

3M™ Fasara™ Glass Finishes

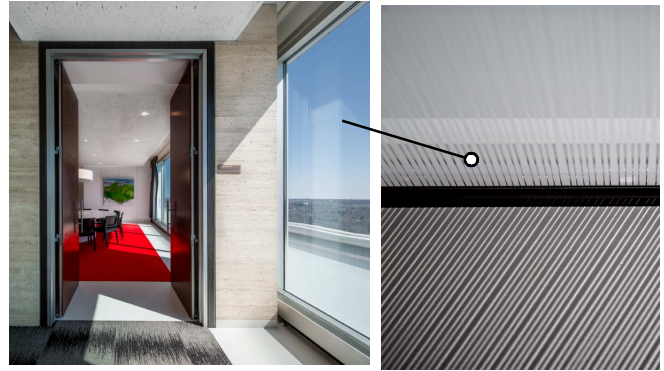
Technical Data Sheet: Fasara

Release C, Effective July 2013

(Replaces Release B, May 2013)

Product Description

3M™ Fasara™ Glass Finishes (the “Products”) are decorative glass and window films available in over 50 designs. These decorative Products can be used in vertical applications in commercial buildings to control both light and privacy through a building’s interior glass, including the interior of an outside glass wall (the “Interior Applications”). Two of the Product designs can also be used on the exterior of an outside glass wall (the “Exterior Applications”). The current Product line is in the 3M™ Fasara™ Glass Finishes Product Catalog (the “Catalog”).



A 3M™ Fasara™ Glass Finish decorates the interior of this glass wall. Notice the pattern as it is reflected onto the floor.

Performance Characteristics

All of the data are calculated as theoretical value and compiled with existing data. Performance Characteristics are based on test data deemed reliable, but not warranted.

For All Product Designs

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.

For Mat Crystal 2 and Milky Crystal Product Designs Only

Anti-reflection Effect

When used in Exterior Applications, the Mat Crystal 2 and Milky Crystal Product designs scatter sunlight to reduce reflected light. No other Product designs are recommended for an Exterior Application.

Use of Mat Crystal 2 Product Design

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

Note: When used for an Exterior Application, the Mat Crystal 2 and Milky Crystal Product designs are not warranted.

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 heat (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 amount of heat that would escape in 1 hour from a surface area of 10.8 square feet (1m²) when there is a temperature difference of 34°F (1°C).



Variable Performance Characteristics for All Product Designs

	Product Design	Film Thickness (µm) Excluding Liner	Shading Coefficient	Solar Heat (%)			Visible Light (%)		UV (%)	
				Reflectance	Transmittance	Absorbance	Reflectance	Transmittance	Transmittance	
Gradation	Illumina	83	0.72	16	53	31	20	51	0.0	
	Illumina g	81	0.83	13	66	21	14	66	0.0	
	Illumina Silver	77	0.44	50	33	17	59	36	0.0	
	Aeirina	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	71	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	
	Lattice g *	79	0.80	13	62	26	14	60	0.0	
Border / Horizontal	Lattice	84	0.60	22	41	37	28	36	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	
	Prism Noir	78	0.67	7	42	51	7	42	0.0	
	Prism Silver	78	0.64	28	49	24	31	53	0.0	
Prism / Dot	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	
	Fabric/Japan Paper	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	
SAFU		95	0.89	12	74	14	15	79	0.0	
YAMATO		89	0.89	12	74	14	15	79	0.0	
KEN-UN		97	0.70	210	53	26	28	51	0.0	
RIKYU		103	0.86	7	67	26	8	72	0.0	

Continued on the next page.

Variable Characteristics for All Product Designs (cont.)

Product Design	Film Thickness (µm) Excluding Liner	Shading Coefficient	Solar Heat (%)			Visible Light (%)		UV (%)
			Reflectance	Transmittance	Absorbance	Reflectance	Transmittance	Transmittance
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
Frost/Matte Fine Crystal	113	9.94	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	26	39	38	31	34	0.0
Silver 1	74	0.08	78	0	21	91	0	(0.0)
Transparent Glass Substrate	3	1.00	8	86	6	8	90	71

Transparent Glass Substrate is the material to which the Product was applied to calculate the values.

Product and Application Characteristics

The values in these tables are typical, and are based on test data deemed reliable but are not warranted.

Characteristics	Value
Heat Transmission Coefficient	5.98 W/m ² K, all products
Roll Sizes	50 inches wide x 98.4 feet long (1270mm wide x 30m long)
Application Substrate	Use only glass substrates. Users must test and approve for use on polycarbonate. Illumina-P and OSLO-P Product designs are for use on plastic substrates.
Application Location	Mat Crystal 2 and Milky Crystal Product designs can be applied to Exterior Applications. All other Product designs are only for Interior Applications.
Environment Temperature	Exterior Applications: When Mat Crystal 2 and Milky Crystal Product designs are used in Exterior Applications, the temperature must not exceed 149°F (65°C). Interior Applications: The temperature must not exceed 176°F (80°C).
High Humidity Environments	Products are not recommended for Interior Applications where condensation consistently occurs.
Flammability	When used in Interior Applications, Products have the National Fire Protection Association Class A (as defined in NFPA 101 "Life Safety Code" Test Method ASTM E84).
Electronic Cutting	The use of electronic cutting, weeding and application tape with the Product must be used only on a customer test and approve basis. While at least one customer reports having developed a proprietary and successful electronic cutting and application method, 3M is unaware of how it is done. The user should consider the following: (1) the type of liner used for the Product is not intended for electronic cutting; (2) there is currently no application tape that adheres properly to the face of the Product to hold cut shapes in place.

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 designs 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, but does not include Silver 1 or Silver Illumina)

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 TECHNICAL DATA SHEET, REGARDLESS OF THE LEGAL OR EQUITABLE THEORY ON WHICH SUCH DAMAGES ARE SOUGHT.

Warranty

Please refer to the 3M™ Fasara™ Glass Finishes Warranty document, available at www.3MArchitecturalMarkets.com.

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