	Phosphoric Acid , 85%	B	0
37	Potassium Permanganate 5%	B	1
38	Silver Nitrate, Saturated	B	0
39	Sodium Hydroxide, 10%	B	0
40	Sodium Hydroxide, 40%	B	0

Chemical Resistance According To SEFA 8-1999 (Ref. 2006) & SEFA 3-2010 (2) :

Test No	Chemical Reagent	Test Method ^{(1),(2)}	Test Result ⁽³⁾
41	Sodium Hypochlorite 16%	B	0
42	Sodium Sulfide, Saturated	B	0
43	Sulfuric Acid, 33%	B	1
44	Sulfuric Acid, 77%	B	0
45	Sulfuric Acid, 96%	B	1
46	Sulfuric Acid 77% and Nitric Acid 70%, Equal Parts	B	1
47	TetraHydroFurane (THF)	A	0
48	Toluene	A	0
49	Trichloroethylene	A	0
50	Xylene	A	0
51	Zinc Chloride, Saturated	B	0
52	Chlorine Solution , 10,000 PPM	B	0
53	Hydrogen Peroxide , 30%	B	0

Resistance To Anti Microbial Detergents and Disinfectants According To Test Method SEFA 8-1999 (Ref. 2006) (4)

Test No	Anti Microbial Agent	Test Method ^{(1),(2)}	Test Result ⁽³⁾
1	Benzethonium Chloride 2%	B	0
2	Cetylpyridinium Chloride 4%	B	0
3	Domiphen Bromide 4%	B	0
4	Benzalkonium Chloride 4%	B	0
5	N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine 0.5%	B	1

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

(4) The test method refers only to the testing procedure

Recommended Cleaning Instructions :

1) The following cleaning instruction is suitable for periodic cleaning / maintaining and for cleaning after installation (Adhesive residue ets.).

2) Use Non abrasive cloth (Cotton Based / Vileda® Microclean Cloth) soaked with one of the following cleaners :

- Regular cleaning soap 5% solution (any household soap is suitable for this purpose)
- Oxivir Plus Spray (Produced by Diversey – www.diverseysolutions.com)
- TASKI Sprint Degerm (Produced by Diversey – www.diverseysolutions.com)

All mechanical cleaning system , e.g. rotating brushes / wiper blades etc. , are unsuitable for the surface and may cause a permanent damage to the decorative surface .

3) Wipe the surface with non abrasive cloth from any residue of the cleaner

4) Wipe the surface with Non abrasive clothe soaked with regular water and leave the surface for 5 minutes in order to dry .

5) Clean the surface again with Dry cloth .

6) For cleaners preparation method – follow producer instructions