



Greenlam

# LAB GUARDIAN

CHEMICAL RESISTANT HPL & COMPACT



**durable by design**







**Greenlam**  
LAMINATES

Since its inception, Greenlam has been a hallmark of exceptional artistry and an unbridled passion for innovation. It offers a complete range of surfacing solutions that are a perfect amalgamation of style and substance. Greenlam products come with an assurance of quality and a commitment towards people and the planet to build safer spaces for all. It has been offering anti-bacterial and anti-fungal surfaces for the last 10 years and now the surfaces come with a promise of being anti-virus too. Through research and innovation, it has constantly improved these features to offer the safest and the most hygienic surfacing solution in the world.

Here's a quick glimpse into the Greenlam world:

Stands among the top 3 manufacturers of compacts and laminates in the world

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Two state-of-the-art manufacturing facilities with a combined output of 15.62 million sheets p.a.

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A distributor and dealer network of over 14,000 partners

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Presence in more than 100 countries

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Largest exporter of laminates

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Holds several environmental, safety, product, and system-related certifications.

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Surfaces that are always on

**guard**

Greenlam Chemical-Resistant Compacts and Laminates will make you forget the time when surfaces could get corroded by chemicals. It is a more durable and cost-effective alternative to epoxy, slate, and stainless steel that'll protect your space with utmost safety and ease.

How does Greenlam Lab Guardian stand its guard?

Manufactured using the patented EBC (Electron Beam Curing) technology that withstands 100+ chemicals, solvents, and bases.

It is suitable for stains caused by general purpose chemicals, biomedical reagents, biological spills and waste, petrochemical products, food items, edible oils, beverages, and dairy products.

## Advantages



Durable



Hygienic



Self-Supporting



Safe



Higher Stability



Easy-to-Maintain

When

**hygiene**



is a necessity, not a choice.





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## Features

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Chemical-Resistant



Cleaning  
Agent-Resistant



Anti-Bacterial  
and Anti-Virus



Anti-Fungal



Non-Porous



Dry Heat-Resistant



Wet Heat-Resistant



Moisture-Resistant



Abrasion- and  
Scratch-Resistant



Stain-Resistant



Impact-Resistant

## Applications

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Educational  
Laboratories



Beauty  
Salons



Physician and  
Dentists' Examining  
and Treatment Rooms



Laboratories  
and Pathologists'  
Workrooms



Nurses'  
Stations



Photography Labs  
and Darkrooms



Product Testing  
Facilities



# Test Results



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Acids		Solvents		Bases		General Reagents		Stains & Indicators	
	Level		Level		Level		Level		Level
Aqua Regia, Sulphuric Acid 77% & Nitric Acid 65%, equal part	0	Acetone	0	Ammonium Hydroxide 25%	0	Copper Sulphate 5%	0	Aniline Blue, Water Soluble 1%	0
Chromic Trioxide (Chromic Acid Cleaning Solution) 60%	0	Acetonitrile	0	Sodium Hydroxide 10%	0	Ethylene Glycol	0	Congo Blue 1%	0
Formic Acid 90%	2	Amyl Acetate	0	Sodium Hydroxide 20%	0	Ferric Sulphate 5%	0	Crystal Violet 0.1%	0
Glacial Acetic Acid 99%	3	Benzene	0	Sodium Hydroxide 40%	0	Gasoline	0	Gentian Violet 1%	0
Hydrofluoric Acid 48%	0	Butyl Alcohol	0	Sodium Hydroxide Flakes	0	Hydrogen Peroxide 3%	0	Malachite Green 0.1%	0
Nitric Acid 20%	0	Carbon Tetrachloride	0			Iodine (Crystals)	1	Methyl Red 0.1%	0
Nitric Acid 30%	0	Chloroform	1			Iodine Solution (0.1N)	1	Methylene Blue 0.1%	0
Nitric Acid 65%	0	Dichloromethane	0			Karl Fischer Reagent	0	Phenolphthalein 0.1%	0
Nitric Acid 65% : Hydrochloric Acid 37% (1:3)	0	Diethyl Ether	0			Kerosene	0	Thymol Blue 0.1%	0
Nitric Acid 65% : Hydrochloric Acid 37% (1:3)	0	Dimethylformamide	0			Mineral Oil	0		
Perchloric Acid 60%	1	Dioxane	0			Potassium Iodide 10%	0		
Phosphoric Acid 85%	0	Ethyl Acetate	0			Potassium Permanganate 0.1%	0		
Sulphuric Acid 33%	0	Ethyl Alcohol	0			Silver Nitrite 5%	0		
Sulphuric Acid 77%	0	Formaldehyde 37%	1			Sodium Chloride 10%	0		
Sulphuric Acid 77% : Nitric Acid 65% (1:1)	0	Methanol	0			Sodium Hypochlorite 5%	0		
Sulphuric Acid 85%	0	Methyl Ethyl Ketone	0			Sodium Hypochlorite 13%	0		
Sulphuric Acid 85% : Nitric Acid 70% (1:1)	0	Methylene Chloride	0			Trisodium Phosphate 30%	0		
Sulphuric Acid 96%	0	Napthalene	0			Urea 5%	0		
		N-Hexane	0			Vegetable Oil (Olive)	0		
		Phenol 90%	0			Water	0		
		Phenol Solution 80%	0			Zinc Chloride (saturated solution)	0		
		Tetrahydrofuran	0						
		Toluene	0						
		Trichloroethylene	0						
		Xylene	0						

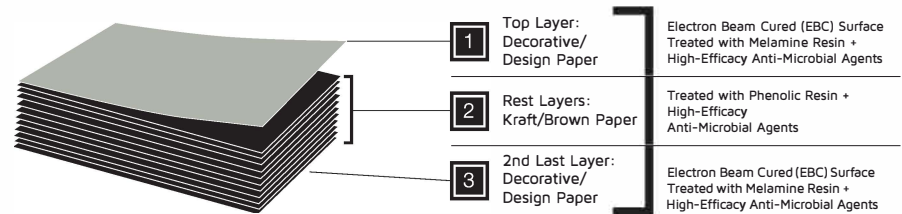
LEGEND	Level 0 No detectable change.	Level 1 Slight change in colour or gloss.	Level 2 Slight surface etching or severe staining.	Level 3 Pitting, cratering, swelling, or erosion of coating, obvious and significant deterioration.
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Tested as per the EN 438 standard



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## Greenlam Lab Guardian Construction Technique

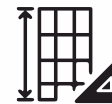


## Product Offering



**DECOR/  
TEXTURES**

Available  
in 3 Decors;  
Suede Texture.



**SIZES**

1525 mm  
x  
3660 mm



**THICKNESS**



1 mm  
to  
25 mm

9802 CINEREA

9803 BLACK

9801 ARGENT WHITE

Available in  
**3**  
Decors

## Approved By The World



# Technical Specifications



**LAB GUARDIAN**  
CHEMICAL RESISTANT HPL & COMPACT

S. NO.	PROPERTIES	Unit	TEST METHOD AS PER EN 438 Part 2 & 4 : 2016	SPECIFIED VALUES	TYPICAL GREENLAM RESULTS	SPECIFIED VALUES	TYPICAL GREENLAM RESULTS
1	CLASSIFICATION		EN 438-4- 4	LABGUARDIAN COMPACT GENERAL PURPOSE STANDARD, CGS		LABGUARDIAN COMPACT GENERAL PURPOSE FLAME-RETARDANT, CGF	
	Surface Coating		--	ELECTRON BEAM CURED CHEMICAL RESISTANT RESIN			
	Core colour		--	Available in Brown & Black color cores. Unicore optional.			
	Size offered	mm	--	1525mm x 3660mm—single size to suit multiple cut sizes			
2	Surface Quality	mm <sup>2</sup> /M <sup>2</sup>	EN 438-4, 6.2.4.2	1.0 (max.)	Complies	1.0 (max.)	Complies
3	Fibers, Hairs & Scratches	mm/M <sup>2</sup>		10.0 (max.)	Complies	10.0 (max.)	Complies
4	Thickness & Maximum variation	mm	EN 438-2 – 5	8.0 to 11.00± 0.50	8.0 to 11.00 ± 0.35	8.0 to 11.00± 0.50	8.0 to 11.00 ± 0.35
		mm	EN 438-2 – 5	12.0 to 16.0 ± 0.60	12.0 to 16.0 ± 0.40	12.0 to 16.0 ± 0.60	12.0 to 16.0 ± 0.40
5	Length & Width	mm	EN 438-2 – 6	+10mm /-0mm	+5mm /-0mm	+10mm /-0mm	+5mm /-0mm
6	Flatness	mm/M	EN 438-2 – 9 (6.0≤t<10mm)	5.0 (max.)	Complies	5.0 (max.)	Complies
		Mm/M	EN 438-2 – 9 (10.0≤t)	3.0 (Max.)	Complies	3.0 (Max.)	Complies
7	Edges Straightness	mm/M	EN 438-2 – 7	1.5 (max.)	≤ 1	1.5 (max.)	≤ 1
8	Edges Squareness	mm/M	EN 438-2 – 8	1.5 (max.)	Complies	1.5 (max.)	Complies
9	Resistance to Dry Heat at 160° C	Rating	EN 438-2 -16	4 (min.)	5	4 (min.)	5
10	Resistance to Surface Wear, Initial point	Rev.	EN 438-2 -10	150 (min.)	450 (min.)	150 (min.)	450 (min.)
11	Resistance to Water Vapor, Appearance	Rating	EN 438-2 -14	4 (min.)	5	4 (min.)	5
12	Resistance to Immersion in Boiling Water (2 hours)		EN 438-2 – 12				
	a) Mass Increase	%		2.0 (max.)	0.62	3.0 (max.)	1.10
	b) Thickness	%		2.0 (max.)	0.92	6.0 (max.)	1.86
	c) Surface appearance	Rating		4 (min.)	5	4 (min.)	5
	d) Edge appearance		3 (min.)	4	3 (min.)	4	
13	Dimensional Stability at Elevated Temperature		EN 438-2 – 17				
	a) Longitudinal	%		0.30(max.)	0.10	0.30 (max.)	0.18
	b) Transverse	%		0.60 (max.)	0.21	0.60 (max.)	0.38
14	Resistance to Impact by Large Diameter Ball		EN 438-2 – 21				
	a) Drop Height	mm		1800	2000	1800	2000
	b) Diameter of Indentation	mm		10 (max.)	7	10 (max.)	7
15	Resistance to Scratching, Force	Rating	EN 438-2 – 25	3 (min.)	4	3 (min.)	4
16	Resistance to staining	Group 1 & 2	Rating	EN 438-2 – 26	5	5	55
	Group 3	Rating		4	≥ 4	4	≥ 4
	<b>Chemical &amp; Stain Resistance</b>		<b>SEFA 8.1-PL-2010</b>		<b>Complies</b>		
17	Resistance to Wet heat (100°C), Appearance	Rating	EN 438-2 – 18	4 (min.)	5	4 (min.)	5
18	Resistance to Crazing, Appearance	Rating	EN 438-2 – 24	4 (min.)	5	4 (min.)	5
19	Resistance to Cigarette burns	Rating	--	No requirement in the latest specification			
20	Flexural Modulus	Mpa	EN ISO 178:2003	9000 (min.)	11000	9000 (min.)	10700
21	Flexural Strength	Mpa	EN ISO 178:2003	80 (min.)	100	80 (min.)	100
22	Tensile Strength	Mpa	EN ISO 527-2:1996	No requirement in the latest specification			
23	Light Fastness (Xenon Arc), Grey Scale	Rating	EN 438-2 - 27	4 to 5	Complies	4 to 5	Complies
24	Density	g/cm3	EN ISO 1183 -1 :2004	1.35	1.38	1.35	1.38
25	Resistance to fixing (Screw pull out strength) - 8.0mm & 9.00mm thick board	N	ISO 13894-1; 9	3000 (min.)	>3000	3000 (min.)	≥3000
	-10.0mm thick board & above			4000 (min.)	>4000	4000 (min.)	>4000
27	Thermal Conductivity/ Resistance	W/m <sup>2</sup> K	EN-12524:2000, EN-12664:2001		0.24		0.24
28	Formaldehyde Release, Greenguard Gold standards		UL-2818:2013		7.3 ppb		7.3 ppb
29	Reaction to Fire (Tested according to EN 13823:2010 & EN 11925-2 :2010)*	Euro class	EN 438-7 & EN 13501-1: 2007+ A1:2009	D-s2,d0 or better	C-S2, d0 Superior, better	B-s2,d0	B-S1, d0, Superior, better
30	Anti-Viral Efficacy & Activity		ISO 21702-2019				
	% Reduction in 24 hours Activity after 24 hours	% Log Reduction		95.0 (min.) 2.0 (min.)	99.9 (min.) Exceeds	95.0 (min.) 2.0 (min.)	99.9 (min.) Exceeds
31	Anti-bacterial Efficacy & Activity		JIS 2801-2012				
	% Reduction in 24 hours Activity after 24 hours	% Log Reduction		95.0 (min.) 2.0 (min.)	99.99 Exceeds	95.0 (min.) 2.0 (min.)	99.99 Exceeds
32	Anti-Fungus Efficacy		ASTM G-21-2015				
	Growth after 28 days	Rating		1	0 ( No Growth)	1	0 ( No Growth)

Virus Tested: MS2 Bacteriophage

Bacteria Tested : 1. Pseudomonas Aeruginosa, 2. Enterococcus Faecalis, 3. Candida Albicans, 4. Pseudomonas Aeruginosa, 5. Escherichia Coli, 6. Klebsiella Pneumoniae, 7. MRSA (Methicillin Resistant Staphylococcus Aureus), 8. Salmonella Enterica

Fungus Tested : 1. Aspergillus Niger, 2. Penicillium Funiculosum, 3. Gliocladium Virens, 4. Chaetobium Globosum, 5. Aurobasidium Pullulans

Note: Whereas Greenlam products are manufactured thoroughly to standards, the nature of the application procedure is beyond our control. The values given above are to the best of knowledge but without liability/warranty, expressed or implied

# Technical Specifications



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S. NO.	PROPERTIES	Unit	TEST METHOD AS PER EN 438 Part 2 & 3 : 2016	SPECIFIED VALUES	TYPICAL GREENLAM RESULTS	SPECIFIED VALUES	TYPICAL GREENLAM RESULTS
1	CLASSIFICATION		EN 438-3- 5.3	LABGUARDIAN LAMINATES HORIZONTAL GRADE GENERAL PURPOSE STANDARD, HGS	LABGUARDIAN LAMINATES HORIZONTAL GRADE GENERAL PURPOSE FLAME-RETARDANT, HGF		
	Surface Coating	--		ELECTRON BEAM CURED CHEMICAL RESISTANT RESIN			
	Core colour	--		Available in Brown color core			
	Size offered mm	--		1525mm x 3660mm—single size to suit multiple cut sizes			
2	Surface Quality	mm <sup>2</sup> /M <sup>2</sup>	EN 438-3, 6.2.5.2	1.0 (max.)	Complies	1.0 (max.)	Complies
3	Fibers, Hairs & Scratches	mm/M <sup>2</sup>		10.0 (max.)	Complies	10.0 (max.)	Complies
4	Thickness & Maximum variation	mm	EN 438-2 – 5	1.0 ± 0.10	1.00 to 1.07	1.0 ± 0.10	1.00 to 1.07
5	Length & Width	mm	EN 438-2 – 6	+10mm /-0mm	+5mm /-0mm	+10mm /-0mm	+5mm /-0mm
6	Flatness	mm/M	EN 438-2 – 9	60.0 (max.)	Complies	60.0 (max.)	Complies
7	Edges Straightness	mm/M	EN 438-2 – 7	1.5 (max.)	≤ 1	1.5 (max.)	≤ 1
8	Edges Squareness	mm/M	EN 438-2 – 8	1.5 (max.)	Complies	1.5 (max.)	Complies
9	Resistance to Dry Heat at 160° C	Rating	EN 438-2 -16	4 (min.)	5	4 (min.)	5
10	Resistance to Surface Wear, Initial point	Rev.	EN 438-2 -10	150 (min.)	450 (min.)	150 (min.)	450 (min.)
11	Resistance to Water Vapor, Appearance	Rating	EN 438-2 -14	4 (min.)	5	4 (min.)	5
12	Resistance to Immersion in Boiling Water (2 hours) Surface appearance	Rating	EN 438-2 – 12	4 (min.)	5	4 (min.)	5
13	Dimensional Stability at Elevated Temperature		EN 438-2 – 17				
	a) Longitudinal	%		0.55(max.)	0.30	0.55 (max.)	0.30
	b) Transverse	%		1.05 (max.)	0.60	1.05 (max.)	0.60
14	Resistance to Impact by Large Diameter Ball		EN 438-2 – 21				
	a) Drop Height	mm		800	1000	800	1000
	b) Diameter of Indentation	mm		10 (max.)	7	10 (max.)	7
15	Resistance to Scratching, Force	Rating	EN 438-2 – 25	3 (min.)	4	3 (min.)	4
16	Resistance to staining	Rating	EN 438-2 – 26	5	5	5	5
	Group 1 & 2	Rating		4	≥ 4	4	≥ 4
	Group 3	Rating					
	Chemical & Stain Resistance		SEFA 8.1-PL-2010		Complies		
17	Resistance to Wet heat (100°C), Appearance	Rating	EN 438-2 – 18	4 (min.)	5	4 (min.)	5
18	Light Fastness (Xenon Arc), Grey Scale	Rating	EN 438-2 - 27	4 to 5	Complies	4 to 5	Complies
19	Density	g/cm <sup>3</sup>	EN ISO 1183 -1 :2004	1.35	1.38	1.35	1.38
20	Formaldehyde Release, Greenguard Gold standards		UL-2818:2013		7.3 ppb		7.3 ppb
21	Reaction to Fire (Tested according to EN 13823:2010 & EN 11925-2 :2010)*	Euro class	EN 438-7 & EN 13501-1: 2007+ A1:2009	D-s2,d0 or better	D-S1, d0	C-s2,d0	C-S1, d0,
22	Anti-Viral Efficacy & Activity						
	% Reduction in 24 hours	%	ISO 21702-2019	95.0 (min.)	99.9 (min.)	95.0 (min.)	99.9 (min.)
	Activity after 24 hours	Log Reduction		2.0 (min.)	Exceeds	2.0 (min.)	Exceeds
23	Anti-bacterial Efficacy & Activity						
	% Reduction in 24 hours	%	JIS 2801-2012	95.0 (min.)	99.99	95.0 (min.)	99.99
	Activity after 24 hours	Log Reduction		2.0 (min.)	Exceeds	2.0 (min.)	Exceeds
24	Anti-Fungus Efficacy						
	Growth after 28 days	Rating	ASTM G-21-2015	1	0 ( No Growth)	1	0 ( No Growth)

Note: Whereas Greenlam products are manufactured thoroughly to standards, the nature of the application procedure is beyond our control. The values given above are to the best of knowledge but without liability/warranty, expressed or implied  
 Bacteria Tested : 1. Pseudomonas Aeruginosa, 2. Enterococcus Faecalis, 3. Candida Albicans, 4. Pseudomonas Aeruginosa, 5. Escherichia Coli, 6. Klebsiella Pneumoniae, 7. MRSA (Methicillin Resistant Staphylococcus Aureus), 8. Salmonella Enterica  
 Fungus Tested : 1. Aspergillus Niger, 2. Penicillium Funiculosum, 3. Gliocladium Virens, 4. Chaetobium Globosum, 5. Aurobasidium Pullulans

Note: Whereas Greenlam products are manufactured thoroughly to standards, the nature of the application procedure is beyond our control. The values given above are to the best of knowledge but without liability/warranty, expressed or implied





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