

Pionite® ChemGuard laminate incorporates the decorative features of high pressure laminate into a durable chemical resistant surfacing material. ChemGuard is available in any Pionite® color, and can be made in thicknesses between 0.028 inches (0.711mm) and 1 inch (25mm). Thicker grades of ChemGuard can be used as self supporting worktops. ChemGuard HPL continues to look good even in the harshest environments, making it ideal for horizontal surfaces in laboratories, healthcare facilities, schools, manufacturing plants, photographic processing work areas and more.

Product Composition

ChemGuard laminate is manufactured in a flat press by combining decorative papers saturated in chemical resistant resin with phenolic impregnated kraft layers at pressures exceeding 1000 psi (6.9 MPa) and temperatures approaching 300°F (150°C). The panels are trimmed to size and the backs are sanded to facilitate bonding. The number of kraft layers used determines the thickness of the laminate. The laminating process combines the durability of chemical resistant resins with the aesthetics of decorative papers creating a surfacing material that has been the standard for many years.

Product Description

ChemGuard can be manufactured with brown or black phenolic core. Laminate edges can be polished for a finished appearance. To further enhance the edge appearance, ChemGuard can be manufactured with colored stripes within the core. Thicker grades of ChemGuard laminate can be very heavy. Because of this increased weight, manual handling may be difficult. Please consult the chart for approximate sheet weight and thickness.

Typical ChemGuard Product Types

	H28	H48	HD2	HD5	HD8	HDI
Thickness (in.)	0.028	0.048	0.25	0.50	0.75	1.00
(mm)	0.71	1.2	6.4	13	19	25
Unit (lb/ft ²)	0.21	0.34	1.82	3.68	5.43	7.44
Weight (kg/m ²)	1.0	1.7	9.2	18.0	26.6	36.3

ChemGuard is available in the following sizes:

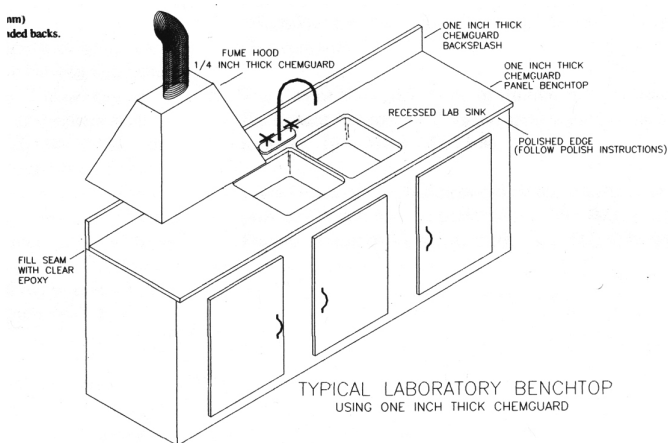
Nominal widths:

36" (915mm), 48" (1220mm) and 60" (1525mm)

Nominal lengths:

96" (2440mm), 120" (3050mm) and 144" (3660mm)

Other widths and thicknesses of ChemGuard are available upon request. ChemGuard laminates thicker than 0.125" are not available with sanded backs.



Stain and Chemical Resistance

ChemGuard Laminate is in conformance with NEMA LDS-2005 3.4 stain resistance and SEFA 8-PL-2010 recommended practices, section 8.1 chemical resistance.

Typical Uses

Typical uses include laboratory benchtops, cabinets, casework, and fume hoods. ChemGuard is ideal for photographic darkrooms, nurse's workstations, medical, dental and veterinary work areas, and mortuaries.

Thicker ChemGuard laminate can be used as structural components in laboratory benchtops, precluding the use of a substrate.

Fabrication Tips

When working with ChemGuard, these techniques will promote a quality application.

For thinner laminates:

1. Proper conditioning of the laminate, substrate and backing sheet minimizes possible warping, shrinking, or expansion of assembled panels. Ideally, all components should be conditioned at 70°F to 75°F (21°C to 25°C) and 45 to 50 percent relative humidity for 48 hours prior to assembly.
2. Proper substrate must be used when bonding ChemGuard laminate. Recommended substrates include particleboard and medium density fiberboard. Plaster walls, gypsum wallboard and concrete substrates are not recommended.
3. Permanent adhesive types, such as polyvinyl acetate (PVA), epoxy or resorcinol are recommended for ChemGuard laminates with sanded backs. To enhance the chemical resistance at seams, epoxy adhesive may be used. For best results, follow the recommendations of the adhesive manufacturer.
4. The use of a backing sheet is recommended to minimize warpage. The thickness of the backing sheet should be similar to the thickness of the

decorative laminate on the face of this assembly.

5. Epoxy adhesive is recommended for joining thick ChemGuard components. Light sanding of the glue surface will improve bond strength.
6. All saw blades and router bits should be carbide tipped and well sharpened. Tool speed should be high and feed rate slow to minimize the possibility of chipping.
7. Inside corners of cutouts for electrical outlets, sinks, etc., should have a minimum radius of 1/8" (3mm) and be filed smooth. This reduces the likelihood of stress cracks.
8. All edges of laminate should be filed smooth with file direction towards substrate to help prevent stress cracks and to minimize chipping.
9. Drill oversize holes for fasteners such as screws or bolts.
10. Do not screw into the edges of ChemGuard laminate.
11. Revealed edges of thicker panels may be shaped and/or finished using standard woodworking practices. The edges can then be polished with a light oil resulting in an attractive finish that accents the decorative surface.
12. All laminate is intended for interior use only, and should not be exposed to extreme humidity, continuous sunlight, or temperatures above 275°F (135°C) for extended periods of time.

For thicker laminates:

13. Do not use splines in the edge of ThickLam laminates.
14. Mitered edges should be avoided.
15. Metal brackets or clips can be used to join laminate panels. In some cases, it may be necessary to use shims to level out the joint,.
16. Fabricated assemblies should meet DLPA (Decorative Laminate Products Association) and ANSI A-1612.2-1979 specifications where applicable.

ChemGuard Chemical Resistance Testing Results Following SEFA Procedures

Summary of Test Procedure (SEFA 8, Section 8.1)

Method A: Volatile chemicals are tested by placing a cotton ball saturated with the reagent in the mouth of a 1-ounce bottle and inverting the bottle on the surface of the laminate.

Method B: Non-volatile chemicals are tested by placing five drops of the reagent on the surface of the laminate and covering with 24mm watch glass.

For both methods, the reagents are left on the laminate for a period of 24 hours. The laminate is then washed with water, cleaned with detergent and naphtha, rinsed with deionized water and dried with a towel. The effect of the different reagents is evaluated according to the rating system below, after the laminate has equilibrated at a temperature of 73± 3°F (23± 2°C) and relative humidity of 50% for 24 hours. SEFA criteria for laboratory grade finishes are no more than four Level 3 conditions.

Acids	Level	0 - No Effect	1 - Slight change in color or gloss	2 - Slight surface etch or surface stain	3 -Surface deterioration
Hydrochloric acid	37%		X		
Sulphuric acid	33%	X			
Sulphuric acid	77%	X			
Sulphuric acid	98%			X	
Nitric acid	30%			X	
Nitric acid	70%				X
Phosphoric acid	85%		X		
Dichloroacetic acid		X			
Hydrofluoric acid	48%		X		
Chromic acid	60%	X			
Acid Dichromate	5%		X		
Sulfuric Acid 77% / Nitric Acid 70% - Equal Amounts				X	
Bases					
Ammonium Hydroxide	28%	X			
Sodium Hydroxide	10%	X			
Sodium Hydroxide	20%	X			
Sodium Hydroxide	40%	X			
Sodium Hydroxide, Flake		X			
Salt					
Silver Nitrate	Saturated		X		
Sodium Chloride	10%	X			
Zinc Chloride	Saturated	X			
Organic Chemicals					
Formaldehyde	37%	X			
Furfural		X			
Solvents					
Acetone		X			
Ethyl alcohol		X			
Ethylene glycol		X			
Methylethylketone		X			
Dichloromethane		X			
Ethyl acetate		X			
Amyl acetate		X			
n-Butyl acetate		X			
Methyl alcohol		X			
Phenol		X			
Ethyl Ether		X			
Toluene		X			
Trichloroethylene		X			
Xylene		X			

*All test results based on our knowledge of testing procedures

*Tests results may differ by color

Technical Information

Typical Test Results for ChemGuard Thick Phenolic Laminate

TEST	NEMA LD3-2005		H28	H48	HD2	HD5	HD8	HDI
	Test Method							
Thickness	(in)		0.028 ± .003	0.048 ± .003	0.25 ± .01	0.50 ± .02	0.75 ± .02	1.0 ± .02
	(mm)		0.711 ± 0.08	1.2 ± 0.08	6	13	19	25
Appearance		3.1	Complies	Complies	Complies	Complies	Complies	Complies
Light Resistance		3.3	Slight Effect	Slight Effect	Slight Effect	Slight Effect	Slight Effect	Slight Effect
Boiling Water Resistance		3.5	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
High Temperature Resistance		3.6	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
Ball Impact Resistance	(in)	3.8	30	55	96+	96+	96+	96+
	(mm)		762	1397	2440+	2440+	2440+	2440+
Radiant Heat Resistance N/A	(sec)	3.10	155	200		N/A	N/A	N/A
Dimensional Change Machine Direction %		3.11	0.18	0.25	0.20	0.20	0.20	0.20
	Cross Machine Direction %		0.37	0.70	0.40	0.40	0.40	0.40
Room Temperature Dimensional Stability Machine Direction %		3.12	0.18	0.15	N/A	N/A	N/A	N/A
	Cross Machine Direction %		0.37	0.40				
Wear Resistance 700	Cycles	3.13	700	700		700	700	700
Blister Resistance	(sec)	3.15	50	80	N/A	N/A	N/A	N/A

Deflection

The following table is intended to be used as a guideline when considering appropriate applications for ThickLam laminate. Specific installations of this laminate type should be developed by experienced architects. This table is useful to determine the approximate weight that will cause a 1/4" deflection when evenly distributed over a 12" deep span of ThickLam laminate that is simply supported on each end.

Span Length*

Product Type	Thickness	18 in	24 in	30 in
		450 mm	600 mm	750 mm
HD5	0.50 in	306 lb	130 lb	67 lb
	13 mm	140 kg	59 kg	30 kg
HD8	0.75 in	1041 lb	439 lb	225 lb
	19 mm	470 kg	200 kg	102 kg
HDI	1.0 in	2468 lb	1041 lb	533 lb
	25 mm	1119 kg	470 kg	242 kg

*The following formula was used to calculate the values in the above table:

$$\text{Load per Lineal Inch of Span} = \frac{(D)(E)(W)(T)^3}{0.1563(S)^4}$$

Where: D = Deflection (in.)
 E = Modulus of Elasticity (750,000 psi)
 W = Width of panel (in.)
 T = Thickness (in.)
 S = Span (in.)

This table is only intended for use as a guideline. It does not constitute a warranty. End users must be responsible for the final design of any application, ensuring that it meets all engineering requirements of the installation.

Fire Test Data

High pressure laminate is frequently used in installations governed by local fire codes. Burning characteristics of laminate are greatly influenced by the adhesive and substrate used. Listed below are typical flame spread index and smoke developed values for ThickLam panels. ThickLam laminate can be manufactured to provide Class A fire test performance. For details, call Customer Service at 1-877-726-6526.

ASTM E-84/UL723

"Standard Test Method for Surface Burning Characteristics of Building Materials"

Type	Sample Configuration	Flame Spread Index	Smoke Developed Values
HD5	Unbonded	50	230
HDI		55	220

Care and Maintenance

Pionite® ChemGuard laminate provides a durable surface that is easy to maintain using ordinary care.

To maintain the laminate's lasting beauty, cleaning with a solution of warm water and liquid dishwashing detergent is all that should be required in most cases. Stains may be removed with most non-abrasive household cleaners such as FORMULA 409®, GLASS PLUS® or WINDEX® with AMMONIA D®. Light scrubbing with a soft bristled brush may be necessary to remove stains from the depth of the structure on some textured surfaces.

If the stain persists, use a paste of baking soda and water and apply with a soft bristled brush. Light scrubbing for 10-20 strokes should remove most stains. Although baking soda is a low abrasive, excessive scrubbing or exerting too much force may damage the decorative surface. Although ChemGuard laminate provides superior chemical resistant properties, prolonged exposure to harsh chemicals can cause permanent damage. Timely clean up and neutralization of chemical spills will prolong the useful service life of the laminate.

Codes and Certifications

1. American National Standards Institute/National Electrical Manufacturers Association (ANSI/NEMA)LD3-2005, "High-Pressure Decorative Laminate" for HGS. Type H48 complies.
2. American National Standards Institute/National Electrical manufacturers Association (ANSI/NEMA) LD3-2005, "High-Pressure Decorative Laminate" for CGS Types HD2, HD5, HD8 and HDI complies.
3. The City of New York, Dept. of Buildings, Materials and Equipment Acceptance Division approval codes are as follows: H48-MEA 207-93-M
4. KH3: United States Coast Guard / IMO FTP Code Approval No. 164.112/78/0; Classified by UL file R6581; Classified CAN/ULL file R6581

Limited Warranty

Subject to the limitations set forth below, Panolam Industries International Inc. (Panolam) expressly warrants that our products are reasonably free of defects in material and workmanship, and when

properly handled and fabricated will conform, within accepted tolerances, to applicable manufacturing specifications as set forth in our technical brochure. This warranty shall extend to the original buyer for a period of twelve (12) months from the date of shipment of this product by Panolam, and shall not be assignable by the original buyer. This warranty does not cover damage resulting from accident, misuse, alteration, abuse or lack of reasonable care.

Due to the variety of uses and applications to which this product may be put, and because the manufacturer has no control over the end products fabricated, the warranty set forth above is exclusive and in lieu of all warranties, expressed or implied, in fact or by operation of law or otherwise, or arising by course of dealing or performance, custom or usage in the trade, including, without limitation, the implied warranties of fitness for a particular purpose and merchantability, and Panolam shall have no obligation or liability to any person or entity in connection with or arising from the furnishing, sale, installation or repair, use or subsequent sale of any product supplied by it.

Our maximum liability arising out of the sale of the products or their use, whether based upon warranty, contract, tort or otherwise, shall not exceed the actual payments received by us in connection therewith. In no event shall we be liable for special, incidental or consequential damages, including, but not limited to, arising hereunder or from the loss of profits, or loss of use damages, sales of the products.

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08/2018