www.greenlam.com

Greenlam

LAB GUARDIAN

CHEMICAL RESISTANT HPL & COMPACT

WITHSTANDS 100+ CHEMICALS

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

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

A distributor and dealer network of over 14,000 partners

Presence in more than 100 countries

Largest exporter of laminates

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.

GREENLAM
ANTI-VIRUS
ANTI-BACTERIAL
LAMINATES

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Features

- 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

- 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	Level
Aqua Regia, Sulphuric Acid 77% & Nitric Acid 65%, equal part	0
Chromic Trioxide (Chromic Acid Cleaning Solution) 60%	0
Formic Acid 90%	2
Glacial Acteic Acid 99%	3
Hydrofluoric Acid 48%	0
Nitric Acid 20%	0
Nitric Acid 30%	0
Nitric Acid 65%	0
Nitric Acid 65% : Hydrochloric Acid 37% (1:3)	0
Perchloric Acid 60%	1
Phosphoric Acid 85%	0
Sulphuric Acid 33%	0
Sulphuric Acid 77%	0
Sulphuric Acid 77% : Nitric Acid 65% (1:1)	0
Sulphuric Acid 85%	0
Sulphuric Acid 85% : Nitric Acid 70% (1:1)	0
Sulphuric Acid 96%	0

Solvents	Level
Acetone	0
Acetonitrile	0
Amyl Acetate	0
Benzene	0
Butyl Alcohol	0
Carbon Tetrachloride	0
Chloroform	1
Dichloromethane	0
Diethyl Ether	0
Dimethylformamide	0
Dioxane	0
Ethyl Acetate	0
Ethyl Alcohol	0
Formaldehyde 37%	1
Methanol	0
Methyl Ethyl Ketone	0
Methylene Chloride	0
Napthelene	0
N-Hexane	0
Phenol 90%	0
Phenol Solution 80%	0
Tetrahydrofuran	0
Toluene	0
Trichloroethylene	0
Xylene	0

Bases	Level
Ammonium Hydroxide 25%	0
Sodium Hydroxide 10%	0
Sodium Hydroxide 20%	0
Sodium Hydroxide 40%	0
Sodium Hydroxide Flakes	0

General Reagents	Level
Copper Sulphate 5%	0
Ethylene Glycol	0
Ferric Sulphate 5%	0
Gasoline	0
Hydrogen Peroxide 3%	0
Iodine (Crystals)	1
Iodine Solution (0.1N)	1
Karl Fischer Reagent	0
Kerosene	0
Mineral Oil	0
Potassium Iodite 10%	0
Potassium Permanganate 0.1%	0
Silver Nitrite 5%	0
Sodium Chloride 10%	0
Sodium Hypochloride 5%	0
Sodium Hypochlorite 13%	0
Trisodium Phosphate 30%	0
Urea 5%	0
Vegetable Oil (Olive)	0
Water	0
Zinc Chloride (saturated solution)	0

Stains & Indicators	Level
Aniline Blue, Water Soluble 1%	0
Congo Blue 1%	0
Crystal Violet 0.1%	0
Gentian Violet 1%	0
Malachite Green 0.1%	0
Methyl Red 0.1%	0
Methylene Blue 0.1%	0
Phenolphthalein 0.1%	0
Thymol Blue 0.1%	0

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

Tested as per the EN 438 standard

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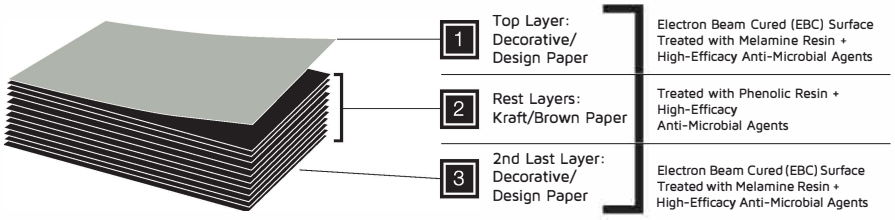
9802 CINEREAL

Available in 3 Decors

9803 BLACK

9801 ARGENT WHITE

Greenlam Lab Guardian Construction Technique



Product Offering

DECOR/ TEXTURES	SIZES	THICKNESS
Available in 3 Decors; Suede Texture.	1525 mm x 3660 mm	1 mm to 25 mm

Approved By The World

Technical Specifications

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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 RESISTANCT 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^2/M^2	EN 438-4, 6.2.4.2	1.0 (max.)	Complies	1.0 (max.)	Complies
3	Fibers, Hairs & Scratches	mm/M^2		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
	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	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**
26	-10.0mm thick board & above			4000 (min.)	>4000	**4000 (min.)**	>4000
27	Thermal Conductivity/ Resistance	W/m°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						
	% 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
31	Anti-bacterial Efficacy & Activity		JIS 2801-2012				
	% Reduction in 24 hours	%		95.0 (min.)	99.99	95.0 (min.)	99.99
	Activity after 24 hours	Log Reduction		2.0 (min.)	Exceeds	2.0 (min.)	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 Funicolosum, 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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Technical Specifications

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^2/M^2	EN 438-3, 6.2.5.2	1.0 (max.)	Complies	1.0 (max.)	Complies
3	Fibers, Hairs & Scratches	mm/M^2		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)		EN 438-2 – 12				
	Surface appearance	Rating		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 Group 1 & 2	Rating	EN 438-2 – 26	5	5	5	5
	Group 3	Rating		4	≥ 4	4	≥ 4
	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/cm3	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	Euro class	EN 438-7 & EN 13501-1: 2007+	D-s2,d0 or better	D-S1, d0	C-s2,d0	C-S1, d0,
	(Tested according to EN 13823:2010 & EN 11925-2 :2010)*		A1:2009				
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		ASTM G-21-2015				
	Growth after 28 days	Rating		1	0 (No Growth)	1	0 (No Growth)

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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 Funicolosum, 3. Gliocladium Virens, 4. Chaetobium Globosum, 5. Aurobasidium Pullulans

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