

Pionite®

Standard Laminate Technical Bulletin

Product Identification

Three standard grades of Pionite laminate are suitable for most applications.

General Purpose Type G48 is most often used in horizontal applications where high impact resistance and a durable, decorative surface is required.

Postforming Type F39 is designed for manufacturing countertops and other horizontal surfaces where the laminate may be heated and rolled over the substrate edge to eliminate seams.

Type F28 is designed for applications where impact resistance is less critical. Type F28 can also be postformed.

Product Composition

High pressure laminate is manufactured in a flat press by combining decorative papers saturated in melamine resin with phenolic-impregnated kraft layers at pressures exceeding the NEMA specification of 750 psi (5.17 MPa) and temperatures approaching 300° F (150 °C). The panels are trimmed to size and the backs are sanded to facilitate bonding. The thickness of the laminate is determined by the number of kraft layers used. The laminating process combines the durability of melamine resins with the aesthetics of decorative papers creating a surfacing material that has been the standard for well over forty years.

Product Description

Standard Nominal Sizes

Type	Thickness	Width	Length	Colors
G48 (in)	0.048	30, 36, 48, 60	96, 120, 144	All Solids, Patterns and Woodgrains
(mm)	1.2	762, 914, 1219, 1524	2438, 3048, 3658	
F39 (in)	0.039	30, 36, 48, 60	96, 120, 144	All Solids, Patterns and Woodgrains
(mm)	1.0	762, 914, 1219, 1524	2438, 3048, 3658	
F28 (in)	0.028	30, 36, 48, 60	96, 120, 144	All Solids, Patterns and Woodgrains
(mm)	0.7	762, 914, 1219, 1524	2438, 3048, 3658	

Finish Options

Code	Finish	Description
N	Suede	Low gloss, textured finish, 12± 3 gloss units.
G	Gloss	A high gloss, smooth finish, 100 ± 10 gloss units.
J	Crystal	Fine pebble grained finish with a medium gloss, 15 ± 3 gloss units.
H	Hi-Brite	Smoothly textured furniture finish, 25 ± 5 gloss units.
C	Soft Leather	A finely grained leather finish, 14 ± 3 gloss units. Available in widths of 48" and 60" only.
L	Embossed Leather	Deeply embossed leather finish, 5 ± 1 gloss units. Manufactured in Limited Sizes.
W	Embossed Slate	Deeply embossed slate finish, 7 ± 1 gloss units. Manufactured in Limited Sizes.
Z	Ashwood	A fine wood finish with a cathedral grain, 18 ± 3 gloss units.

NOTE: Gloss units measured with a 60 degree gloss meter.

Typical Uses

Pionite standard laminate is designed for either horizontal, vertical, or postforming applications. This laminate is seen on countertops, tables, vanities, interior doors, cabinets, contract furniture, and retail store fixtures.

Fabrication Tips

When working with Pionite, these techniques will produce a quality application.

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. Always bond laminate to a suitable substrate such as medium to high density fiberboard, particleboard, or metals. It should not be glued directly to plaster walls, gypsum wallboard, or concrete.
3. Recommended adhesives include solvent or water-based contact cement, white glue (PVA), epoxy, and hot melt glue. Consult your adhesive supplier for specific application requirements.
4. The use of a backing sheet is recommended to minimize warpage. The thickness of the backing sheet should be relatively equal to the thickness of the decorative laminate on the face of the assembly.
5. All saw blades and router bits used for cutting should be carbide tipped. Feed rate should be slow and tool speed should be high. To minimize the development of surface scratches caused by router bits, lubricating the laminate edge with a wax stick is recommended prior to tooling.
6. All edges of laminate should be filed smooth with file direction towards substrate to help prevent stress cracks and to minimize chipping.
7. Inside corners of cutouts for electrical outlets, sinks, etc., should have a minimum radius of 1/8" (3 mm) and be filed smooth. This reduces the likelihood of stress cracks.
8. When nails or screws must be used, it is advisable to first drill an oversized hole through the laminate. This reduces the likelihood of stress cracks.
9. See Pionite Postforming Technical Bulletin for postforming application tips.
10. 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.

Technical Information

Physical Properties

TEST		NEMA LD 3-1995 Test Method	TYPICAL PIONITE VALUES G48	NEMA STD. HGS	TYPICAL PIONITE VALUES F39	NEMA STD. HGP	TYPICAL PIONITE VALUES F28	NEMA STD. VGP
Thickness	(in.)		0.048 ± 0.003	0.048 ± 0.005	0.039 ± 0.005	0.039 ± 0.005	0.028 ± 0.003	0.028 ± 0.004
	(mm)		1.2 ± 0.08	1.2 ± 0.12	1.0 ± 0.08	1.0 ± 0.12	0.711 ± 0.076	0.7 ± 0.1
Appearance		3.1	Complies		Complies		Complies	
Light Resistance		3.3	Slight effect	Slight effect	Slight effect	Slight effect	Slight effect	Slight effect
Cleanability		3.4	13	20 (max)	13	20 (max)	8	20 (max)
	Stain 1-10		No effect	No effect	No effect	No effect	No effect	No effect
	Stain 11-15		No effect	Moderate effect	No effect	Moderate effect	No effect	Moderate effect
Boiling Water Resistance		3.5	No effect	No effect	No effect	Slight effect	No effect	Slight effect
High Temperature Resistance		3.6	No effect	Slight effect	No effect	Slight effect	No effect	Slight effect
Ball Impact Resistance	(in.)	3.8	55	50 (min.)	35	30 (min.)	30	20 (min.)
	(mm)		1397	1270 (min.)	889	762 (min.)	762	508 (min.)
Radiant Heat Resistance	(sec)	3.10	200	125 (min.)	165	100 (min.)	155	80 (min.)
Dimensional Change		3.11						
Machine Direction	(%)		0.25	0.50 (max.)	0.40	1.10 (max.)	0.40	1.10 (max.)
Cross Direction	(%)		0.70	0.90 (max.)	0.80	1.40 (max.)	0.80	1.40 (max.)
Room Temperature		3.12	.15	.5	.16	1	.18	1
Dimensional Stability								
Machine Direction	(%)		.40	.8	.48	1.3	.37	1.3
Cross Direction	(%)							
Wear Resistance	(cycles)	3.13	700	400 (min.)	700	400 (min.)	700	400 (min.)
Formability	(in)	3.14	Not applicable	Not applicable	9/16	5/8 (min.)	7/16	1/2 (min.)
	(mm)		Not applicable	Not applicable	14	16 (min.)	11	13 (min.)
Blister Resistance	(sec)	3.15	80	Not applicable	65	55 (min.)	50	40 (min.)

Fire Test Data

High pressure decorative laminate is frequently used in installations governed by local fire codes. Burning characteristics of laminate are greatly influenced by the adhesive and substrate utilized. Listed below are typical flame spread index and smoke developed values for Pionite standard grade laminate. When specifying Class I or A rated laminate, refer to Pionite Fire Rated Technical Bulletin.

ASTM E-84/UL723

“Standard Test Method for Surface Burning Characteristics of Building Materials”

Type	Sample Configuration	Flame Spread Index	Smoke Developed Values
G48	Unbonded	35	80
F39		40	70
F28		35	35
G48	Bonded* to Inorganic Cement Board	55	85
F39		55	105
F28		35	40
G48	Bonded* to 5/8" Particleboard	160	110
F39		235	140
F28		160	160
G48	Bonded* to 5/8" Fire Rated Particleboard	95	95
F39		110	130
F28		80	75

*Bonded with Pioneer P19NF contact cement.

All work should be designed, assembled, and installed in compliance with pertinent local fire codes.

Codes and Certifications

1. U.S. Federal Motor Vehicle Safety Standard #302 “Flammability of Interior Materials.” Pionite Type G48, F39, and F28 comply.
2. The City of New York, Dept. of Buildings, Materials and Equipment Acceptance Division approval codes are as follows:
G48 - MEA 205-93-M
F39 - MEA 206-93-M
F28 - MEA 208-93-M
3. NSF-International Standard 35, “Laminated Plastics for Surfacing Food Service Equipment.” Pionite Type G48, F39, and F28 comply.
4. American National Standards Institute/National Electrical Manufacturers Association (ANSI/NEMA), LD3-1995, “High-Pressure Decorative Laminate.” Pionite Type G48, F39, and F28 comply.
5. MIL-P-17171E(SH), “High Pressure Decorative Laminate.” Pionite G48 complies with Type I.
6. U.S. Federal Specification L-P-508H, “Plastic Sheet, Laminated, Decorative and Nondecorative.” Pionite Type G48, F39, and F28 comply.
7. International Organization for Standardization, ISO-4586, “Decorative High Pressure Laminates (HPL).” Pionite Type G48, F39, and F28 comply.

Care and Maintenance

Pionite decorative 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®, FANTASTIK®, 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, especially if it has a gloss finish.

Stubborn stains that resist any of the above cleaning methods may require the use of undiluted household bleach. Apply the bleach to the stain and let stand no longer than 1 1/2 minutes. Rinse thoroughly with warm water and wipe dry. This step may be repeated if the stain appears to be going away and the color of the laminate has not been affected. **WARNING:** Prolonged exposure of the laminate surface to bleach will cause discoloration.

Many commercially available products contain substances that may damage or discolor a laminate surface. **ABRASIVE CLEANERS SHOULD NOT BE USED.** Particular care should be used with any products labelled CAUTION or WARNING. Any questions or concerns should be referred to the product’s manufacturer or call 1-800-PIONITE. Do not allow harsh materials to remain in contact with the laminate surface. Examples of these are as follows:

- Toilet bowl cleaners
- Hydrogen Peroxide
- Oven cleaners
- Drain cleaners
- Metal cleaners and polishes
- Chlorine bleach
- Coffee pot cleaners
- Hard water stain removers
- Fruit and berry juice
- Tub and tile cleaners

Formula 409 is a registered trademark for The Clorox Company of Oakland, CA 94612; Glass Plus and Fantastick are registered trademarks for The Dow Chemical Company of Indianapolis, IN 46268-0511; Windex is a registered trademark for S.C Johnson & Sons INC. of Racine, WI 53403-5011

Manufacturing Headquarters

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Limited Warranty

Subject to the limitations set forth below, Pionite® Decorative Surfaces 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 Pionite® Decorative Surfaces, 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 other warranties, express 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 Pionite® Decorative Surfaces 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.

The buyer's sole and exclusive remedy for any noncompliance with the express warranty set forth above shall be limited to repair or replacement of the defective product, or, in the event that repair or replacement is not feasible, return of the product and refund of the purchase price.

Under no circumstances shall the manufacturer be liable in excess of the purchase price of this product, in either tort or contract or otherwise, for any loss, damage or injury in connection with or arising from the purchase, use, or inability to use this product, or for any special, indirect, collateral, incidental, consequential or exemplary damages such as, but not limited to, loss of anticipated profits or other economic loss. Because some states do not allow the exclusion or limitation of incidental or consequential damages, this limitation may not apply to you.

Retaining all documentation after purchasing laminate will significantly expedite claim resolution.

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Technical Information

Physical Properties

TEST		NEMA LD 3-1995 Test Method	TYPICAL PIONITE VALUES G48	NEMA STD. HGS	TYPICAL PIONITE VALUES F39	NEMA STD. HGP	TYPICAL PIONITE VALUES F28	NEMA STD. VGP
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	(mm)		1.2 ± 0.08	1.2 ± 0.12	1.0 ± 0.08	1.0 ± 0.12	0.711 ± 0.076	0.7 ± 0.1
Appearance		3.1	Complies		Complies		Complies	
Light Resistance		3.3	Slight effect	Slight effect	Slight effect	Slight effect	Slight effect	Slight effect
Cleanability		3.4	13	20 (max)	13	20 (max)	8	20 (max)
	Stain 1-10		No effect	No effect	No effect	No effect	No effect	No effect
	Stain 11-15		No effect	Moderate effect	No effect	Moderate effect	No effect	Moderate effect
Boiling Water Resistance		3.5	No effect	No effect	No effect	Slight effect	No effect	Slight effect
High Temperature Resistance		3.6	No effect	Slight effect	No effect	Slight effect	No effect	Slight effect
Ball Impact Resistance	(in.)	3.8	55	50 (min.)	35	30 (min.)	30	20 (min.)
	(mm)		1397	1270 (min.)	889	762 (min.)	762	508 (min.)
Radiant Heat Resistance	(sec)	3.10	200	125 (min.)	165	100 (min.)	155	80 (min.)
Dimensional Change		3.11						
Machine Direction	(%)		0.25	0.50 (max.)	0.40	1.10 (max.)	0.40	1.10 (max.)
Cross Direction	(%)		0.70	0.90 (max.)	0.80	1.40 (max.)	0.80	1.40 (max.)
Room Temperature		3.12	.15	.5	.16	1	.18	1
Dimensional Stability								
Machine Direction	(%)		.40	.8	.48	1.3	.37	1.3
Cross Direction	(%)							
Wear Resistance	(cycles)	3.13	700	400 (min.)	700	400 (min.)	700	400 (min.)
Formability	(in)	3.14	Not applicable	Not applicable	9/16	5/8 (min.)	7/16	1/2 (min.)
	(mm)		Not applicable	Not applicable	14	16 (min.)	11	13 (min.)
Blister Resistance	(sec)	3.15	80	Not applicable	65	55 (min.)	50	40 (min.)

Fire Test Data

High pressure decorative laminate is frequently used in installations governed by local fire codes. Burning characteristics of laminate are greatly influenced by the adhesive and substrate utilized. Listed below are typical flame spread index and smoke developed values for Pionite standard grade laminate. When specifying Class I or A rated laminate, refer to Pionite Fire Rated Technical Bulletin.

ASTM E-84/UL723

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Type	Sample Configuration	Flame Spread Index	Smoke Developed Values
G48	Unbonded	35	80
F39		40	70
F28		35	35
G48	Bonded* to Inorganic Cement Board	55	85
F39		55	105
F28		35	40
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F39		235	140
F28		160	160
G48	Bonded* to 5/8" Fire Rated Particleboard	95	95
F39		110	130
F28		80	75

*Bonded with Pioneer P19NF contact cement.

All work should be designed, assembled, and installed in compliance with pertinent local fire codes.

Codes and Certifications

1. U.S. Federal Motor Vehicle Safety Standard #302 “Flammability of Interior Materials.” Pionite Type G48, F39, and F28 comply.
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F39 - MEA 206-93-M
F28 - MEA 208-93-M
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4. American National Standards Institute/National Electrical Manufacturers Association (ANSI/NEMA), LD3-1995, “High-Pressure Decorative Laminate.” Pionite Type G48, F39, and F28 comply.
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- Drain cleaners
- Metal cleaners and polishes
- Chlorine bleach
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Manufacturing Headquarters

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Limited Warranty

Subject to the limitations set forth below, Pionite® Decorative Surfaces 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 Pionite® Decorative Surfaces, 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 other warranties, express 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 Pionite® Decorative Surfaces 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.

The buyer's sole and exclusive remedy for any noncompliance with the express warranty set forth above shall be limited to repair or replacement of the defective product, or, in the event that repair or replacement is not feasible, return of the product and refund of the purchase price.

Under no circumstances shall the manufacturer be liable in excess of the purchase price of this product, in either tort or contract or otherwise, for any loss, damage or injury in connection with or arising from the purchase, use, or inability to use this product, or for any special, indirect, collateral, incidental, consequential or exemplary damages such as, but not limited to, loss of anticipated profits or other economic loss. Because some states do not allow the exclusion or limitation of incidental or consequential damages, this limitation may not apply to you.

Retaining all documentation after purchasing laminate will significantly expedite claim resolution.