

FORMICA® LAMINATE BY FORMICA GROUP/LABORATORY GRADE LAMINATE 840/LGP TECHNICAL DATA



RECOMMENDED APPLICATION

Formica® Brand Chemical/Stain Resistant Laboratory Grade Laminate 840/LGP is intended for application to interior horizontal and vertical surfaces where design, appearance, quality, durability, and resistance to relatively harsh acids, alkalis, corrosive salts, and other destructive or staining substances are required.

Horizontal surfaces include lab counters, lab benches, tabletops, and other work surfaces in chemical, medical, scientific, pathogenic laboratories, clinics, photographic laboratories, mortuaries, nursing stations, and other institutional uses, as well as commercial or light-duty manufacturing operations.

Vertical surfaces include cabinets, casework fronts, wall back-splash panels, or screens.

FABRICATION AND ASSEMBLY

LIMITATIONS

Laboratory Grade 840/LGP Laminate is not recommended for application directly to plaster, gypsum board, or concrete. It should not be used in areas where temperatures exceed 275°F (135°C) for prolonged periods of time, or for exterior applications.

STORAGE

Laboratory Grade 840/LGP Laminate should be stored horizontally, back-to-back, face-to-face, with the top sheet turned face down and a caul board placed on top to protect the material from possible damage and reduce the chance of warpage of the top sheets. The material should be protected from light, heat and moisture, and should never be stored in contact with the floor or an outside wall. It is important that the laminate be stored at a temperature not less than 60°F (16°C) and a relative humidity not less than 40%.

PRECONDITIONING

Laboratory Grade 840/LGP Laminates and substrates gain moisture and expand under high relative humidity conditions and lose moisture and shrink under dry relative humidity conditions. Prior to fabrication, allow the laminate and the substrate to acclimate for at least 48 hours at the same ambient conditions. Optimum conditions are approximately 75°F (24°C) and a relative humidity of 45% to 55%. Provisions should be made for the circulation of air around the components. Laboratory Grade 840/LGP Laminate moves about twice as much across the grain as it does in the length direction (sanding direction). Whenever possible, minimize the dimension of the crossgrain direction. *Note:* Stress cracking can result when high-moisture material is glued to a dry substrate and subsequently exposed to low humidity conditions. Overly dry material, however, may expand and cause bubbling if improperly glued.

CUTTING

Laboratory Grade 840/LGP Laminate has a special chemical resistant surface. We recommend the use of sharp, carbide-tipped cutting blades with low or negative hook angle profiles. Low feed speeds and high tool speeds are also suggested. A board may be clamped to the saw fence to hold the sheet down and prevent flutter and vibration.

SUBSTRATES

Recommended cores are 45# density, industrial grade particle-board (CS 236-66: Type 1, Grade B, Class 2), Medium Density Fiberboard (MDF), or A-C or better plywood. The substrates should be sanded smooth, clean, free of oil or grease, and uniform in thickness. Do not use drywall (gypsum), plaster, concrete, solid lumber, or underlayment.

ADHESIVES

The strength of the bond between the laminate and the substrate determines the amount of stress that may be transmitted to the substrate. Contact adhesives are the weakest of all recommended adhesives because of their elastomeric nature. PVAc (white glue), urea, and resorcinol adhesives distribute much more of the stress to the substrate, making these assemblies more crack resistant. Follow the adhesive manufacturer's recommendations.

ASSEMBLY

Material, equipment, and workmanship should conform to the industry standard practices, conditions, procedures, and recommendations as specified by ANSI/NEMA LD3-1995, Section 4, Architectural Woodwork Quality Standards, DLPA (Decorative Laminate Products Association) and ANSI 161.2-1979 standards.

Panel assemblies should be laminated with a suitable balancing sheet to minimize warpage. Always align sanding marks in the same direction.

All inside corners of cutouts must be radiused as large as possible, 1/8" (3.18mm) minimum, to avoid stress cracking. The edges and corners should be smooth and free of chips or nicks.

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TECHNICAL DATA

Performance compliance of Formica Chemical/Stain Resistant Laboratory Grade Laminates:

ANSI/NEMA STANDARDS PUBLICATION — LD3-1995

PHYSICAL PROPERTIES	LD3 TEST	LABORATORY GRADE 840/LGP
Appearance	3.1	No ABC Defects
Light Resistance	3.3	Slight
Cleanability/Stain Resistance	3.4	20 (max.)
Boiling Water Resistance	3.5	NE
High Temperature Resistance	3.6	SL
Ball Impact Resistance – in	3.8	30 (min.)
– mm		762 (min.)
Radiant Heat Resistance – sec	3.10	100 (min.)
Dimensional Change	3.11	
Machine Direction – %		1.1 (max.)
Cross Direction – %		1.4 (max.)
Wear Resistance – cycles	3.13	400 (min.)
Forming @ 325°F (163°C)	3.14	5/8" (16mm)
Blister Resistance – sec	3.15	55 (min.)

CODES AND SPECIFICATIONS

Formica Chemical/Stain Resistant Laboratory Grade 840/LGP Laminate:

- U.S. Federal Specification, LP508-H, Style D, Type II, Class 1
- International Organization of Standardization, ISO 4586-2

CHEMICAL AND STAIN RESISTANCE

The chemicals and reagents listed were placed in contact with the surface of the Laboratory Grade 840/LGP Laminate in a covered (with a watch glass cover) mode for a period of 16 hours prior to visual inspection and evaluation. The reagents listed below did not affect the surface. As with all fine cabinetry surfaces, we recommend prompt cleanup of all spills, using a damp sponge and clean water. If in doubt about the suitability of a particular reagent not listed below, call Formica Sales Technical Services at (513) 786-3048.

SCIENCE LABORATORIES:

Acids

Acetic Acid, 98%	Nitric Acid, 30%
Formic Acid, 90%	Perchloric Acid, 60%
Phosphoric Acid, 85%	Citric Acid, 10%
Hydrochloric Acid, 37%	Sulfuric Acid, 77%
Carbolic Acid (phenol), 85%	

Alkalis

Ammonium Hydroxide, 28%	Sodium Carbonate (saturated)
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Solvents

Benzene	Furfural
Carbon Tetrachloride	Naphtha
Dioxone	Toluene
Ethyl Acetate	Trichloroethylene
Ethylacetoacetate	Xylene

Other Reagents

Calcium Hypochlorite (saturated)	Sodium Bisulphate
Chlorobenzene	Sodium Bisulphite
Cresol	Sodium Chloride
Potassium Permanganate, 2%	Zinc Chloride

Hospital and Health Care:

Amyl Alcohol	Iodine Tincture, USP, 2%
Chloroform	Isopropyl Alcohol
Ethyl Alcohol	Mercurochrome®
Ethyl Ether	Methyl Alcohol
Formaldehyde, 37%	Silver Nitrate, 1%
Hydrogen Peroxide, 3%	

Mortician Supplies:

Fumeless Cavity with Entrone	Trioxitone Drain Aid
Cavity Fluid, 65% Formalin	Trioxin, Pre-embalming
Cavres Cavity	Trioxin for Discoloration
Trioxin Arterial (Index 24)	Crishon
Trioxitone Arterial	Peach Bloom
Trioxin Cavity	DK-4
Trioxiton Cavity	

General Reagents:

Detergent	Mineral Oil
Gasoline	Urea, 6.6%
Kerosene	

ANSI/NEMA Reagents:

Acetone	Mustard
Betadine®	#2 Pencil
Catsup	Purple Supermarket
Citric Acid, 10%	Stamp Pad Ink
Distilled Water	Shoe Polish
Ethanol, 50%	Tea Bag
Fresh Coffee	Vegetable Oil
Household Ammonia	Wax Crayon

The following substances with contact exposures for periods as short as 1 hour will produce an appreciable etched effect on the laminate surface:

Chromic Acid, 60%
Dichromate Cleaning Solution
Sodium Hydroxide Solution, 5-40%
Sodium Sulfide Solution (saturated)

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TECHNICAL DATA CONTINUED



SIZES

48" x 120" (121.9cm x 304.8cm)
60" x 144" (152.4cm x 365.8cm)

TYPICAL THICKNESS

.045" (1.1mm)
Compact thicknesses of 1/2", 3/4" and 1" also available

FINISH

Formica Chemical/Stain Resistant Laboratory Grade Laminates are available only in -58 matte finish.

COLORS AND PATTERNS

Available in 840 Black only, due to the nature of the chemical resistant surface.

HOW TO SPECIFY

Surface shall be Formica brand Chemical/Stain Resistant Laboratory Grade Laminate from Formica Corporation, Cincinnati, Ohio.

COLOR NUMBER	840
COLOR NAME	BLACK
GRADE	-10LGP
<small>(indicate product number and name)</small>	
FINISH	-58 matte
<small>(indicate product number and name)</small>	

Formica Chemical/Stain Resistant Laboratory Grade Laminates meet the minimum performance standards of the International Organization of Standardization, ISO 4586-2, and of the National Electrical Manufacturers Association, ANSI/NEMA LD3-1995.

USE AND CARE

Formica Chemical/Stain Resistant Laboratory Grade Laminate surfaces may be cleaned with a damp cloth and mild detergent. Use of abrasive cleaners, powders, scouring pads, steel wool, sandpaper, etc., will damage the finish and can permanently reduce the stain and chemical resistance of the surface.

If in doubt about the suitability of a particular cleaner or detergent, check with its manufacturer.

Stubborn stains may be removed by use of an organic solvent, followed by wiping with a soft, damp cloth. Good laboratory practices dictate that all chemical spills should be promptly wiped up.

LIMITED WARRANTY

Formica Corporation expressly warrants that, for a period of one (1) year from the date of first sale, Formica Chemical/Stain Resistant Laboratory Grade 840 Laminate will be reasonably free of defects in materials and workmanship and that when properly handled and fabricated will conform, within accepted tolerances, to applicable manufacturing specifications. This limited warranty only applies to Formica Chemical/Stain Resistant Laboratory Grade Laminate which is stored, handled, fabricated and installed in the manner recommended by Formica Corporation. Due to the variety of uses and applications to which Formica Chemical/Stain Resistant Laboratory Grade Laminate may be put, **FORMICA CORPORATION CAN MAKE NO WARRANTY THAT THIS PRODUCT IS SUITABLE FOR ANY PARTICULAR PURPOSE AND CAN MAKE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, OTHER THAN THOSE SET FORTH ABOVE.**

Buyer's exclusive remedy for any loss or claim resulting from the use or inability to use this product shall be replacement of the defective Formica Chemical/Stain Resistant Laboratory Grade Laminate, or at the option of Formica Corporation, return of the product and refund of the purchase price. **IN NO EVENT SHALL FORMICA CORPORATION BE LIABLE IN EITHER TORT OR CONTRACT FOR ANY LOSS OR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR EXEMPLARY DAMAGES.**

This limited warranty gives the purchaser of Formica Chemical/Stain Resistant Laboratory Grade Laminate specific legal rights. Other rights may be available which vary from state to state.

Any information or suggestion concerning applications, specifications or compliance with codes and standards is provided solely for your convenient reference and without any representation as to accuracy or suitability. Formica Corporation disclaims any legal responsibility. The user must verify and test the suitability of any information or products for the specific application.

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TECHNICAL DATA CONTINUED



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MANUFACTURER

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TECHNICAL SERVICES

Technical assistance may be obtained through your local Formica® Brand Products Distributor or from Formica Corporation trained representatives in sales offices throughout the country. To assist these representatives, Formica Corporation maintains a sales technical services staff in Cincinnati, Ohio. For technical assistance, contact your distributor or sales representative; write the company directly at Formica Corporation Technical Services Department, 10155 Reading Road, Cincinnati, OH, 45241; call (513) 786-3048 or 1-800-FORMICA™; or fax (513) 786-3195. In Canada, call 1-800-363-1405. In Mexico, call (525) 530-3135.

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GreenGuard Environmental Institute
Formica® high-pressure laminate (HPL) is GreenGuard Indoor Air Quality Certified under the GreenGuard Standard for Low-Emitting Products.

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