

Chemetal Technical Information Guide

Index:

| | |
|--------------------------------------|------------|
| PRODUCT REFERENCE CHART | page 2-3 |
| GENERAL WARRANTY | page 4 |
| APPLICATIONS | page 4 |
| STORAGE AND HANDLING | page 4 |
| PROTECTIVE MASK | page 4 |
| CLEANING AND MAINTENANCE | page 4 |
| SHIPPING | page 4 |
| SUBSTRATE PREPARATION | page 4 |
| LAMINATION | page 5-6 |
| ADHESIVES | page 5 |
| BONDING | page 6 |
| CUTTING AND MACHINING | page 6 |
| ROUTING | page 7 |
| SAWING | page 7 |
| BENDING AND FORMING | page 7 |
| CHEMETAL MAGNETIC LAMINATE TECH INFO | page 8-13 |
| CHEMETAL Stainless Steel #712 INFO | page 14-15 |
| WARRANTY DISCLAIMER, LIABILITY | page 16 |
| CERTIFICATES | page 17-18 |

Chemetal Product Reference

Thickness (in inches)

| Dome/Triangles 900 Series Polished | Sheet Size | Base Metal | HPL | Phenolic | Metal | Weight sq ft |
|--|-------------------|---------------|------|----------|-------|-----------------|
| 901 -T Clear Polished Triangles | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 903 -T Brass Polished Triangles | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 943 -T Bronze Polished Triangles | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 901 -D Clear Polished Dome | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 903 -D Brass Polished Dome | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 943 -D Bronze Polished Dome | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 100 Series | Sheet Size | Base Metal | HPL | Phenolic | Metal | Weight sq ft |
| 102 Micro Steel Aluminum | 4' x 8' | Aluminum | | | .025 | .30 lb / sq ft |
| Magnetic and Dry Erase | Sheet Size | Base Metal | HPL | Phenolic | Metal | Weight sq ft |
| 150 HPL Magnetic Board | 4' x 8' | Iron/Melamine | .033 | | | .58 lb / sq ft |
| 151 Black Magnetic Chalkboard | 4' x 8' | Iron/Melamine | .033 | | | .58 lb / sq ft |
| 152 White Gloss Magnetic Dry Erase | 4' x 8', 4' x 10' | Iron/Melamine | .043 | | | .58 lb / sq ft |
| 153 White Satin Magnetic | 4' x 8' | Iron/Melamine | .043 | | | .58 lb / sq ft |
| 158 Kauai Gloss Magnetic Dry Erase | 4' x 8' | Iron/Melamine | .043 | | | .58 lb / sq ft |
| 160 White Gloss Magnetic Dry Erase | 4' x 8', 4' x 10' | Steel | | .05 | .023 | .94 lb / sq ft |
| 200 Series | Sheet Size | Base Metal | HPL | Phenolic | Metal | Weight sq ft |
| 216 Footplate | 4' x 8' | Aluminum | .055 | | | .42 lb / sq ft |
| 217 Reptilian | 4' x 8' | Copper | .055 | | | .42 lb / sq ft |
| 218 Cobblestone | 4' x 8' | Copper | .055 | | | .42 lb / sq ft |
| 221 Argenta | 4' x 8' | Aluminum | .055 | | | .42 lb / sq ft |
| 223 Chromium | 4' x 8' | Aluminum | .055 | | | .42 lb / sq ft |
| 227 Venetian Horizontal | 4' x 8' | Aluminum | .055 | | | .42 lb / sq ft |
| 230 Moonscape | 4' x 8' | Copper | .055 | | | .42 lb / sq ft |
| 231 Metawave | 4' x 8' | Aluminum | .055 | | | .42 lb / sq ft |
| 232 Metawave Dark | 4' x 8' | Aluminum | .055 | | | .42 lb / sq ft |
| 236 Metawave Bronze | 4' x 8' | Aluminum | .055 | | | .42 lb / sq ft |
| 237 Metawave Black | 4' x 8' | Aluminum | .055 | | | .42 lb / sq ft |
| 253 Metropolis | 4' x 8' | Aluminum | .055 | | | .42 lb / sq ft |
| 254 Hammered Bronze | 4' x 8' | Aluminum | .055 | | | .42 lb / sq ft |
| 255 Hammered Slate | 4' x 8' | Aluminum | .055 | | | .42 lb / sq ft |
| 260 Champagne Leaf | 4' x 8' | Aluminum | .055 | | | .42 lb / sq ft |
| 262 Red Rock | 4' x 8' | Copper | .055 | | | .42 lb / sq ft |
| 275 Vintage Mesh | 4' x 8' | Aluminum | .055 | | | .42 lb / sq ft |
| 300 Series | Sheet Size | Base Metal | HPL | Phenolic | Metal | Weight sq ft |
| 303 Aged Copper | 2' x 8', 2' x 10' | Copper | | .042 | .016 | .94 lb / sq ft |
| 304 Aged Copper Dark | 2' x 8', 2' x 10' | Copper | | .042 | .016 | .94 lb / sq ft |
| 305 Antique Brushed Brass Dark | 2' x 8', 2' x 10' | Brass | | .044 | .016 | .89 lb / sq ft |
| 306 Brass Jellyfish | 2' x 8', 2' x 10' | Brass | | .044 | .016 | .89 lb / sq ft |
| 310 Antiqued Brushed | 2' x 8', 2' x 10' | Brass | | .044 | .016 | .89 lb / sq ft |
| 314 Mayan | 4' x 8', 4' x 10' | Copper | .043 | | | .344 lb / sq ft |
| 315 Canterbury | 4' x 8', 4' x 10' | Copper | .043 | | | .344 lb / sq ft |
| 317 Aurora | 4' x 8', 4' x 10' | Copper | .043 | | | .344 lb / sq ft |
| 318 Essex | 4' x 8', 4' x 10' | Copper | .043 | | | .344 lb / sq ft |
| 325 Statuary | 2' x 8', 2' x 10' | Brass | | .044 | .016 | .89 lb / sq ft |
| 335 Seurat | 2' x 8', 2' x 10' | Brass | | .044 | .016 | .89 lb / sq ft |
| 337 Aged Brass | 2' x 8', 2' x 10' | Brass | | .044 | .016 | .89 lb / sq ft |
| 338 Aged Brass Dark | 2' x 8', 2' x 10' | Brass | | .044 | .016 | .89 lb / sq ft |
| 340 Monet | 4' x 8', 4' x 10' | Copper | .043 | | | .344 lb / sq ft |
| 346 Graphite | 4' x 8' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 349 Factory | 4' x 8' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 350 Factory Dark | 4' x 8' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 352 Alu Lite | 4' x 8', 4' x 10' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 353 Alu Medium | 4' x 8', 4' x 10' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 354 Alu Dark | 4' x 8', 4' x 10' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 400 Series | Sheet Size | Base Metal | HPL | Phenolic | Metal | Weight sq ft |
| 406 Circles | 4' x 8' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 413 Linear (tints available) | 4' x 8', 4' x 10' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 414 Nomadic (tints available) | 4' x 8', 4' x 10' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 420 Cascade (tints available) | 4' x 8', 4' x 10' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 423 Swirled Copper | 2' x 8', 2' x 10' | Copper | | .042 | .016 | .756 lb / sq ft |
| 427 Placid (tints available) | 4' x 8', 4' x 10' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 440 Crescendo (tints available) | 4' x 8', 4' x 10' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 443 Plume | 4' x 8', 4' x 10' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 444 Feathered | 4' x 8', 4' x 10' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 451 Serpentine | 4' x 8' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 452 Ribbon | 4' x 8' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 500 Series | Sheet Size | Base Metal | HPL | Phenolic | Metal | Weight sq ft |
| 501 Noodle Bar (tints available) | 4' x 8', 4' x 10' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 504 Grasshopper (tints available) | 4' x 8', 4' x 10' | Aluminum | | .05 | .020 | .284 lb / sq ft |
| 505 Butterfly Effect (tints available) | 4' x 8', 4' x 10' | Aluminum | | .05 | .020 | .284 lb / sq ft |

Weights shown reflect standard way material is stocked.

Product Reference



metal designs and laminates
chemetal.com / 800 807-7341
sales@chemetal.com

CHEMETAL TECHNICAL DATA

Below please find an abbreviated version of our technical data. More complete info is viewable and downloadable at chemetal.com.

USE:

Chemetal metal designs and laminates are recommended for interior use on vertical and light-duty horizontal surfaces. Please contact Chemetal if you are uncertain about the use of Chemetal in any application. Caution should be taken on surfaces that may be exposed to harsh chemicals, acidic beverages (alcohol, colas, etc.) without cleaning surface for lengthy periods of time.

STORAGE:

Store flat, not on edge. The laminates should be stored face-up in a cool, dry area and in a completely supported flat position. Use a top sheet of chipboard or similar material to hold stored sheets flat. Protect material from twist, rack and edge damage.

HANDLING:

Many Chemetal designs are solid aluminum and may distort or kink if handled incorrectly. To prevent surface distortion, large sheets should be handled by two people and transported face up. Additionally, please view our "How to Handle Chemetal" video at chemetal.com under Downloads>Videos.

PROTECTIVE MASK:

Although Chemetal is supplied with a protective mask, care should be taken when handling. Exposure of masked sheets to light or heat for long periods of time may cause problems with the removal of the protective mask. It is recommended to leave mask on surface of the laminates during fabrication. Additionally, masking tape, or extra protection in routing work, may be applied over the protective mask. Color uniformity and other quality checks should be carried out on the sheets beforehand by lifting up the edge of the mask and laying or taping back down.

CLEANING AND MAINTENANCE:

Clean with a soft cloth using mild soap and water or nonabrasive glass and metal cleaning liquids. Do not use ammonia, abrasive cleaners or pads, or harsh solvents. Magnetic board should be cleaned with magnetic board cleaner.

SHIPPING:

Many Chemetal designs may be rolled for shipping. Magnetic laminates (150 Series and #160), solid metal sheets and sheets with a low pressure laminate backer added cannot be rolled. The exception: 24" wide designs with low pressure laminate backer.

Chemetal Product Reference cont.

Thickness (in inches)

| 600 Series | Sheet Size | Base Metal | HPL | Phenolic | Metal | Weight sq ft |
|------------------------------------|-------------------|------------|------|----------|-------|-----------------|
| 600 Weathered Aluminum | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 601 Deep Bronze Aluminum | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 606 Blackened Aluminum | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 607 Core Aluminum | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 608 Gotham Aluminum | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 609 Gilt Aluminum | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 610 Khaleesi Aluminum | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 611 Philosophy Aluminum | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 612 Chronometer Aluminum | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 613 Ember Aluminum | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 614 Beowulf Aluminum | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 615 Cement Aluminum | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 616 Brass Etch Aluminum | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 617 Steel Etch Aluminum | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 618 Black and Tan Aluminum | 4' x 8' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 700 Series | Sheet Size | Base Metal | HPL | Phenolic | Metal | Weight sq ft |
| 701 Polished Aluminum | 4' x 8', 4' x 10' | Aluminum | .038 | | | .316 lb / sq ft |
| 702 Brushed Aluminum | 4' x 8', 4' x 10' | Aluminum | .032 | | | .316 lb / sq ft |
| 703 Polished Brass Aluminum | 4' x 8', 4' x 10' | Aluminum | .038 | | | .316 lb / sq ft |
| 704 Brushed Light Brass Aluminum | 4' x 8', 4' x 10' | Aluminum | .032 | | | .316 lb / sq ft |
| 706 Satin Copper | 4' x 8', 4' x 10' | Copper | .032 | | | .316 lb / sq ft |
| 707 Cross Brush Aluminum | 4' x 8' | Aluminum | .032 | | | .316 lb / sq ft |
| 712 Brushed Stainless Steel | 4' x 8' | Steel | .032 | | | .316 lb / sq ft |
| 717 Black Brushed Aluminum | 4' x 8' | Aluminum | .032 | | | .316 lb / sq ft |
| 719 Satin Silver Aluminum | 4' x 8', 4' x 10' | Aluminum | .032 | | | .316 lb / sq ft |
| 720 Brushed Smoked Aluminum | 4' x 8', 4' x 10' | Aluminum | .032 | | | .316 lb / sq ft |
| 721 Oiled Bronze Aluminum | 4' x 8', 4' x 10' | Aluminum | .032 | | | .316 lb / sq ft |
| 724 Champagne Brushed Aluminum | 4' x 8' | Aluminum | .032 | | | .316 lb / sq ft |
| 727 Light Stainless Steel Aluminum | 4' x 8', 4' x 10' | Aluminum | .032 | | | .316 lb / sq ft |
| 791 Natural Brushed Aluminum | 4' x 8', 4' x 10' | Aluminum | .032 | | | .316 lb / sq ft |
| 796 Stainless Steel Aluminum | 4' x 8', 4' x 10' | Aluminum | .032 | | | .316 lb / sq ft |
| 800 Series | Sheet Size | Base Metal | HPL | Phenolic | Metal | Weight sq ft |
| 801 Polished Chrome | 2' x 8', 2' x 10' | Brass | | .042 | 0.016 | .89 lb / sq ft |
| 802 Satin Chrome | 2' x 8', 2' x 10' | Brass | | .042 | 0.016 | .89 lb / sq ft |
| 803 Polished Solid Brass | 2' x 8', 2' x 10' | Brass | | .042 | 0.016 | .89 lb / sq ft |
| 804 Satin Solid Brass | 2' x 8', 2' x 10' | Brass | | .042 | 0.016 | .89 lb / sq ft |
| 812 Satin Smoked Chrome | 2' x 8', 2' x 10' | Brass | | .042 | 0.016 | .89 lb / sq ft |
| 814 Satin Golden Bronze | 2' x 8', 2' x 10' | Bronze | | .042 | 0.016 | .89 lb / sq ft |
| 900 Series | Sheet Size | Base Metal | HPL | Phenolic | Metal | Weight sq ft |
| 901 Polished Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 902 Brushed Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 903 Polished Brass Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 904 Brushed Light Brass Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 906 Brushed Copper Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 908 Satin Black Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 909 Satin Silver Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 910 Satin Gold Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 911 Polished Smoked Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 912 Satin Bronze Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 915 Brushed Brass Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 916 Brushed Pewter Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 917 Brushed Black Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 924 Bronze Stainless Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 925 Brushed Medium Bronze Alum. | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 927 Light Stainless Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 931 Brushed Golden Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 933 Rose Gold Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 934 Light Bronze Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 935 Dark Bronze Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 936 Champagne Brass Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 937 Antique Copper Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 943 Polished Bronze Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 944 Glowing Bronze Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |
| 950 Brushed Blued Aluminum | 4' x 8', 4' x 10' | Aluminum | | .055 | .025 | .359 lb / sq ft |

Weights shown reflect standard way material is stocked.

(Shipping cont.)

Chemetal recommends that all sheets of solid metal be shipped flat. The customer assumes all responsibility for sheets of solid metal that are rolled and shipped in a carton(s). When materials are rolled, care must be taken to avoid bending. Do not compress coils. Material with a backer must have the face out. Rolling with the face in will crack the backing material. Roll loosely to a minimum diameter of 18 inches. Chemetal cannot roll sheets of 48" wide metal that are backed with a low pressure laminate backer, these must be shipped flat.

All HPL backed Chemetal (200 and 700 Series) may be rolled and shipped in a carton. It is often cost effective to ship HPL backed Chemetal flat for orders greater than four sheets.

DIRECTIONAL ARROWS ON SHEETS:

Many Chemetal designs are marked on protective mask or label with directional arrows, indicating direction of finish. With multiple sheet installations, sheets must be installed with arrows pointing in same direction, otherwise sheets may reflect light differently and not match up.

CHEMETAL SUBSTRATE AND ADHESIVE CONDITIONING:

We recommend that all Chemetal materials, and the adhesives and substrates they are to be bonded to, remain in the same environment for a period of five to seven days for optimal pre-conditioning. A minimum of 48 hours is recommended for pre-conditioning. These times are recommended although decorative metal laminates have minimal dimensional change.

Chemetal should not be used in areas exposed to water, moisture, high humidity or high heat for prolonged periods of time. Do not use Chemetal in exterior installations except noted 600 Series designs.

LOW PRESSURE LAMINATE BACKER LIMITATIONS:

Chemetal 200 and 700 Series and some 300 Series designs are high pressure laminates. All other materials are solid metal with a backer option. When a laminate backer is added to any other Chemetal product # or Series, this is a low pressure laminate backer. Low pressure laminates cannot be used with hot melt glue systems and edge-banding machines that adhere at temperatures in excess of 150 degrees Fahrenheit.

RECOMMENDED SUBSTRATES:

Proper substrates must be used and careful bonding procedures observed. Substrates should be good quality plywood, high density particleboard, fiberboard or MDF. Do not use drywall, plaster, concrete or gypsum board.

Substrate should be a smooth surface free of debris, dirt and imperfections. Inconsistencies in substrate surface will project through and show in finished product.

If you have questions about using Chemetal, please contact us.

sales@chemetal.com
800 807-7341
chemetal.com





GENERAL WARRANTY

In the production of metal designs and laminates some surface irregularities and color and pattern variations will appear. We recommend that you inspect the material before cutting, laminating or using. If any material proves to be defective, Chemetal will be liable for the cost of that material only. No other warranty is expressed or implied.

APPLICATIONS

Chemetal metal designs and laminates are recommended for interior use only on vertical and light-duty horizontal surfaces. Please contact Chemetal regarding any uncertainty about the use of our product in an application.

When used on other horizontal surfaces the laminates should be protected under glass or other equivalent materials. Caution should be taken on surfaces that may be exposed to harsh chemicals, acidic type acids or beverages (alcoholic, colas, etc.) when the surface will not be cleaned for lengthy periods of time.

STORAGE AND HANDLING

Store flat, not on edge. Chemetal should be stored face-up in a cool, dry area and in a completely supported flat position. Use a top sheet of chipboard or similar material to hold stored sheets flat. Protect material from twist, rack and edge damage.

To prevent surface distortion, large sheets should be handled by two people and transported face up. Do not roll solid metal designs in the #100, #300, #400, #500, #600, #800 and #900 Series. If materials are to be rolled, care must be taken to avoid bending. Do not compress coils. Material with a backer must have the face out. Rolling with the face in will crack the backing material. Roll loosely to a minimum diameter of 18 inches.

A short, helpful video on properly handling Chemetal can be viewed at: [chemetal.com>Downloads>Videos> How to Handle](http://chemetal.com/Downloads/Videos/HowtoHandle) or at this link: <http://www.chemetal.com/videos#!prettyPhoto/3/>

PROTECTIVE MASK

Although Chemetal sheets are supplied with a protective mask, care should be taken when handling them. Do not expose sheets to light or excessive heat for long periods of time. This may cause problems with the removal of the protective mask.

It is recommended to leave this mask on the surface of the laminates during processing work. Nevertheless, color uniformity and other quality checks should be carried out on the sheets beforehand by simply lifting up the edge of the mask and lying it back down.

DIRECTIONAL ARROWS

Many Chemetal laminates are directional as indicated by arrows on protective mask. It is your responsibility to line sheets up directionally for installation otherwise reflectivity and appearance may be altered or inconsistent.

CLEANING AND MAINTENANCE

Clean with a soft cloth using mild soap and water or nonabrasive glass and metal cleaning liquids. Do not use ammonia, abrasive cleaners or pads or harsh solvents.

SHIPPING

Chemetal recommends that all sheets of solid metal be shipped flat. The customer assumes all responsibility for sheets of solid metal that are rolled and shipped in a carton(s).

Chemetal cannot roll sheets of 48" wide metal with an added laminate backer, since these are essentially solid metal sheets with added backer. Therefore, 48" wide sheets with a laminate backer added by Chemetal must be shipped flat. This does not include HPL metals (which are essentially a metal foil on a high pressure laminate backer) which may be rolled and shipped in a carton. It is often cost effective to ship HPL metals flat for orders greater than four sheets.

Magnetic Laminates (#150 Series) and #160 Magnetic Dry Erase cannot be rolled. Doing so will create a permanent "kink" in their steel foil (#150 Series) and steel base material.

SUBSTRATE PREPARATION

A warm and dry storage environment must be provided for all Chemetal products, substrates and adhesives prior to fabrication and installation. A normal temperature of 75° F and a relative humidity of 45% to 50% provide ideal storage conditions.

We recommend that all Chemetal products, adhesives and the substrates they are to be bonded to remain in the same environment for a period of five to seven days for optimal pre-conditioning. A minimum of 48 hours is recommended for pre-conditioning. These times are recommended although decorative metal laminates have minimal dimensional change.

Following these recommendations will allow the adhesive to create a strong and firm bond between the substrate and the Chemetal laminate which will minimize potential dimensional change after lamination.



LAMINATION: BALANCING SHEET

We recommend the use of balancing sheets. They can help ensure balanced construction, prevent substrate warping and can act as a moisture barrier. If possible, balanced construction should be used with sheets of equivalent expansion and shrinkage ratios. Please note that metal laminates experience minimal if any change in dimension. Chemetal is sometimes able to provide seconds quality material at a discounted price for use as balancing sheets. Please inquire with us.

LAMINATION: SUBSTRATES

Proper substrates must be used and careful bonding procedures observed. Substrates should be good quality plywood, high density particleboard, high quality fiberboard or MDF. Acrylics can be a suitable substrate, especially in smaller sizes, like in retail fixturing. The more resistant the substrate is to dimensional change (shrinkage and/or expansion from changes in humidity and temperature) the better the long-term results. We do not recommend the use of a cold press when laminating metal only to any substrate.

Sheet rock or dry wall is not a recommended substrate. It's surface is too irregular, it will project imperfections and it eagerly absorbs water and distorts.

The face of the substrate must be smooth and free of grease, wax, dust, chips and other foreign matter. When using reflective decorative metal surfaces it is imperative that the bonding surface is absolutely flat or distortions in the reflectiveness may occur.

LAMINATION: CONDITIONING

It is recommended that all substrates, adhesives and Chemetal laminates be stored at room temperature (75°F) with a relative humidity of 45 to 50% for at least 48 hours prior to lamination. All materials should be stored in the same environment where fabrication or installation will take place under the above conditions. A five to seven day period of time is recommended for optimal pre-conditioning in a warm and dry environment. Lamination performed in cold temperatures may affect long-term results.

LAMINATION: FABRICATED PARTS

The fabricated parts should be stored for at least 48 hours before exposure to extreme temperature or humidity changes. Most contact adhesives require this minimum time to reach initial bond strength. Following these procedures allows the metal to bond firmly to the substrate.

LAMINATION: ON AND OFF-SITE

These procedures should be followed when the lamination is to be completed on the job site. Any lamination that is completed in conditions that are different than the expected day to day living conditions may result in failure of the

application as previously noted. All heating and air conditioning systems should be operating to achieve expected living conditions before any lamination or installation takes place on a job site. Failure to comply with these recommendations may cause failure of your application.

LAMINATION: DIMENSIONAL CHANGE

Most wood substrates experience a change in dimension that may be significantly different than that of metal designs and laminates. This difference may cause the metal to pull away from the substrate or buckle at the weakest point of adhesion.

To prevent this, sufficient spacing must be provided between and at each end of sheets or strips to accommodate possible linear expansion from the ambient temperature range at the installation site. Minimum spacing of 1/32" is recommended but a more accurate determination can be made by allowing 1/100" for each 96" of metal surface for each 10 degrees Fahrenheit of anticipated temperature change.

If you are not sure how any metallic laminate will work for your particular application, we suggest you test the application system you have selected under production and/or installation site conditions.

LAMINATION: ADHESIVES

We recommend the use of a mechanical fastening system when using Knockout (#100 Series) finishes.

Chemetal laminates may be laminated with many of the conventional adhesives normally used with plastic laminates, such as many contact cements. Check with your adhesive supplier to make sure the adhesive you select is suitable for your application. In all cases, the adhesive manufacturer's instructions should be followed as to the use of the adhesive and substrate preparation.

Please see information in this document regarding Chemetal low pressure laminate backer and adhesive requiring excessive heat.

To clean off adhesives, use a solvent like alcohol, benzene, naphtha or mineral spirits. Do not use ammonia, abrasive cleaners or pads or harsh solvents. Do not use solvents that attack lacquers. It is recommended that you test your adhesive system and/or cleaning agents with a sample piece of metal.



LAMINATION: BONDING

For best results, it is recommended that the back of any solid metal be scratched with Scotch Brite pads prior to lamination.

To ensure a good bond, consult and follow the adhesive manufacturer's instructions on preparation of substrates, surfaces and adhesive application. All types of adhesive must be applied evenly and uniformly. Globules may transfer through the surface during lamination and starvation areas may cause long-term delamination. There must be no bridging and positive bonding pressure must be applied uniformly and progressively over the entire surface.

To bond Chemetal to your substrate after gluing, pressure must be firmly and evenly applied over the entire surface using a rotary or platen press. The use of hand or "J" rollers is not recommended for laminating full size sheets of Chemetal. They can be used for laminating strips as long as firm, even pressure is applied to the entire length.

Once you have started to lay down a piece of Chemetal do not try to realign it. While you may be able to force it into position, you will put stress into the metal, which may cause buckling and bond failure during a short period of time. Chemetal sheets will readily conform to the surface of your substrate. For a smooth, flat surface appearance, extra care may be required in surface preparation and lamination. A laminate backer sheet is available upon request for finishes that are not already supplied with one if you determine that your application requires the additional support.

HIGH PRESSURE AND LOW PRESSURE LAMINATES FROM CHEMETAL: THE DIFFERENCES

Chemetal offers many HPL metal laminates in the #200, #300 (not all designs) and #700 Series. HPL is an abbreviation for high pressure laminate. These designs are a thin metal foil atop a laminate backer. They are bonded together all at one time - metal foil, layers of craft paper and glue. Many other Chemetal designs are offered with an optional non-standard laminate backer that we add in-house. This is a low pressure laminate, it is applied with a pinch roller using an adhesive tape to apply a thicker piece of metal to an already created laminate backer.

Low pressure laminates include any design with an optional non-standard laminate backer in the #100, #400, #500, #600, #800 and #900 Series plus #310, #325, #337 and #338 (these last 4 come standard with a low pressure laminate backer).

Do not apply Chemetal low pressure laminates with excessive heat.

Because of their different construction, low pressure laminates have different performance characteristics than high pressure laminates.

They cannot be exposed to heat in excess of 150 degrees Fahrenheit without potentially causing their adhesion to the backer to fail.

This prohibits the use of low pressure laminates using hot melt glue systems and edgebanding machines using glues that create adhesion at temperatures in excess of 150 degrees Fahrenheit.

CUTTING, MACHINING, ROUTING AND SAWING

CAUTION

In all cutting, machining and finishing procedures safety goggles, gloves, long pants and long-sleeved shirts must be worn and precautions must be taken to protect eyes from metal particles. Caution should be exercised in handling pieces since burred edges can cause cuts. Metallic laminates will conduct electricity and can cause shocks or short circuits when in contact with ungrounded electrical circuits.

CUTTING AND MACHINING

Most hand and power woodworking equipment and techniques may be used to work with Chemetal's metallic laminates. For laminates that are solid metals, some adjustments may be required in handling and processing techniques. All blades must be sharp, and the use of carbide-tipped cutters and multi-fluted router bits are recommended. Dull cutters create excessive chipping and burring and reduce the quality of the work.

When routing, the less material removed the better. It is also important that the face of the material be protected from the base plate of the router. To remove any burrs that may occur, use a smooth mill bastard file to feather all corners and edges. Always file down on the decorative surface. Air operated files may be used.

When cutting finish #710, #711 and #712 on a table saw, panel saw etc., the stainless steel layer must be facing up. The travel speed should be approximately 16-20 feet per minute. The diameter of the blade can be from 7" to 16" with a 6 degree negative hook, 13mm pitch, triple grind carbide blade. It is recommended to shut your exhaust system off while cutting stainless steel because sparks may occur.

ROUTING

Routing may be done using electric or air powered routers. Sharp multi-fluted carbide cutters are necessary; the larger the diameter of the cutter the better the results. The speeds recommended are the same as those used in standard wood-working practices.

It is important to use a router having adequate horsepower to maintain cutting speeds. It is also important that the cutter travel direction is against the cutter rotation. For edge trimming, high speed trimmers should be used (approximately 22,000 RPM) and will produce smooth burr-free edges. The less material cut, the smaller the burr: 1/8" of material should be the maximum. Use special care at corners to avoid tearing or bending of the metal. Protect the surface from scratches by riding the router base on a strip of .020" backing sheet or equivalent. If a bearing guide is to roll on the surface, it must be completely free rolling. Use a smooth mill bastard file to feather all corners and remove burrs from machined edges. Always file down on the decorative surface. Air operated files may also be used.

When cutting on CNC type routers, testing showed that 3 fluted solid carbide bits gave the best results for routing finish #712. The speed of the router should be approximately 7,000 to 8,000 RPM, and the travel speed of the router would be approximately 10-15 feet per minute. The shank diameter would be 1/2" to 3/4". The length of the router bit can be from 3" to 4". The up cut or down cut determines which way the finished side of the material will face up. The right hand twist determines the face to be down and the left hand twist determines the face to be up.

Do not force the router through the material. A constant feed rate will produce smoother cuts. Note: dull or damaged bits will tear, scorch, melt or even delaminate laminated material.

SAWING

To minimize burring and edge distortion, it is important that the saw blade teeth cut into the decorative face, with the blade height about 1/4" above the material, and the saw access plate refitted to reduce free space surrounding the blade. This may be accomplished by using 1/4" hard board as an overlay carrier board. Holding down on either side of the blade helps reduce chatter. Please see special instructions for sawing finish #712

General rules for selecting saw blades for 3450 RPM table saw:

- Sharp carbide tip blade
- Blade diameter: 8" to 14"
- Number of teeth: the more teeth per inch the better the results
- Pitch: 0.417" or less
- Rake angle: 10 degrees or less (zero degrees works well)
- Kerf: the thicker the blade the less chatter
- Grind: uni-chip or triple-chip

Do not force material through saw. A constant feed rate will produce smoother cuts. Blade wax will promote better cuts

and longer tool life. Note: dull or damaged blades will tear, scorch, melt or even delaminate laminated material. It is recommended that you sandwich the metal between two substrates in all sawing operations. The use of a carrier sheet during cutting may be a viable option.

BENDING AND FORMING

Any metal without a laminate backer can be bent to wrap around square or radiused corners.

RECOMMENDATIONS BY SERIES

#150, #200, #300, #700 SERIES

All radius bending should be handled in the same manner as all grades of non-post forming high pressure decorative laminates.

#800 SERIES

Outside radii are possible down to 10" when the product is used with a laminate backer. For smaller radii, the material must be used without laminate backer, order as "metal only." Inside radii can only be achieved with metal without a laminate backer.

#100, #400, #500, #600, #800, #900 SERIES

Any solid metal can be bent to wrap around square or radiused corners. We suggest that the metal be pre-formed to the desired radius prior to lamination. For a sharp, crisp bend, scribe or score the face of the metal on the line where it is to be bent using a sharp razor knife and a straight edge, approximately 1/3 into the thickness of the metal. (Note: when bending to a tight radii, it is normal for some slight crazing of the anodized surface layer to occur.) On radiused corners use hose clamps or hand-held pressure tools or rolling tools that will enable the metal to conform to the substrate contours.

Although these metals have very little "spring back," extra-firm laminating pressure must be applied just in front of and following the corner, and on curved areas. Also, some pre-forming of the metal sheet will help the material to bond properly. For a slightly radiused corner, barely scribe the metal with a "V" cutter. Use caution when folding. The scored section cannot be repeatedly opened and closed as it will eventually break off.


GENERAL

The user of Chemetal products must determine the suitability of products for any particular purpose and use, including the establishment of his or her own procedures for fabrication and installation of these products. The information supplied is a general guideline and a supplement to tool manufacturer's recommendations as to proper use and capabilities of their equipment. This information is believed to be reliable but no warranty is expressed or implied.

Magnetic & Dry Erase Product Reference


Key Benefits:

- Feature a thin sheet of iron (ferrous, magnetic metal) in the HPL backer.
- Makes these more magnetic than “powdered” (ferrous powder sprinkled onto HPL backer) magnetic laminates.
- Easy to cut and fabricate like laminate.



#150
HPL Magnetic Board

- Magnetic
- Projection (with light paint)
- Paintable
- Sheet Size: 4' x 8'
- Thickness: .04" (1mm)




#151
Black Magnetic Chalkboard

- Magnetic
- Chalk
- Sheet Size: 4' x 8'
- Thickness: .04" (1mm)




#152
White Gloss Magnetic Dry Erase

- Magnetic
- Dry Erase
- Sheet Size: 4' x 8', 4' x 10'
- Thickness: .04" (1mm)




#153
White Satin Magnetic

- Magnetic
- Projection
- Dry Erase (Limited, frequent cleaning required)
- Sheet Size: 4' x 8'
- Thickness: .04" (1mm)




#158
Kauai Gloss Magnetic Dry Erase

- Magnetic
- Dry Erase
- Sheet Size: 4' x 8'
- Thickness: .04" (1mm)




#160
White Gloss Magnetic Dry Erase Steel

- Magnetic
- Dry Erase
- Sheet Size: 4' x 8', 4' x 10', custom
- Thickness: .023", .05" with backer
- Metal fab. equip. for cutting



Custom Magnetic Laminate

We can apply any Chemetal 400, 500, 800 (metal only), 900 or Tints Series Solid Aluminum design to #150 Magnetic Board to create a custom magnetic laminate. Sheet Size: 4' x 8' Thickness: .05"



#1030
Marker Board, from InteriorArts.

- **Non Magnetic**
- Dry Erase
- Economically priced
- Sheet Size: 4' x 8'
- Thickness: .03"

Product Info:

Chemetal Magnetic Laminates (#150-158) are high pressure laminates (HPL) that contain a thin iron layer sandwiched in the HPL Backer (look at sample edge to see) creating magnetic effect when used with magnets. Ideal for vertical interior application. Surface is melamine. 4' x 8' sheets, 4' x 10' in #152 and #160.

Tech Info:

Complete tech info is available for download at chemetal.com under “Downloads.” We recommend obtaining and testing a sample prior to installation.

Cleaning:

Once installed, sheets must be cleaned once mask is removed. We recommend either rubbing alcohol (found in most drug stores), hand sanitizer or dry erase board cleaner and paper towel. Sheets should also be regularly cleaned with this solution to prevent “ghosting.”

#160 info:

Chemetal #160 is a steel dry erase magnetic material. It is value priced with excellent magnetic hold and a great “pure” white color. It requires metal fabrication equipment to cut. Chemetal can cut to size and apply laminate backer if requested (fee required).



Contact us for samples.

(800) 807-7341 | sales@chemetal.com | chemetal.com

Cleaning Instructions for Chemetal #152, #153, #158 and #160.



Sheets must be cleaned when protective mask is removed
to eliminate residue and ensure best functionality.

For this, and regular cleaning of Chemetal #152, #153, #158 and #160, we recommend Expo® White Board Care, or a similar white board specific cleaner found at office supply stores and online. Ethyl (rubbing) alcohol, found at most drugstores, and hand sanitizer that contains ethyl alcohol are also recommended. Regular use of these cleaners can help minimize “ghosting” that can occur on high use white boards. Sponge and water, dry cloths and dry erase erasers are suitable for lighter cleaning requirements.

Do not use washing detergents or abrasive detergents that can scratch and pit the dry erase surface and leave an oily film that makes future cleaning difficult.

Cleaning Instructions for other magnetic laminates:

Chemetal #150: This laminate backer is meant for surface customization (paint, etc.)
Follow cleaning recommendations of surface material.

Chemetal #151: Chalk Magnetic Board. Clean with sponge and water.

Chemetal #153: Projection Magnetic Board. Requires frequent cleaning as described at top when used with dry erase markers. This product is designed for projection use.

Other Chemetal finishes are recommended for regular dry erase use. Sponge and water may be used.

If you have questions about cleaning magnetic laminates, please contact us.

Technical Information Chemetal Magnetic Laminates

Product Numbers #150-158

Application:

Chemetal Magnetic Laminates are HPL (High Pressure Laminates) that contain a thin foil layer of iron sandwiched in the HPL Backer, creating a magnetic effect when used with magnets. For best magnetic functionality, we recommend earth or industrial magnets. We recommend obtaining a sample of material for testing prior to installation. Surface is melamine.

Application: Vertical interior application.

Material Specifications:

Sheet size: 4' x 8' feet (48" x 96")

Thickness: .04" (1 mm)

Weight Per Sheet: 18 LBS.

Ideal Usage Per Product:

Dry Erase: Chemetal #152, #158

Chalkboard: Chemetal # 151

Image Projection: Chemetal #153

Paintable: Chemetal #150

Custom: Any Chemetal 400, 500, 600, 800 (metal only), 900 or Tints Series designs may be applied.

See Product Chart in Magnetic Laminate Brochure for more product info.

Shipping:

Chemetal Magnetic Laminates must be stored and transported FLAT to avoid surface cracks.

Cutting and Machining:

Please note that sparks may occur during cutting and machining due to the iron layer in the HPL laminate. Best cutting results are achieved with Carbide-tipped circular saw blades. SPECS: 12" (305 mm) diameter, .07" to .086" (1.8-2.2 mm) thickness. Z60 RPM: 1500 FEED: 26 feet per minute. When cutting double-sided Magnetic Laminates the bottom side must first be slitted for a clean cut.

Use:

Chemetal Magnetic Laminates should be used in well air-conditioned rooms. Overly dry room conditions or direct heat influence should be avoided (risk of cracking). A short-term temperature influence on the laminate up to 140°F, 60°C is possible.

Bonding:

When applying dampness impermeable materials on top of Chemetal #150 never use water-containing adhesive as the dampness of the adhesive cannot escape and the adhesive bonding can consequently not dry.

Environmental:

Laminate Components: 54% iron, 26% paper, 20% synthetic resin (irreversible hardened). The raw materials and production processes guarantee that the boards are free of substances that are harmful to the environment. According to transportation regulations, Chemetal Magnetic Laminates are not classified as hazardous materials, a marking is not necessary. They are physiologically recognized as safe, emission free, insoluble in water and suitable for contact with food stuffs. Waste material can be disposed in accordance with the local waste regulations on controlled waste disposal sites.

Note on Dry Erase Markers:

Quality, age, operating time and storage of dry erase markers have an enormous impact on the dry erase ability. It is necessary to store board markers horizontally. Please observe the storage directions of the manufacturers.

For cleaning information please refer to the Cleaning Instructions page in this PDF.

Lamination instructions and guidelines on the last page.

Technical Information #160 Magnetic Dry Erase Steel

Application:

Chemetal #160 Magnetic Dry Erase Steel is a steel based magnetic laminate with a painted on dry erase coating. Because it is steel, Chemetal offers cut-to-size pieces.

For best magnetic functionality, we recommend earth or industrial magnets. We recommend obtaining a sample of material for testing prior to installation.

Application: Vertical interior application.

Base Material: Steel containing varied alloys.

Material Specifications:

Sheet Size: 4' x 8', 4' x 10', custom
Thickness: .023" (.6mm), .05 (1.27mm) with backer
Weight Per Sheet: 30 LBS.

Shipping:

Material should be shipped flat, with adequate protection on all sides, faces and corners.

Appearance:

The surface of the sheet is a white dry erase coating.

Surface Resistance:

The surface is not resistant to scratching. It may be used in horizontal applications, but must be considered light duty. It should be used in vertical or horizontal applications where temperatures don't exceed 160°F. Maximum heat resistance temperature is 160°F.

How to Process:

The sheets are shipped with a protective mask. Quality checks should be carried out on the sheets beforehand.

Cutting and Machining:

The steel can be processed utilizing various types of metal working equipment and hand tools. Additionally, Chemetal can provide cut-to-size-pieces to aid installation. Charges and minimums

apply. Because alloys in steel can create sparks, dust collection systems must be turned off or disengaged.

Examples of hand tools include circular, band, or jig saws equipped with Bimetal blades such as the Lenox Bimetal Jig Saw Blades, Lenox Metal Cutting Circular Saw Blades, Lenox Bimetal Hole Saws, and Lenox Air Saw Blades for use in pneumatic machine cutting. Examples of metal working equipment include shears, brakes, rolls, water jet cutting, and plasma arc cutting. NOTE: If a torch or plasma arc cutting system is used to cut the parts, the protective mask should be removed and moved away from the work area prior to cutting to avoid potential fire from the heat and sparks generated.

Safety Note:

When handling this material always utilize safe lifting and carrying practices. When working with or cutting the materials always utilize proper Personnel Protective Equipment specified by the manufacturer of the equipment or cutting tool manufacturers.

Backer Materials:

The steel may be laminated to materials such as fiberboard, particleboard, veneer plywood, plywood, and plaster boards, as well as rigid foams and metals. Do not apply to drywall.

Bonding:

Conventional glues and adhesives and special purpose thermosetting resins or solvent based contact adhesives may be used for lamination. Material may also be fastened mechanically. Pinch rolling the material is also recommended. If necessary, balancing should be done with sheets of equivalent shrinking and expanding ratios.

For cleaning information please refer to the Cleaning Instructions page in this PDF.

Lamination instructions and guidelines on the next page.

Lamination

Environment:

It is recommended that all substrates, adhesives and Chemetal laminates be stored at room temperature (75°F) with a relative humidity of 45 to 50% for at least 48 hours prior to lamination. All materials should be stored in the same environment where fabrication or installation will take place under the above conditions. A five to seven day period of time is recommended for optimal pre-conditioning in a warm and dry environment. Lamination performed in cold temperatures may affect long-term results.

Balancing Sheets:

We recommend the use of balancing sheets. They act as a moisture barrier and help ensure balanced construction. If possible, balanced construction should be used with sheets of equivalent expansion and shrinkage ratios.

Fabrication:

The fabricated parts should be stored for at least 48 hours before exposure to extreme temperature or humidity changes. (Most contact adhesives require this minimum time to reach initial bond strength). Following these procedures allows the metal to bond firmly to the substrate. The above procedures should be followed when the lamination is to be completed on the job site. Any lamination that is completed in conditions that are different than the expected day to day living conditions may result in failure of the application as noted above. All heating and air conditioning systems should be operating to achieve expected living conditions before any lamination or installation takes place on a job site.

Please note that metal laminates experience minimal if any change in dimension, unlike many wood products with higher moisture content. Most substrates experience a change in dimension that may be significantly different than that of metal. This difference may cause the metal to pull away from the substrate or buckle at the weakest point of adhesion.

Sufficient spacing must be provided between and at each end of sheets or strips to accommodate possible linear expansion from the ambient temperature range at the installation site. Minimum spacing of 1/32" is recommended but a more accurate determination can be made by allowing 1/100" for each 96" of metal surface for each 10 degrees Fahrenheit of anticipated temperature change.

If you are not sure how any Chemetal will work for your particular application, we suggest you test the application system you have selected under production and/or installation site conditions.

Substrates:

Proper substrates must be used and careful bonding procedures must be observed. Substrates should be of good quality plywood, high density particleboard, MDF, or high quality fiberboard. The more resistant the substrate is to dimensional change (shrinkage and/or expansion from changes in humidity and temperature) the better the long-term results will be.

Do not apply directly to drywall, as imperfections in drywall surface may project onto laminate surface. Additionally, moisture issues with drywall, and expansion/contraction may cause metal laminate to bubble or pop off.

The face of the substrate must be smooth and free of grease, wax, dust, chips and other foreign matter.

For best results, it is recommended that the back of any solid metal be scratched with Scotch Brite pads prior to lamination.

Adhesion:

To ensure a good bond, consult and follow the adhesive manufacturer's instructions on preparation of substrates, surfaces and adhesive application. All types of adhesive must be applied evenly and uniformly. There must be no bridging and positive bonding pressure must be applied uniformly and progressively over the entire surface. To bond metal to your substrate after gluing, pressure must be firmly and evenly applied over the entire surface using a rotary or platen press. The use of hand or "J" rollers is not recommended for laminating metallic laminate sheets. They can be used for laminating strips as long as firm, even pressure is applied to the entire length. Once you have started to lay down a piece of metallic laminate do not try to realign it. While you may be able to force it into position, you will put stress into the metal, which may cause buckling and bond failure after a short period of time.

Chemetal's metallic laminates will readily conform to the surface of your substrate. For a smooth, flat surface appearance, extra care may be required in surface preparation and lamination. A phenolic backer sheet is available upon request for finishes that are not already supplied with one if you determine that your application requires the additional support.

Failure to comply with these recommendations may cause failure of your installation. If you have installation questions, please contact us.



Technical Information #160 Magnetic Dry Erase Steel

LAMINATION

It is recommended that all substrates, adhesives and Chemetal laminates be stored at room temperature (75°F) with a relative humidity of 45 to 50% for at least 48 hours prior to lamination. All materials should be stored in the same environment where fabrication or installation will take place under the above conditions.

A five to seven day period of time is recommended for optimal pre-conditioning in a warm and dry environment. Lamination performed in cold temperatures may affect long-term results. We recommend the use of balancing sheets. They act as a moisture barrier to ensure a balanced construction. If possible, balanced construction should be used with sheets of equivalent expansion and shrinkage ratios. Please note that metal laminates experience minimal, if any, change in dimension. The fabricated parts should be stored for at least 48 hours before exposure to extreme temperature or humidity changes. (Most contact adhesives require this minimum time to reach initial bond strength). Following these procedures allows the metal to bond firmly to the substrate. The above procedures should be followed when the lamination is to be completed on the job site. Any lamination that is completed in conditions that are different than the expected day to day living conditions may result in failure of the application as noted above. All heating and air conditioning systems should be operating to achieve expected living conditions before any lamination or installation takes place on a job site.

Failure to comply with these recommendations may cause failure of your application. Most substrates experience a change in dimension that may be significantly different than that of metal. This difference may cause the metal to pull away from the substrate or buckle at the weakest point of adhesion.

Sufficient spacing must be provided between and at each end of sheets or strips to accommodate possible linear expansion from the ambient temperature range at the installation site. Minimum spacing of 1/32" is recommended but a more accurate determination can be made by allowing 1/100" for each 96" of metal surface for each 10 degrees Fahrenheit of anticipated temperature change.

If you are not sure how any Chemetal will work for your particular application, we suggest you test the application system you have selected under production and/or installation site conditions.

Proper substrates must be used and careful bonding procedures must be observed. Substrates should be of good quality plywood, high density particleboard or high quality fiberboard. The more resistant the substrate is to dimensional change (shrinkage and/or expansion from changes in humidity and temperature) the better the long-term results will be.

The face of the substrate must be smooth and free of grease, wax, dust, chips and other foreign matter.

For best results, it is recommended that the back of any solid metal be scratched with Scotch Brite pads prior to lamination.

To ensure a good bond, consult and follow the adhesive manufacturer's instructions on preparation of substrates, surfaces and adhesive application. All types of adhesive must be applied evenly and uniformly. There must be no bridging, and positive bonding pressure must be applied uniformly and progressively over the entire surface. To bond metal to your substrate after gluing, pressure must be firmly and evenly applied over the entire surface using a rotary or platen press. If possible, balanced construction should be used with sheets of equivalent expansion and shrinkage ratios. The use of hand or "J" rollers is not recommended for laminating metallic laminate sheets. They can be used for laminating strips as long as firm, even pressure is applied to the entire length.

Once you have started to lay down a piece of metallic laminate do not try to realign it. While you may be able to force it into position, you will put stress into the metal, which may cause buckling and bond failure during a short period of time. Chemetal's metallic laminates will readily conform to the surface of your substrate. For a smooth, flat surface appearance, extra care may be required in surface preparation and lamination. A phenolic backer sheet is available upon request for finishes that are not already supplied with one if you determine that your application requires the additional support.

This information is based on our current knowledge and experience. However, the user must satisfy themselves as to the suitability of the product for its intended use. No legally binding guarantee of features or the suitability of the product for a specific purpose can be derived from this information.

APPLICATION

Product is recommended for vertical surfaces, but may be used in light duty horizontal areas.

#712 MATERIAL SPECIFICATIONS

Size: 48" X 96" (4' x 8')

Thickness: .03"

Weight per sheet: 10.1 lbs.

HYGIENE CRITERIA

Odorless, suitable for use with foodstuff.

CLEANING

Clean the surface using a conventional cleaning agent such as mirror or glass cleaners, or those containing ammonia, etc. Do not use cleaners that contain abrasives.

SURFACE RESISTANCE

The surface is resistant towards household liquids. However, it is not resistant to scratching. It may be used in horizontal applications, but must be considered light duty. It should not be used in vertical or horizontal

applications where temperature exceeds 160°F.
Maximum heat resistance temperature is 160°F.

HOW TO PROCESS

The sheets are covered with a protective mask. It is recommended to leave this mask on the surface of the laminates even during processing work. Nevertheless, color uniformity and other quality checks should be carried out on the sheets beforehand by simply lifting up the edge of the mask and then laying it back down.

ATTENTION

Do not expose sheets to light for long periods of time. This may cause problems with the removal of the protective mask.

BASE MATERIALS

The stainless steel laminate may be laminated to materials such as fiberboard, particleboard, veneer plywood, plywood and plasterboards, as well as rigid foams and metals.

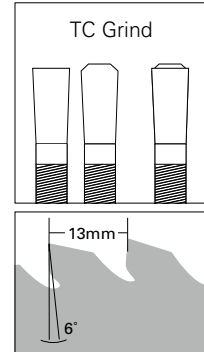
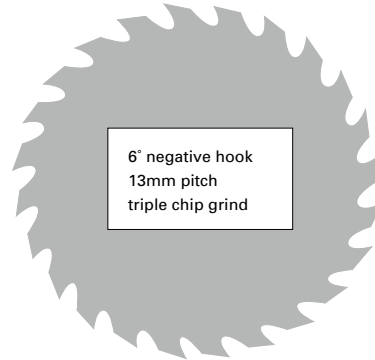
BONDING

Conventional glues and adhesives—white glue (PVA) special purpose thermo-setting resins or solvent based and water based contact adhesives may be used for lamination. Pinch rolling the material is also recommended. If necessary, balancing should be done with sheets of equivalent shrinking and expanding ratios.

SAWING

TABLE AND PANEL SAWS

When cutting on table saws, panel saws, etc. the stainless steel layer must always be facing up. The speed of the travel should be approximately 16-20 feet per minute. The blade diameter can be from 7 inches to 16 inches with a 6 degree negative hook, 13mm pitch, triple chip grind carbide blade.



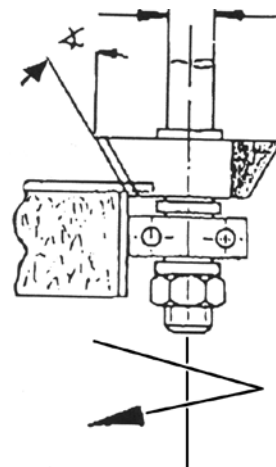
CNC ROUTERS

When cutting on CNC-type routers, in-house testing showed that the 3 fluted solid carbide bits gave the best results. The speed of the router would be approximately 7,000 to 8,000 RPM and the speed of travel would be approximately 10-15 feet per minute. The shank diameter would be 1/2 inch to 3/4 of an inch. The length can be from 3 to 4 inches. The upcut or downcut determines which way the finished side of the material will face. The right hand twist determines the face to be down and the left hand twist determines the face to be up.

| spiral bits solid carbide 3 flute | cutting diameter | cutting length | shank diameter | overall length |
|---|------------------|----------------|----------------|----------------|
| | 3/8" | 11/4" | 1/2" | 3" |
| | 1/2" | 11/2" | 1/2" | 3 1/2" |
| | 1/2" | 2" | 1/2" | 4" |
| | 5/8" | 2" | 5/8" | 4" |
| | 3/4" | 2 1/8" | 3/4" | 4" |

HAND OPERATED ROUTERS

When cutting with hand operated routers, the work piece must be fed along the ball-bearing angle of the bezel of carbide tipped routing cutters with 15, 30 and 45-degree angles. The cutters should have three tips for best performance. The running speed should be approximately 16,000 to 20,000 RPM and forward speed should be about 20 feet per minute.





Technical Information For all Chemetal Laminates

CAUTION

Metal laminates will conduct electricity and can cause shocks or short circuits when in contact with ungrounded electrical circuits.

WARRANTY DISCLAIMER AND LIABILITY

The information in this Technical Information Sheet and all related documents released by Chemetal is believed to be reliable; but Chemetal disclaims the creation of any expressed or implied warranty including the warranties of merchantability and fitness for a particular purpose with respect to Chemetal products. In all cases, users must determine the suitability of such products for any particular use and shall assume all risk and liability whatsoever in connection herewith.

Since we exercise no control in handling, storage, application and use of these products or the products of others with which they are used in combination, no warranty, express or implied, is made as to the results and effect of their use. User must also establish his or her own procedures and verify the finish of any product to be as ordered before use. We recommend testing all procedures before beginning production or installation. Buyer's exclusive remedy for a loss or claim resulting from the use of Chemetal products shall be replacement of product proven to be defective. In no event shall the Seller be liable for any special, incidental, consequential or exemplary damages.

CERTIFICATIONS

Chemetal is ASTM E84-05 tested.

Chemetal is also IMO and Coast Guard certified (164.112/EC1347) for most products.

IMPORTANT

This information is intended to be a general guideline.

For further information please contact

Chemetal
39 O'Neill Street
Easthampton, MA 01027
Phone: 800-807-7341 | 413-529-0718
sales@chemetal.com

QS - CERTIFICATE OF ASSESSMENT - EC (MODULE E)

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive (EU) 2015/559, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

That the Quality System for the products

with type designation(s) as specified in the Appendix to this Certificate

Issued to

Chemetal
EASTHAMPTON NY, United States

is found to comply with the requirements applicable to it. The quality has been assessed with respect to the procedure of conformity assessment described in Annex B, Module E in the directive.

This Certificate is valid until **2021-04-19**.

Issued at **Høvik** on **2016-05-12**

DNV GL local station:
New York



Approval Engineer:
Tessa Biever

Notified Body
No.: **0575**



for **DNV GL AS**

Digitally Signed By: Hoff, Øyvind
Location: DNV GL Høvik, Norway
Signing Date: 12.05.2016, on behalf of

Vidar Dolonen
Head of Notified Body

The manufacturer is allowed to affix the U.S. Coast Guard approval number(s) as stated in the appendix attached hereto and as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005.




0575/yy

0575: Notified Body number undertaking quality surveillance
yy: Last two digits of year in which the mark is affixed

The product liability rests with the manufacturer or his representative in accordance with Council Directive 96/98/EC, as amended.
This certificate authorizes the manufacturer in conjunction with the EC Type Examination (Module B) Certificate of the equipment listed before to affix the Mark of Conformity (wheelmark) to the product described herein.
This certificate loses its validity if the manufacturer makes any changes to the approved quality system which have not been notified to and agreed with the notified body named on this certificate and/or after lapse of time, withdrawal or revocation of the EC Type Examination (Module B) Certificate.
The Manufacturer has to apply for periodical audits to verify the maintenance and application of the quality system every 12 months.





Job Id: **344.1-003029-9**
Certificate No: **MEDE000000E**

APPENDIX

A1/3.18a Surface materials and floor coverings with low flame-spread characteristics: decorative veneers

| Type designation | EC Type-Examination Certificate No. | Expiry date | Notified Body No. | USCG approval number |
|---|-------------------------------------|-------------|-------------------|----------------------|
| HOMAPAL HIGH PRESSURE METALLIC LAMINATES SERIES 100, 101, 102, 103, 200, 300, 400, 500, 700, 800 AND 900 ¹ | MED-B-8421 | 2018-09-06 | 0575 | 164.112/EC0575/8421 |

Places of production

1.Chemetal, 39 O'Neill Street, EASTHAMPTON, United States