

## 1. Manufacturer

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## 2. Product Description

### **Recommended Uses**

Wilsonart® Chemsurf® Chemical-Resistant Laminate is produced for work tops and cabinet surfacing in intermediate-type laboratories where weight or cost constraints rule out slate, epoxy or stainless steel; the possibility of chemical spills rules out conventional high-pressure decorative laminate; or where a trend-aware colored or patterned surface is desired. Chemsurf is also recommended in areas where indiscriminate use of a variety of cleaning agents may be used.

Specific applications include laboratory cabinets, casework, counters and tabletops in hospitals, photographers' darkrooms, beauty salons and product testing facilities. Chemsurf is ideal for nurses' stations, physicians' and dentists' examining and treatment rooms and pathologists' work rooms. It is also practical and attractive surfacing for wainscoting in any of these areas.

- **Type 390** is intended for horizontal, vertical and postforming surfaces and applications, including those where it is necessary or desirable to roll the laminate on a simple radius over the edge of a substrate. This eliminates seams, which are otherwise vulnerable to chemical attack. This type also may be applied to horizontal and vertical surfaces where a functional, durable, decorative material should also be chemical-resistant.

Note: If a high-wear surface is needed, Wilsonart® High Wear Laminate is recommended.

### **Product Composition**

A special resin formulation is applied over the decorative surface paper to achieve chemical resistance. The decorative paper is treated with melamine resin; and the core is composed of kraft papers impregnated with phenolic resin. These sheets are then bonded at pressures greater than 1000 pounds per square inch at temperatures approaching 300°F (149°C). Finished sheets are trimmed and the backs sanded to facilitate bonding.

### **Basic Limitations**

Chemsurf Laminates are intended for interior surfacing only, and not as structural materials. They must be bonded to suitable substrates.

Do not subject these laminates to extremes in humidity or to temperatures over 275°F (135°C) for sustained periods of time.

You should not expose these laminates to flame, molten metal, metallic sparks or intense, direct sunlight. They should not be used as cutting surfaces.

Note: Chemsurf Laminate should be protected from damage caused by high heat, such as heat created by Bunsen burners. The burners should be placed on a trivet to protect the laminate surface.

Due to resin composition, a slight color-shift can occur in Chemsurf. Please request a 'lab' sample for color confirmation.

**Pattern and Color Availability**

Chemical-Resistant Laminate is available in most patterns. Check Pattern Availability at [www.wilsonart.com](http://www.wilsonart.com).

Please note the patterns that are **not** available in Chemsurf:

Custom Laminate: Silk Screen & Digital Image are NOT available
Non-Standard Line (DG2) patterns are NOT available

**Finish Availability**

- #60 Matte  
A fine matte texture with a slight sheen offers scratch-resistance properties of 2.0 or 2.5 Newtons (measure of force). Recommended for horizontal and vertical applications.  
*Glossometer reading: MD and CD 16 ± 2.*

NOTE: Glossometer readings are made at a 60° angle of incidence. MD refers to the machine direction of a laminate sheet, and CD refers to the cross direction.

**Phenolic Core**

Brown

**Standard Sheet Widths**

48"	60"
1219mm	1524mm

**Standard Sheet Lengths**

96"	120"	144"
2438mm	3048mm	3658mm

Note: An 8-sheet minimum order applies to 4'x10', 4'x12', 5'x8' and 5'x10' sizes.

**Sheet Thicknesses**

Type	Typical Wilsonart Thickness	Weight Per Square Foot
Postforming Type 390 (HGP)	0.034" ± 0.005" (0.86mm ± 0.13mm)	0.257#

**3. Technical Data**

**Physical Properties of Chemsurf Chemical-Resistant Laminate**

NEMA Test	Type 390-60	NEMA Standard (HGP Values)	ISO 4586-3
Scratch Resistance (N*)	2.5	N/A	3

<b>Wear Resistance</b> Cycles 1573 Frosty White & 1595 Black ONLY All other Wilsonart colors	$\geq 1,500$ $\geq 700$	400 (min.)	350
<b>Boiling Water Resistance</b>	No effect	Slight effect	No effect
<b>High Temperature Resistance</b>	Slight effect	Slight effect	Slight effect
<b>Radiant Heat Resistance (seconds)</b>	200	100 (min.)	$\geq 200$
<b>Stain Resistance†</b> Reagents 1-10 11-15	No effect No effect	No effect Moderate effect	No effect Slight effect
<b>Dimensional Change</b> Machine Direction Cross Direction	0.50% 0.80%	1.1% (max.) 1.4% (max.)	1.1% (max.) 1.4% (max.)
<b>Ball Impact Resistance</b>	60" (1524mm)	30" (508mm)	31.5" (800mm)
<b>Cleanability (cycles)</b>	10	20 (max.)	20 (max.)
<b>Blister Resistance (seconds)</b>	70	55	$\geq 40$ seconds
<b>Formability‡ (Type 390 only)</b>	5/8" (15mm) face 3/16" (5mm) back	5/8" (16mm)	*9/16" face (14.27mm) *3/4" back (19.05mm)
<b>Appearance</b>	No ABC defects	No ABC defects	N/A

\*(N) Newtons - measure of force

†For a complete list of acids, bases, solvents, reagents, indicators and other lab materials safe for use on Chemsurf, please see pages 4 and 5.

‡ Radius listed for face is actually the radius of the form around which the plastic is postformed. The radius listed for back is actually the radius to which the decorative face is postformed.

### Codes and Certifications

Chemsurf conforms to typical standards of ANSI/NEMA LD3-2005 for HGP postforming laminate. At present, there is no general industry standard for a high-pressure, chemical-resistant laminate.

The UL GREENGUARD Environmental Institute™ has awarded its UL GREENGUARD® Indoor Air Quality Certification to Wilsonart Laminate. All Wilsonart Laminate product types were tested under the stringent UL GREENGUARD Standards for low-emitting products. All UL GREENGUARD Indoor Air Quality Certified products ensure minimal impact on the indoor environment. For a copy of the certificate, visit [www.greenguard.org](http://www.greenguard.org).

Scientific Equipment & Furniture Association SEFA No. 8.1 approved.

New York City Material Equipment Acceptance (MEA) number for Wilsonart® Chemsurf® Chemical-Resistant Laminate, Product Type 390, is 262-95-M.

### ISO 4586 Standards

Various grades of Wilsonart Basic Type Laminates meet or exceed the International Standards Organization Specifications as found in ISO 4586 titled, "High-Pressure Decorative Laminate (HPDL) - Sheets Based on Thermosetting Resins - Part I: Specifications."

## Chemical and Stain Resistance for Wilsonart Chemsurf

No effect was exhibited except as noted (\* or \*\*) on the following:

### Acids

1. Nitric Acid (all concentrations)\*\*
2. Glacial Acetic Acid 99% (concentrated)
3. Sulfuric Acid (all concentrations)\*\*
4. Hydrochloric Acid (all concentrations)
5. Phosphoric Acid (all concentrations)
6. Formic Acid (all concentrations)
7. Acetic Acid (all concentrations)
8. Hydrofluoric Acid 48% (concentrated)\*
9. Aqua Regia
10. Chromic Trioxide (Chromic Acid Cleaning Solution)\*
11. Perchloric Acid (concentrated)
12. Picric Acid 1.2% (0.05M)
13. Tannic Acid (sat.)
14. Uric Acid (sat.)

### Solvents

1. Carbon Tetrachloride
2. Carbon Disulfide
3. Acetone
4. Formaldehyde
5. Methanol
6. Ethyl Acetate
7. Toluene
8. n-Hexane
9. Ethyl Alcohol
10. Chloroform
11. Phenol (all concentrations)\*
12. EDTA
13. Xylene
14. Butyl Alcohol
15. Amyl Alcohol
16. Amyl Acetate
17. Cresol
18. Dioxane
19. Trichloroethane
20. Chlorobenzene
21. Dimethylformamide
22. Methylene Chloride
23. Methyl Ethyl Ketone
24. Naphthalene
25. Tetrahydrofuran

### Bases

1. Sodium Hydroxide (all concentrations)\*\*
2. Sodium Sulfide 15%
3. Ammonium Hydroxide (all concentrations)

### General Reagents

1. Sodium Hypochlorite 5%
2. Calcium Hypochlorite (concentrated)
3. Hydrogen Peroxide 3%
4. Trisodium Phosphate 30%
5. Sodium Thiocyanate
6. Zinc Chloride
7. Lactated Ringers
8. Sucrose 50%
9. Gasoline
10. Kerosene
11. Mineral Oil
12. Vegetable Oils
13. Water
14. Sodium Chromate
15. Potassium Permanganate
16. Silver Nitrate
17. Formalin
18. Benedicts Solution
19. Phosphate Buffered Saline (PBS)
20. Copper Sulfate
21. Petroleum Jelly
22. Aluminon
23. Ethylene Glycol
24. Pine Oil
25. Methyl Methacrylate
26. Alconox (Lab. Detergent)
27. Karl Fisher Reagent
28. Urea
29. Naphtha
30. Cellosolve
31. Ammonium Phosphate
32. Iodine
33. Povidone Iodine
34. Tincture of Mercurochrome
35. Tincture of Iodine
36. Tincture of Merthiolate
37. Eucalyptol
38. Procaine
39. Zephiran Chloride
40. Zinc Oxide Ointment
41. Lysol
42. Aromatic Ammonia
43. Thymol & Alcohol
44. Camphorated para-chlorophenol\*
45. Quaternary Ammonia Compounds
46. Monsel's Solution (Ferric Subsulfate)
47. Sodium Azide

### Stains and Indicators

- |                                  |                     |
|----------------------------------|---------------------|
| 1. Bromothymol Blue              | 9. Sudan III        |
| 2. Phenolphthalein               | 10. Nigrosine       |
| 3. Methyl Red                    | 11. Crystal Violet  |
| 4. Methyl Orange                 | 12. Malachite Green |
| 5. Ag Eosin Bluish 5% in Alcohol | 13. Cresol Red      |
| 6. Gentian Violet 1%             | 14. Gram Stains     |
| 7. Wright's Blood Stain          | 15. Safranin O      |
| 8. Methylene Blue                | 16. Thymol Blue     |

Test procedure: Listed materials were placed in contact with Wilsonart Chemsurf Chemical-Resistant Laminate surface under 1" (25.4mm) diameter watch cover glass for 16 hours duration prior to evaluation for effect.

\* *Causes slight change of gloss or color.*

\*\* *Causes slight damage, with degree of damage proportionate to length of exposure and concentration.*

#### 4. Installation: Fabrication and Assembly Recommendations

Wilsonart Chemsurf Chemical-Resistant Laminate must be bonded to a substrate of reliable quality and appropriate fire rating, such as particleboard, incombustible cement board or plywood with one A-face. Bond with adhesives, and follow the techniques recommended by the adhesive manufacturer. Permanent adhesives are recommended. Specialized PVAs epoxy or contact cement, such as Wilsonart Adhesives, also may be used.

The substrate of a performance laminate, such as Chemsurf, should be balanced with a high-pressure phenolic laminate sheet as a backer, to reduce warping and to provide additional protection to the substrate against chemical attack from condensing fumes and runoff.

Take care to ensure an appropriate acclimation balance between the laminate and the substrate prior to fabrication. The face and backing laminates and the substrate should be conditioned in the same environment for 48 hours before fabrication.

Recommended conditioning temperature is about 75°F (24° C). Laminates should be conditioned at 50% relative humidity.

To avoid stress cracking, do not use square-cut inside corners. All inside corners should have a minimum of 1/8" (3.18mm) radius, and all edges should be routed smooth.

#### **Methods**

Assembled pieces should meet KCMA (Kitchen Cabinetmakers Manufacturers Association), ANSI-161.2-1998 specifications. Drill oversized holes for screws or bolts. Screws or bolts should be slightly countersunk into the face side of a laminate-clad substrate.

Chemsurf sheets should be cut oversize prior to layup, using a carbide-tipped saw as described in American National Standards Institute/National Electrical Manufacturers Association (ANSI/NEMA) LD3-2005, Annex A. After bonding, laminate should be machined flush on all edges.

### **Postforming**

Postforming is the preferred edge treatment for counters vulnerable to repeated chemical attack. Chemsurf provides excellent chemical and stain resistance as stated herein and postformed edges protect the surface from chemicals accumulating in the seam. Chemsurf sheets may be formed successfully with conventional postforming machinery. Optimum bending temperature for outside radius bends is 275°F (135°C). For inside radius or cove bends, maximum recommended temperature is 325°F (163°C).

- 5. [Warranty](#)
- 6. [Maintenance](#)
- 7. [Technical Services](#)

For samples, literature, questions or technical assistance, please contact our toll-free Hotline at (800) 433-3222, Monday through Friday, 8 am –5 pm, CST.

### **Specification Form**

Surface shall be Wilsonart® Chemsurf® Chemical-Resistant Laminate, produced by Wilsonart LLC, Temple, Texas 76503-6110.	
Type: 390 Postforming Grade	
Surface	
Color Number: _____	Color Name: _____
Finish	
Number: _____	Name: _____
Edge Trim	
Color Number: _____	Color Name: _____
Adhesive	
Name: _____	Grade/Type: _____
Brand: Wilsonart® Adhesive	
Material shall equal or exceed performance standards set by the American National Standards Institute/National Electrical Manufacturers Association (ANSI/NEMA) LD3-2005 for high-pressure laminate. Fabrication shall comply with “Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program” guidelines of the Architectural Woodwork Institute.	

Wilsonart® Chemsurf® Chemical-Resistant Laminate Technical Data  
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