



# Fasara™ Glass Finishes

## 1. Product Description

3M™ Fasara™ Glass Finishes (the “Products”) are decorative glass and window films available in over 50 designs. These decorative films can be used to control both light and privacy through building’s interior glass.

The current Product line is in the 3M™ Fasara™ Glass Finishes Product Catalog (the “Catalog”).

## 2. Performance Characteristics

Performance Characteristics are based on test data deemed reliable, but not warranted.

### A. For All Products

#### Discoloration-resistant through UV Block

Blocks at least 99% of UV light to reduce the discoloring (fading caused by sunlight) of furniture and other items that is mainly caused by UV light.

### B. For Mat Crystal 2 and Milky Crystal Only

#### Anti-reflection Effect

When applied to the exterior of an outside glass wall, the Mat Crystal 2 and Milky Crystal designs scatter sunlight to prevent reflected light pollution. No other Products are recommended for an Exterior Application.

#### Use of Mat Crystal 2

Depending on the lighting source, application to partitions may give an uneven appearance. When used in Exterior Application, some caulk types may reduce adhesive. Contact 3M Technical Service for guidance.

### C. Variable Characteristics for All Products

|           | Product      | Film Thickness (µm)<br>(Excluding Liner) | Shading Coefficient | Solar Heat (%) |               |            | Visible Light (%) |               | UV (%)        |
|-----------|--------------|--|---------------------|----------------|---------------|------------|-------------------|---------------|---------------|
|           |              |  |                     | Reflectance    | Transmittance | Absorbance | Reflectance       | Transmittance | Transmittance |
| Gradation | Illumina g   | 81                                       | 0.83                | 13             | 66            | 21         | 14                | 66            | 0.0           |
|           | Illumina     | 83                                       | 0.72                | 16             | 53            | 31         | 20                | 51            | 0.0           |
|           | Aerina       | 81                                       | 0.91                | 12             | 76            | 13         | 13                | 79            | 0.0           |
|           | Venetian     | 85                                       | 0.73                | 18             | 55            | 27         | 23                | 54            | 0.0           |
|           | Robe         | 85                                       | 0.59                | 23             | 39            | 38         | 31                | 35            | 0.0           |
|           | Lontano      | 81                                       | 0.74                | 20             | 57            | 23         | 22                | 61            | 0.0           |
|           | Tsurugi      | 81                                       | 0.75                | 19             | 58            | 23         | 21                | 61            | 0.0           |
| Stripe    | Nokto        | 81                                       | 0.44                | 7              | 12            | 81         | 7                 | 13            | 0.0           |
|           | Radius       | 81                                       | 0.40                | 7              | 7             | 86         | 7                 | 6             | 0.0           |
|           | Shutie       | 81                                       | 0.77                | 17             | 60            | 24         | 22                | 59            | 0.0           |
|           | Shutie Black | 81                                       | 0.70                | 21             | 53            | 26         | 29                | 51            | 0.0           |
|           | Arpa         | 79                                       | 0.78                | 17             | 61            | 22         | 22                | 67            | 0.1           |
|           | Arpa Black   | 81                                       | 0.54                | 8              | 25            | 67         | 8                 | 22            | 0.0           |
|           | Seattle      | 81                                       | 0.85                | 16             | 70            | 14         | 22                | 74            | 0.0           |
|           | Seattle Fine | 80                                       | 0.85                | 16             | 71            | 13         | 25                | 68            | 0.0           |
|           | Fine         | 81                                       | 0.65                | 22             | 46            | 32         | 27                | 48            | 0.0           |

All of the data are calculated as theoretical value, and compiled with existing data.

**2. Performance Characteristics  
(cont.)**

**C. Variable Characteristics for  
All Products (cont.)**

|                            | Product                   | Film Thickness (µm)<br>(Excluding Liner) | Shading Coefficient | Solar Heat (%) |               |            | Visible Light (%) |               | UV (%)        |
|----------------------------|---------------------------|--|---------------------|----------------|---------------|------------|-------------------|---------------|---------------|
|                            |                           |  |                     | Reflectance    | Transmittance | Absorbance | Reflectance       | Transmittance | Transmittance |
| <b>Border — Horizontal</b> | Lattice                   | 84                                       | 0.60                | 22             | 41            | 37         | 28                | 36            | 0.0           |
|                            | Lattice g                 | 79                                       | 0.80                | 13             | 62            | 26         | 14                | 60            | 0.0           |
|                            | Slat                      | 88                                       | 0.60                | 22             | 41            | 37         | 28                | 36            | 0.0           |
|                            | Slat g                    | 83                                       | 0.77                | 14             | 58            | 28         | 16                | 56            | 0.0           |
|                            | Pixela                    | 81                                       | 0.78                | 16             | 62            | 22         | 18                | 60            | 0.0           |
|                            | Paracell                  | 80                                       | 0.71                | 17             | 53            | 30         | 20                | 50            | 0.0           |
|                            | Leise                     | 81                                       | 0.96                | 9              | 81            | 11         | 9                 | 88            | 0.0           |
| <b>Prism/Dot</b>           | Prism Noir                | 78                                       | 0.67                | 7              | 42            | 51         | 7                 | 42            | 0.0           |
|                            | Prism Silver              | 78                                       | 0.64                | 28             | 49            | 24         | 31                | 53            | 0.0           |
|                            | Astral Silver             | 82                                       | 0.42                | 44             | 28            | 28         | 51                | 30            | 0.0           |
|                            | Cielo                     | 81                                       | 0.74                | 19             | 58            | 23         | 26                | 56            | 0.0           |
|                            | Luna 6                    | 76                                       | 0.68                | 17             | 48            | 34         | 22                | 46            | 0.0           |
|                            | Vista                     | 81                                       | 0.83                | 15             | 67            | 18         | 17                | 72            | 0.0           |
|                            | Luna 9                    | 83                                       | 0.63                | 19             | 43            | 39         | 24                | 39            | 0.0           |
|                            | Aura 9                    | 81                                       | 1.02                | 8              | 89            | 3          | 8                 | 87            | 0.0           |
|                            | SHIZUKU                   | 81                                       | 0.84                | 13             | 68            | 19         | 16                | 71            | 0.0           |
|                            | KANON                     | 79                                       | 0.88                | 13             | 73            | 14         | 14                | 78            | 0.0           |
| <b>Fabric/Japan Paper</b>  | Linen                     | 78                                       | 0.79                | 17             | 64            | 19         | 23                | 65            | 0.0           |
|                            | Altair                    | 86                                       | 0.77                | 17             | 60            | 22         | 23                | 60            | 0.0           |
|                            | Vega                      | 86                                       | 0.77                | 16             | 60            | 24         | 21                | 60            | 0.0           |
|                            | SAGANO                    | 89                                       | 0.83                | 14             | 66            | 20         | 18                | 68            | 0.0           |
|                            | YAMATO                    | 89                                       | 0.89                | 12             | 74            | 14         | 15                | 79            | 0.0           |
|                            | RIKYU                     | 103                                      | 0.86                | 7              | 67            | 26         | 8                 | 72            | 0.0           |
| <b>Frost/Matte</b>         | ESSEN                     | 120                                      | 0.67                | 23             | 50            | 27         | 26                | 55            | 0.1           |
|                            | LAUSANNE                  | 113                                      | 0.94                | 8              | 78            | 14         | 9                 | 84            | 0.1           |
|                            | OSLO                      | 119                                      | 0.92                | 8              | 76            | 16         | 9                 | 83            | 0.1           |
|                            | CHAMONIX                  | 120                                      | 0.67                | 26             | 51            | 23         | 35                | 47            | 0.0           |
|                            | Opaque White              | 142                                      | 0.30                | 46             | 13            | 41         | 57                | 10            | 0.0           |
|                            | Glace                     | 85                                       | 0.77                | 14             | 58            | 28         | 18                | 56            | 0.0           |
|                            | Fine Crystal              | 113                                      | 0.94                | 8              | 78            | 14         | 9                 | 84            | 0.1           |
|                            | Mat Crystal i             | 95                                       | 0.94                | 8              | 78            | 14         | 9                 | 85            | 0.1           |
|                            | Mat Crystal 2             | 126                                      | 0.95                | 7              | 79            | 14         | 8                 | 86            | 0.2           |
|                            | Milky White (Milano)      | 77                                       | 0.75                | 17             | 57            | 26         | 21                | 29            | 0.0           |
|                            | Milky Milky (San Marino)  | 105                                      | 0.44                | 34             | 25            | 41         | 43                | 21            | 0.0           |
|                            | Milky Crystal             | 150                                      | 0.40                | 31             | 18            | 51         | 42                | 19            | 0.0           |
|                            | Luce                      | 85                                       | 0.59                | 23             | 39            | 38         | 31                | 34            | 0.0           |
|                            | Transparent               | 77                                       | 0.98                | 8              | 83            | 9          | 9                 | 89            | 0.0           |
|                            | Transparent Frosted Glass | 3  | 1.00                | 8              | 86            | 6          | 8                 | 90            | 71            |

All of the data are calculated as theoretical value, and compiled with existing data.

**2. Performance Characteristics (cont.)**

D. Heat Transmission Coefficient, All Products 5.9 W/m<sup>2</sup>K

E. Roll Sizes 50 inches wide x 98.4 feet long (1270mm wide x 30m long)

**F. Definitions for Variable Performance Characteristics**

**Shading Coefficient**

This shows the Product's sun-blocking effect, based on the percentage of sunlight entering a room when the Product is applied to 0.24 inches (6mm) thick transparent glass and the value "1" is used for the amount of sunlight passing through 0.12 inches (3mm) thick transparent glass.

**Transmittance, Reflectance and Absorbency**

These show the respective rates at which UV (ultraviolet), brightness (visible light), and hotness (sunlight) are transmitted, reflected, or absorbed.

**Heat Transmission**

This shows the ease of heat escape caused by a temperature difference between interior and exterior, based on the heat amount that would escape in 1 hour from a surface area of 10.8 square feet (1m<sup>2</sup>) when there is a temperature difference of 34°F (1°C).

**3. Safety**

**⚠ CAUTION: Risk of Glass Breakage Due to Thermal Expansion.**

When glass is exposed to direct sunlight, it absorbs heat. If covered by an opaque film, glass will absorb more heat. Heat absorption can create thermal stress, resulting in glass breakage (also called thermal cracking), which can cause personal injury and property damage. 3M specifically does not recommend using any of the following Products on glass that may be at risk for thermal expansion.

- Black (includes Nokto, Radius, Prism Noir, Shuttle Black, and Arpa Black)
- Silver (includes Prism Silver, and Astral Silver)

**4. Physical Characteristics**

| Characteristics                   | Value   |
|-----------------------------------|---|
| <b>Application Substrate</b>      | Use only glass substrates. Users must test and approve for use on polycarbonate. Illumina-P and OSLO-P are for use on plastic substrates.   |
| <b>Application Location</b>       | Mat Crystal 2 and Milky Crystal can be in Exterior Applications. All other Products are only for Interior Applications.   |
| <b>Environment Temperature</b>    | Mat Crystal 2 and Milky Crystal Exterior Applications must be in environments with consistent temperature not to exceed 149°F (65°C). All Interior Applications must be in environments with consistent temperature not to exceed 176°F (80°C). |
| <b>High Humidity Environments</b> | Products are not recommended for Interior Applications where condensation consistently occurs.  |
| <b>Flammability</b>               | When used in Interior Applications, Products have the National Fire Protection Association Class 1 (A) (as defined in NFPA 101 "Life Safety Code" Test Method ASTM E84).  |

**5. Limitation of Liability**

3M WILL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO A BUYER FOR DIRECT, SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOSS OF PROFITS) IN ANY WAY RELATED TO A PRODUCT OR THIS PRODUCT BULLETIN, REGARDLESS OF THE LEGAL OR EQUITABLE THEORY ON WHICH SUCH DAMAGES ARE SOUGHT.

**6. Warranty**

Please refer to 3M Fasara Glass Finishes warranty document.



**3M Architectural Markets  
3M U.S.**

3M Center  
Building 220-7W-07  
St. Paul, MN 55144-1000  
1-888-650-3497  
[3MArchitecturalMarkets.com](http://3MArchitecturalMarkets.com)

**Architectural Markets Department  
3M Europe**

Hermeslaan 7  
1831 Diegem  
Belgium  
[www.3M.eu/ArchitecturalMarkets](http://www.3M.eu/ArchitecturalMarkets)

**3M India Limited  
Architectural Markets Department**

Concorde Blook, UB City  
24 Vittal Mallya Road, Bangalore-560 001  
Tel: 080 2223 1414 Fax: 080 2223 1450  
[3minteriors.in@mmm.com](mailto:3minteriors.in@mmm.com)  
[www.3M.com/in/interiors](http://www.3M.com/in/interiors)  
[www.spacesunleased.com](http://www.spacesunleased.com)

**3M Architectural Markets  
3M Canada**

1840 Oxford St E  
London, ON N5V 3R6  
1-800-265-1840

**3M Architectural Markets  
3M Italia S.p.A.**

Via Norberto Bobbio, 21  
20096 Pioltello MI  
Tel 02.7035.2517  
[www.dubic.it](http://www.dubic.it)

**3M Architectural Markets  
3M Gulf**

PO Box 20191, Dubai Internet City  
Building @ 11  
Dubai, United Arab Emirates  
Tel: 971 4 3670 777  
Fax: 971 4 3670 998

3M and Fasara are trademarks  
of 3M Company. © 3M 2012.  
All rights reserved. Please recycle.