www.greenlam.com

Greenlam

LAB GUARDIAN

CHEMICAL RESISTANT HPL & COMPACT

durable by design

WITHSTANDS 100+ CHEMICALS

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 offer superior quality you can trust, with a commitment to people and the planet to build safer spaces for all. It has been offering anti-bacterial and anti-fungal surfaces for the last 15 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

Four state-of-the-art manufacturing facilities with a combined output of 24.52 million sheets p.a.

A distributor and dealer network of over 30,000 partners

Presence in more than 120 countries

Largest exporter of laminates from India

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

Surfaces that are always on guard

The chemical resistant surface contains décor papers impregnated with special Acrylic Based Resins, and processed by using Electron Beam Curing Technology. 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.

When hygiene

GREENLAM
ANTI-VIRUS
ANTI-BACTERIAL
LAMINATES

is a necessity, not a choice.

Advantages

- Durable
- Hygienic
- Self-Supporting
- Higher Stability
- Easy-to-Maintain
- Safe

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 Dentist's Examining and Treatment Rooms
- Laboratories and Pathologists' Workrooms
- Nurses' Stations
- Photography labs and Darkrooms
- Product Testing Facilities

Results of Chemical Spot Test

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

Solvents	Level
Acetone	0
Acetonitrile	0
Amyl Acetate	0
Benzene	0
Butyl Alcohol	0
Carbon Tetrachloride	0
Chloroform	0
Dichloromethane	0
Diethyl Ether	0
Dimethylformamide	0
Dioxane	0
Ethyl Acetate	0
Ethyl Alcohol	0
Formaldehyde 37%	0
Methanol	0
Methyl Ethyl Ketone	0
Methylene Chloride	0
Naphthalene	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 tincture	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 Hypochlorite 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 EN 438-2, TM 26: 2016; SEFA PL 8.1-2020 & SEFA 3.0-2020 standards.

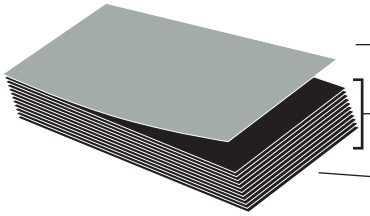
9802 CINEREAL

Available in 3 Decors

9803 BLACK

9801 ARGENT WHITE

Greenlam Lab Guardian Construction Technique



1	Top Layer: Decorative/ Design Paper	Electron Beam Cured (EBC) surface treated with special Acrylic Based Resin + High-Efficacy Anti-Microbial Agents
2	Rest Layers. Kraft/Brown Paper	Treated with Phenolic Resin + High-Efficacy Anti-Microbial Agents
3	Last Layer: Decorative/ Design Paper	Electron Beam Cured (EBC) surface treated with special Acrylic Based Resin + High-Efficacy Anti-Microbial Agents

Product Offering

DECOR/ TEXTURE(S)	SIZE	THICKNESS
Available in 3 Decors; Suede Texture.	1525 mm X 3660 mm	1 mm to 25mm

Approved By The World

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CHEMICAL RESISTANT HPL & COMPACT

Technical Specifications

S. NO.	PROPERTIES	UNIT	TEST METHOD: EN 438 Part 2: 2016	SPECIFIED VALUES	TYPICAL GREENLAM RESULTS	SPECIFIED VALUES	TYPICAL GREENLAM RESULTS
1	CLASSIFICATION		EN 438-4-4	COMPACT GENERAL - PURPOSE STANDARD, CGS		COMPACT GENERAL PURPOSE FLAME-RETARDANT, CGF	
2	Surface Coating			ELECTRON BEAM CURED CHEMICAL RESISTANT SURFACE			
3	Core color			Available in black and brown color cores.		Available in brown color core.	
4	Size Offered	mm		1525mm x 3660mm - Single size to suit multiple cut sizes			
	PHYSICAL AND DIMENSIONAL PROPERTIES						
5	Surface Quality	mm^2/M^2	EN 438-4, 6.2.4.2	1.0 (max.)	Complies	1.0 (max.)	Complies
6	Fibers, Hairs & Scratches	mm/M^2		10.0 (max.)	Complies	10.0 (max.)	Complies
7	Thickness & Maximum Variation	Mm	EN 438-2-5	8.0 ± 0.50	8.0± 0.35	8.0± 0.50	8.0± 0.35
				13.0 to 16.0 ± 0.60	13.0 to 16.0±0.40	13.0 to 16.0 ± 0.60	13.0 to 16.0 ± 0.40
8	Length & Width	Mm	EN 438-2-6	+10mm/-0mm	+5mm/-0mm	+10mm/-0mm	+5mm/-0mm
9	Flatness	mm/M	EN 438-2-9	5.0(max.)	Complies	5.0(max.)	Complies
10	Edges Straightness	mm/M	EN 438-2-7	1.5 (max.)	≤1	1.5 (max.)	≤1
11	Edges Squareness	mm/M	EN 438-2-8	1.5 (max.)	Complies	1.5 (max.)	Complies
12	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
13	Density	g/cm^3	EN ISO 1183 -1:2004	1.35	1.38	1.35	1.38
14	Thermal Conductivity/ Resistance	W/m °K	EN-12524:2000, EN-12664:2001	No specification	0.24	No specification	0.24
	MECHANICAL PROPERTIES						
15	Resistance to Immersion in Boiling Water		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
16	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
17	Resistance to Crazing, Appearance	Rating	EN 438-2-24	4 (min.)	5	4 (min.)	5
18	Flexural Modulus	M Pa	EN ISO 178:2003	9000 (min.)	1100	9000 (min.)	10700
19	Flexural Strength	M Pa	EN ISO 178:2003	80 (min.)	10	80 (min.)	100
20	Resistance to fixing - 8.0 mm thick board	N	ISO 13894-1;9	3000 (min.)	≥ 3000	3000 (min.)	≥ 3000
	10.0 mm thick board & above			4000 (min.)	>4000	4000 (min.)	>4000
	SURFACE PROPERTIES						
21	Resistance to Dry Heat at 160' C	Rating	EN 438-2-16	4 (min.)	5	4 (min.)	5
22	Resistance to Wet Heat (100°C), Appearance	Rating	EN 438-2-18	4 (min.)	5	4 (min.)	5
23	Resistance to Surface Wear, Initial point	Rev.	EN 438-2-10	150 (min.)	450 (min.)	150 (min.)	450 (min.)
24	Resistance to Water Vapor, Appearance	Rating	EN 438-2-14	4 (min.)	5	4 (min.)	5
25	Resistance to Scratching, force	Rating	EN 438-2-25	3 (min.)	4	3 (min.)	4
26	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 2020 & SEFA 3.1 PL 2020	Not more than rating 3 against 4 chemicals	Complies	Not more than rating 3 against 4 chemicals	Complies
27	Light fastness (Xenon Arc), Grey Scale	Rating	EN 438-2 - 27	4 to 5	Complies	4 to 5	Complies
	FIRE PERFORMANCE						
28	Reaction to fire	Euro class	EN13501-1:2007+A1:2009	D-s2, d0 or better	C-S2, d0 Superior, better	B-s2, d0	B-S1, d0, Superior, better
	HEALTH AND ENVIRONMENTAL PROPERTIES						
29	Formaldehyde Release, Greenguard Gold standards		UL-2818: 2013		7.3 ppb		7.3 ppb

BIO-CHEMICAL PROPERTY	STANDARD	UNIT	REQUIREMENT	TEST RESULT
Antiviral Efficacy & Activity	ISO 21702-2019	% Reduction in10 minutes % Reduction in 30 minutes	No Requirement No Requirement	90.0% (Min.) 90.0% (Min.)
Virus tested		SARS Cov 2		
Antibacterial Efficacy & Activity	ISO 21702-2019	% Reduction in 2 hours % Reduction in 24 hours	No Requirement 95.0 (Min.)	90% (Min.) 99.9% (Min.)
		Activity after 24 hours	2.0 (Min.)	Exceeds
Virus tested		MS2 Bacteriophage		
Antibacterial Efficacy & Activity	JIS 2801-2012	% Reduction in 24 hours Activity after 24 hours	95.0 minimum 2.0 (Min.)	99.99 Exceeds
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 Typhimurium		
Antifungal Efficacy	ASTM G-21-2015	Growth after 28 days	Rating 1	Rating 0 (No Growth)
Fungus tested		1. Aspergillus niger, 2. Penicillium Funiculosum, 3. Gliocladium virens, 4. Chaetomium globosum, 5. Aureobasidium pullulans		

General purpose chemicals	Biomedical reagents	Biological spills and wastes	Petrochemical products	Food items and edible oils	All beverages	Dairy products

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.

SEFA Chemical Spot test-Typical Results

S. No.	CHEMICAL	TEST METHOD	RATINGS	TYPICAL VALUES- LABGUARDIAN
1	Acetate, Amyl	A	0-1	0
2	Acetate, Ethyl	A	0-2	0
3	Acetic Acid 98%	B	0-3	0
4	Acetone	A	0-1	0
5	Acid Dichromate 5%	B	0-1	0
6	Alcohol, Butyl	A	0-1	0
7	Alcohol, Ethyl	A	0	0
8	Alcohol, Methyl	A	0-1	0
9	Ammonium Hydroxide 28%	B	0	0
10	Benzene	A	0-2	0
11	Carbon Tetrachloride	A	0-1	0
12	Chloroform	A	0-2	0
13	Chromic Acid 60%	B	0-2	0
14	Cresol	A	0-2	0
15	Dichloroacetic Acid	A	0-3	0
16	Dimethylformamide	A	0-2	0
17	Dioxane	A	0-2	0
18	Ethyl Ether	A	0-1	0
19	Formaldehyde 37%	A	0-1	0
20	Formic Acid 90%	B	0-3	0
21	Furfural	A	0-3	0
22	Gasoline	A	0	0
23	Hydrofluoric Acid 37%	B	0-2	0
24	Hydrofluoric Acid 48%	B	0-3	0
25	Hydrogen Peroxide 30%	B	0-1	0
26	Iodine, Tincture	B	0-2	1
27	Methyl Ethyl Ketone	A	0-2	0
28	Methylene Chloride	A	0-2	0
29	Monochlorobenzene	A	0-2	0
30	Naphthalene	A	0-1	0
31	Nitric Acid 20%	B	0-1	0
32	Nitric Acid 30%	B	0-1	0
33	Nitric Acid 70%	B	0-3	0
34	Phenol90%	A	0-2	0
35	Phosphoric Acid 85%	B	0-1	0
36	Silver Nitrate, Saturated	B	0	0
37	Sodium Hydroxide 10%	B	0	0
38	Sodium Hydroxide 20%	B	0	0
39	Sodium Hydroxide 40%	B	0-1	0
40	Sodium Hydroxide, Flake	B	0	0
41	Sodium Sulfide, Saturated	B	0	0
42	Sulfuric Acid 33%	B	0	0
43	Sulfuric Acid 77%	B	0	1
44	Sulfuric Acid 96%	B	02-03	2
45	Sulfuric Acid 77%, and Nitric Acid 70%, equalparts	B	02-03	1
46	Toluene	A	0-1	0
47	Trichloroethylene	A	0-1	0
48	Xylene	A	0-1	0
49	Zinc Chloride, Saturated	B	0	0

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