

Ferro Glass Systems

Flat Glass Portfolio

Presented by: Sean Weir

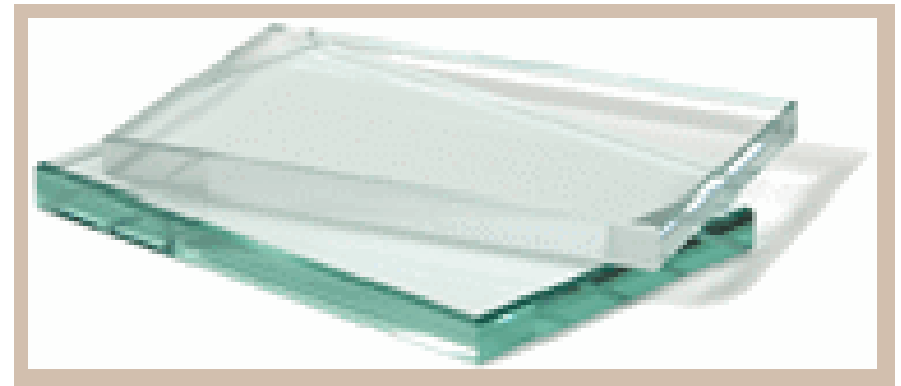
Written by: Jim Zerla



What is Flat Glass?

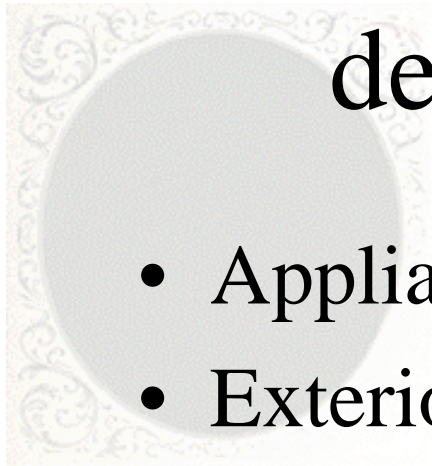
SGCD defines Flat Glass as:

A general term covering sheet glass, float glass, and various forms of rolled or patterned glass.



Where do we see flat glass decorated with ceramic?

- Appliance tops and shelving
- Exterior clad buildings
- Internal decorative panels
- Shower doors
- Boat, Bus, and RV windshields



Appliance Products

Appliance enamels provide aesthetics. The decorated glass hides the internal components of the appliance. Decorated microwaves and glass oven doors provide color coordination with other kitchen appliances.



Appliance Products

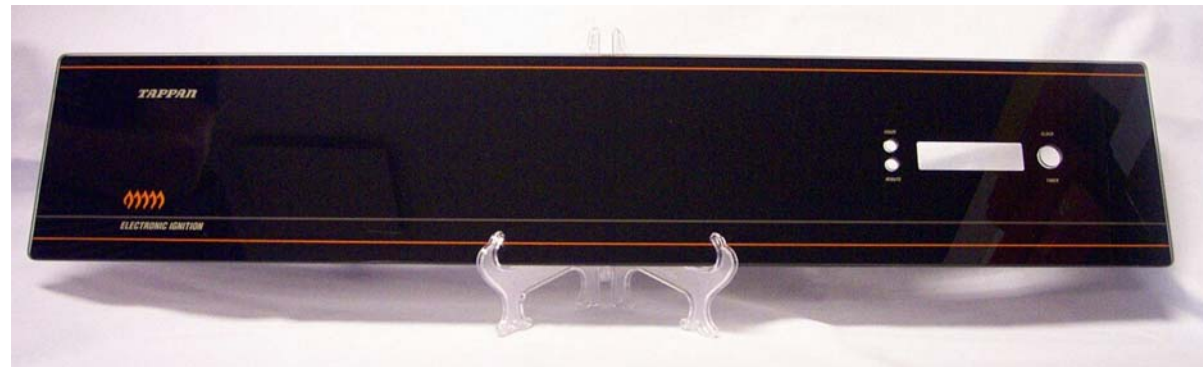
Ferro offers custom products for the appliance marketplace.

Leaded and environmentally friendly lead-free versions are commercially available.



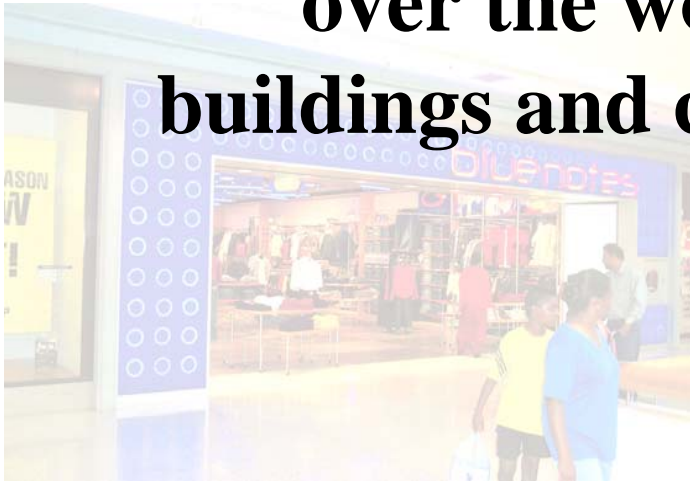
Appliance Products

These products are developed with the customers requirements in mind. Specific chemical and physical characteristics are met to ensure customer satisfaction.



Architectural Products

Ferro's architectural line covers a wide range of applications from functional to decorative. Glass spandrels are found all over the world on distinctive public buildings and commercial office structures.



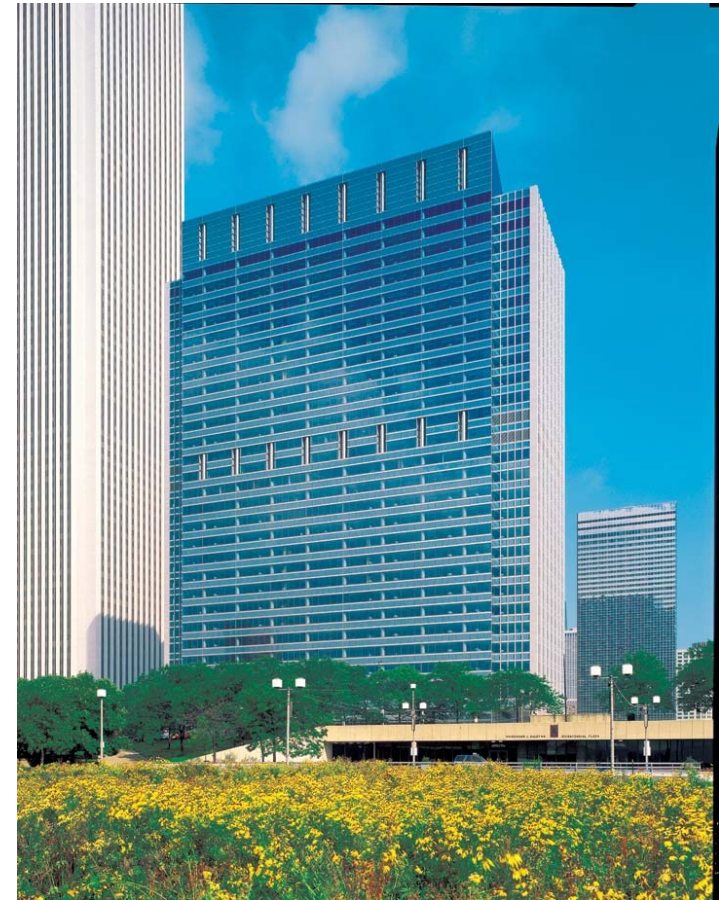
Architectural Products

Ferro's architectural enamels can be used on decorative entryways, room dividers, glass canopies, and shower doors.



Spandrel Products

Opacified spandrels are used to mask the internal workings of a building such as the building's structure, electrical and plumbing components. Ferro's spandrel enamels helps to maintain a building's consistent glass appearance.



Spandrel Products

Ferro's architectural enamels are environmentally preferred because they are lead free and have the opacity and durability required by the consumer.



Spandrel Products

Ferro developed and introduced the world's first lead-free enamels that met the rigorous specifications of Glass Association of North America (GANA) for spandrels.



Spandrel Products

Ferro's palette for architectural glass includes 16 standard colors and 10 intermixable Hi-Opacity Versicolor™ enamels. Ferro also offers complete color matching capabilities for fast, accurate custom color matching.



Spandrel Products

The spandrel enamel can be applied to various thicknesses of glass. It can be installed monolithically, using insulated metal backpans, or more often as a part of an insulated glass unit.



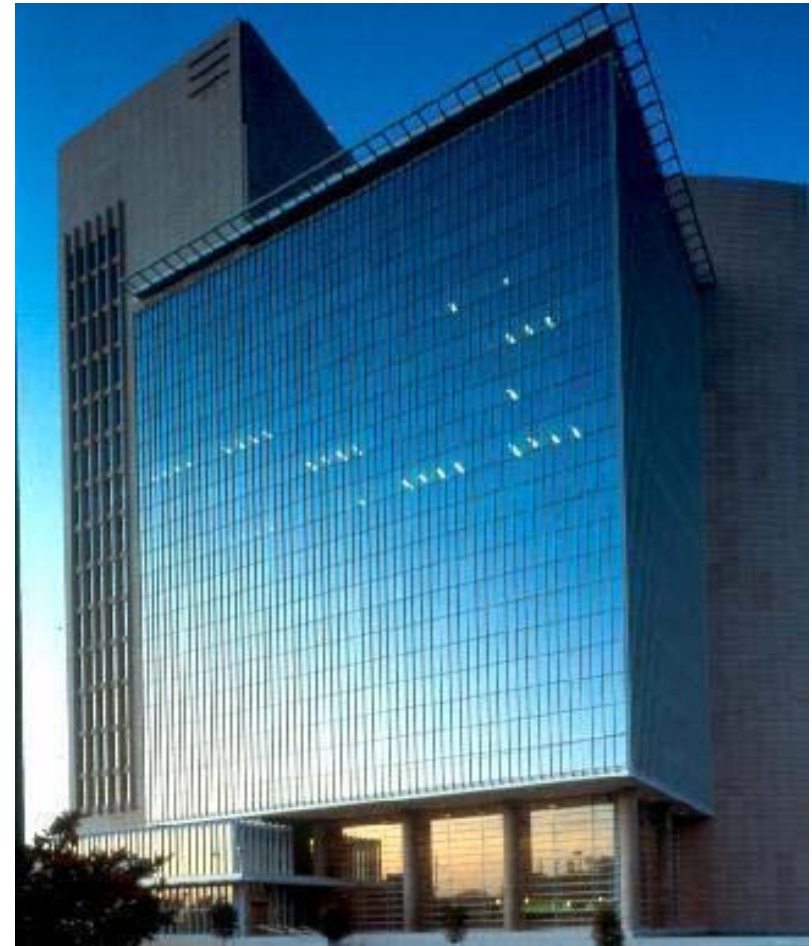
Enamel Application

The user friendly enamels can be applied by different means. The two main applications are roll coating or screen printing. Either can be used to achieve the required appearance.

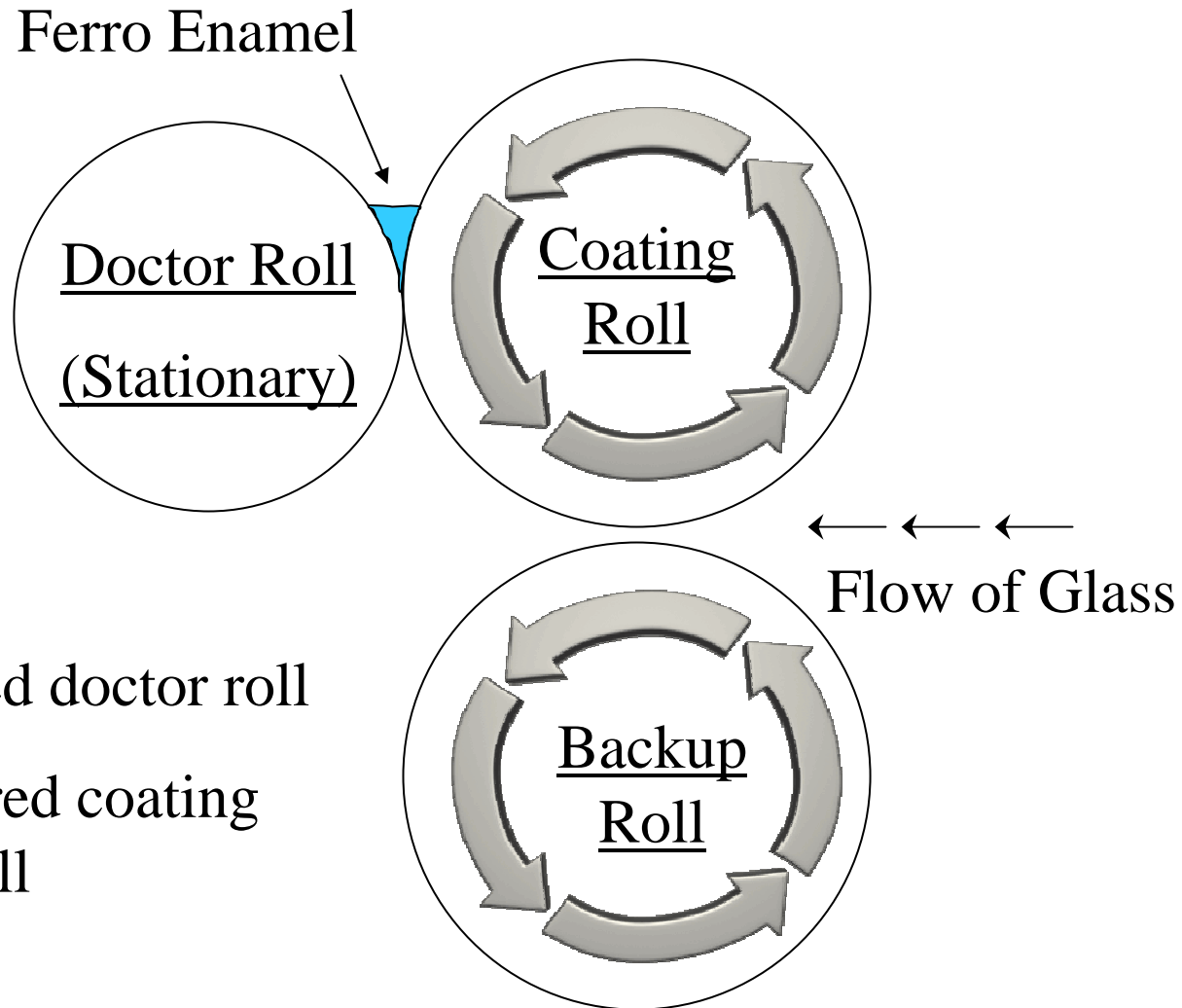


Roll Coating

Roll coating is used to manufacture a highly opacified solid glass panel. A reverse glass roller coater applies 3-6 mils of enamel on the glass substrate.



Reverse Glass Roller Coater Diagram



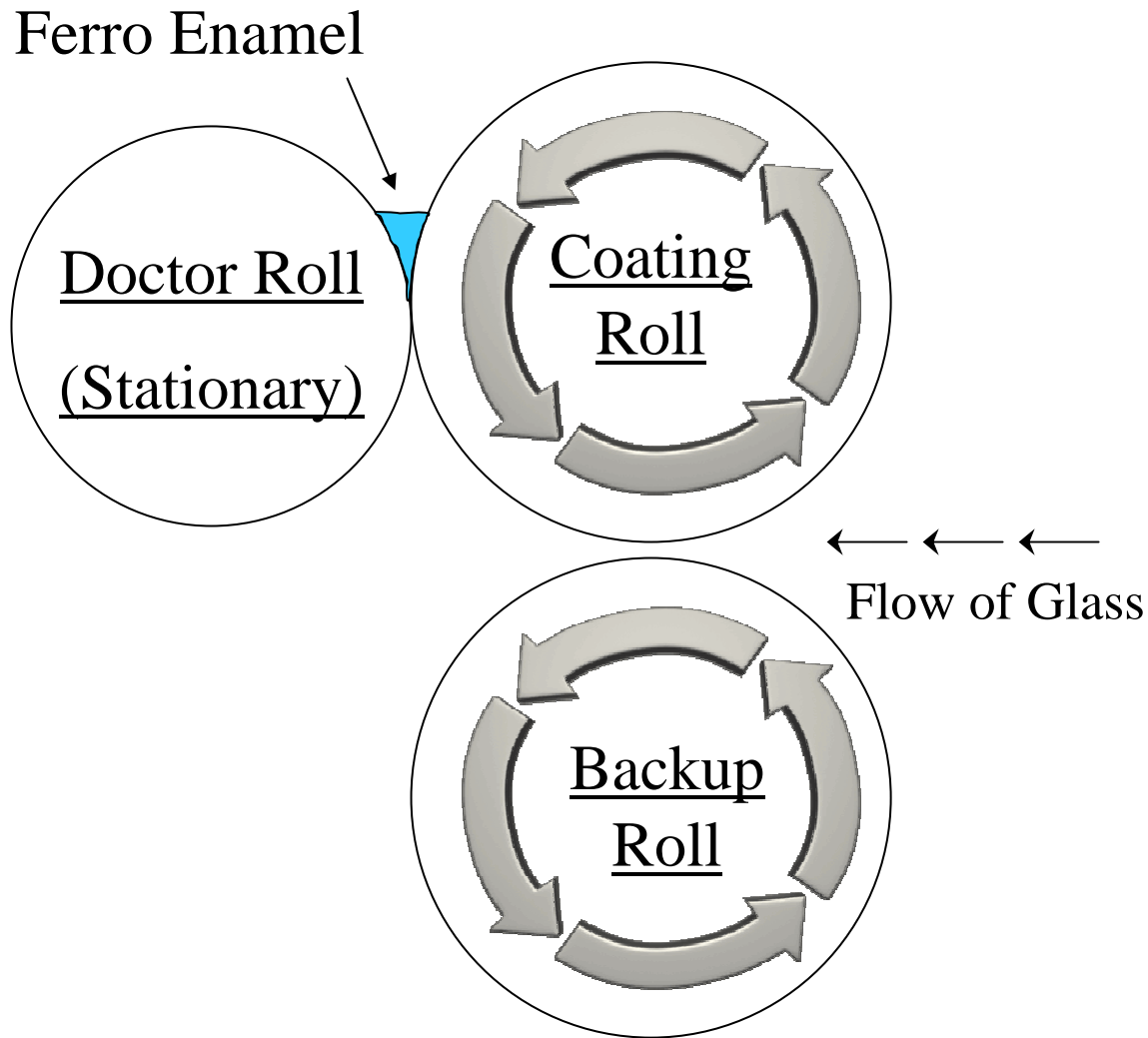
- Chrome plated doctor roll
- Rubber covered coating and backup roll



Reverse Glass Roller Coater Diagram

To obtain the desired wet film thickness a combination of the following can be used:

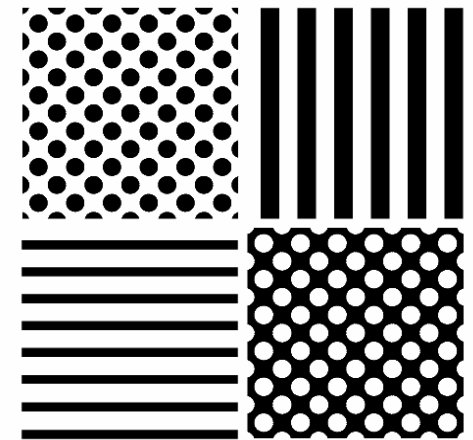
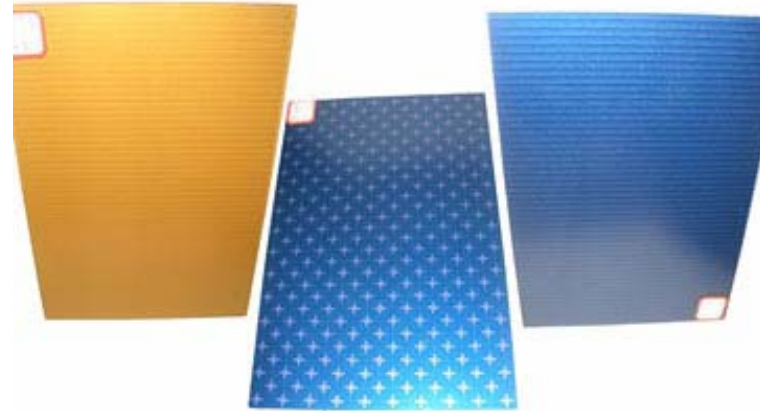
- Adjusting the gap between the doctor roll and the coating roll.
- Adjusting the height between the coating roll and the glass substrate.



Screen Printing

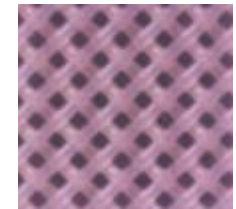
Screen printing is used to produce special effects and patterns.

Examples can be seen in both interior and exterior environments.

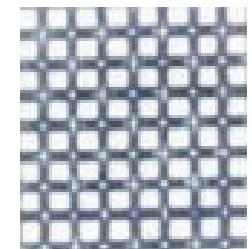


Screen Printing

Screens can be produced in various frame sizes, image patterns, mesh sizes, and with various fabric types. All of these factors are to give the customer the look they need.



Polyester fabric

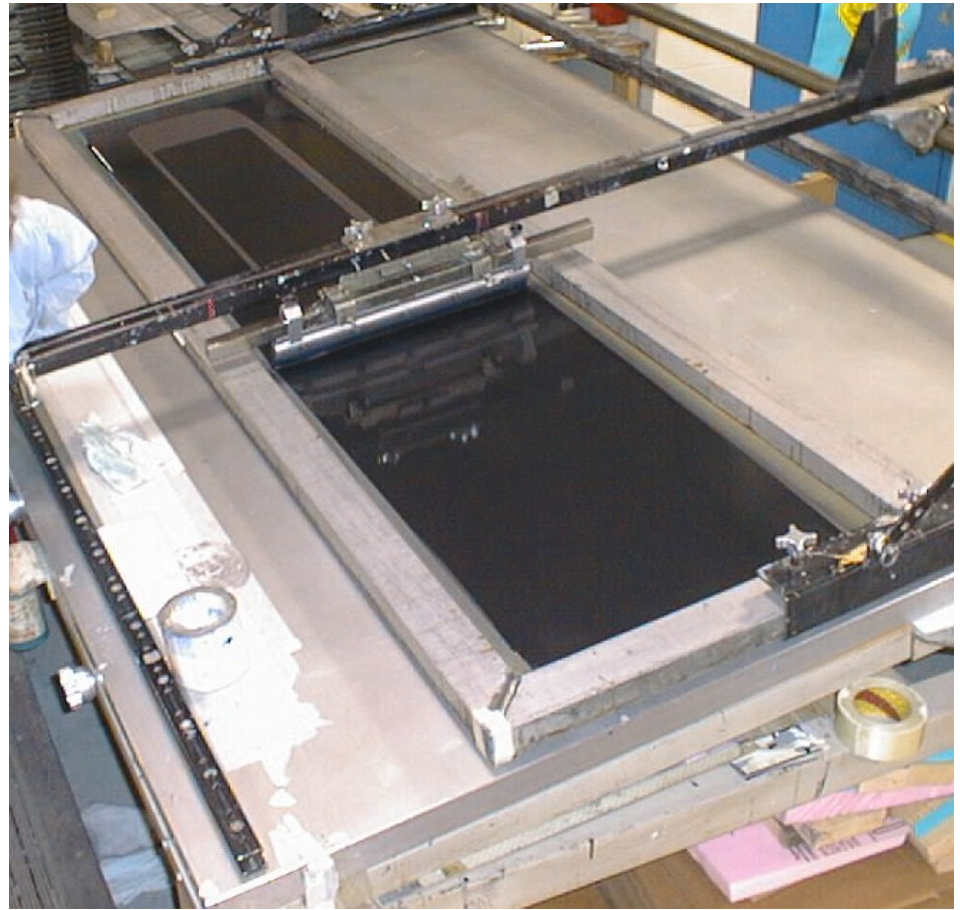


Stainless Steel fabric



Screen Printing

Ferro enamels are designed to provide smooth flowing rheology for improved print definition. They also provide the drying rate and handle strength required for the industry.



Flat Glass Mediums

Ferro's flat glass mediums gives the decorator the flexibility and ease of use to achieve the required look.

Ferro has an extensive medium portfolio designed to address particular operating conditions.



Flat Glass Mediums

Medium	Market	Use	Type	Drying Rate	Odor	Green Strength
1086	Architectural Appliance	Screen Print	Oil Based	Moderate	Moderate	Moderate to High
1516	Architectural	Roll Coat	Oil Based	Moderate	Moderate	Moderate
1537	Architectural Appliance	Screen Print	Oil Based	Moderate	Moderate	High
1544	Architectural Appliance	Screen Print/ Roll Coat	Water Miscible	Moderate	Moderate	Low
1563	Architectural Appliance	Screen Print/ Roll Coat	Water Miscible	Slow	Moderate	High
1576	Architectural Appliance	Screen Print	Water Miscible	Slow	Moderate	Low
1597	Architectural Appliance	Screen Print/ Roll Coat	Water Miscible	Slow	Moderate	Moderate
C30	Appliance	Screen Print	Oil Based	Fast	Moderate	High
C34	Appliance	Screen Print	Oil Based	Moderate to Slow	Moderate to Strong	High
C38	Appliance	Screen Print	Oil Based	Moderate to Fast	Moderate	Very High
C42	Appliance	Screen Print	Oil Based	Fast	Moderate	Moderate to High



Other Flat Glass Applications

There are many other custom marketplaces that utilize flat glass products. Ferro enamels can be seen on boat, bus, tractor, and RV windshields. Ferro enamels can also be seen on decorative glass pieces, cutting boards and mirrors.



Conclusion

Ferro flat glass lines have a universal appeal to many diverse niches. Product quality and support have set Ferro above all others. For further information please contact:

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