

## Commercial Solutions Division

# 3M™ Fasara™ Glass Finishes

## Product Description

3M™ Fasara™ Glass Finishes are decorative glass and window films available in over 90 designs. These decorative films 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"). 3M™ Fasara™ Glass Finishes Mat Crystal 2 and 3M™ Fasara™ Glass Finishes Milky Crystal are the only products designed for use on exterior glass. When used in exterior applications, the Mat Crystal 2 and Milky Crystal product designs scatter sunlight to reduce reflected light.

Product Line Window decoration

More than 90 different designs available.  
2 designs for outdoor decoration only.

For available color and pattern see appendix or refer to [www.3Mgraphics.com](http://www.3Mgraphics.com).  
Please contact the 3M Sales Office for stock available and lead times.

## Product Characteristics

These are indicative values for unprocessed products.  
Contact your 3M representative for a custom specification.

### Physical & Application

Material	polyester	
Notice!	Crystal 2 and Milky Crystal contain polyester and PVC	
Surface finish	different, depending on designs	
Thickness (film)	74 µm - 153 µm (0.074 mm - 0.153 mm)	
Adhesive type	acrylic, pressure-sensitive, permanent	
Adhesive appearance	clear	
Liner	Silicone coated polyester	
Adhesion	7 N/25 mm	FTM 1: 180° peel, substrate: glass; cond: 24 h 23°C/50%RH
Roll size	Standard	1270 mm x 30 m
Sheet size	Illumina Silky-W	1270 mm x 2950 mm
		1524 mm x 2950 mm
	Illumina Silky-S	1270 mm x 1980 mm
		1524 mm x 1980 mm
Application method	wet	
Applied shrinkage	no detectable shrinkage	
Application temperature (minimum air and substrate)	+12°C to +38°C	for flat surfaces
Service temperature (after application)	-29°C to +80°C	(not for extended periods of time at the extremes)
	-29°C to +65°C	Mat Crystal 2 and Milky Crystal (not for extended periods of time at the extremes)
Surface type	flat	
Substrate type	glass only	

Electronic cutting	<p>Not recommended, however, should you wish to electrocut this material 3M would advise:</p> <ul style="list-style-type: none"> <li>- Ensure the blades are as always as sharp as possible to reduce the risk of damage to the film edge during cutting.</li> <li>- Avoid cutting sharp corners as these can tear during the application process.</li> </ul>
Fasara™ removal	<p>Removable with heat and/or chemicals from supported substrates.</p> <p>After removing low adhesive residue is possible.</p> <p>No liability is given for ease or speed of removal of any graphic. Pay attention to adequate air and substrate temperature.</p>
Shatter prevention	<p>Fasara™ film reduces the scattering and falling of broken pieces of glass in the event of glass breakage, and it satisfies the glass scattering prevention capability (A method, B method) according to the JIS A5759 (Japan code).</p>
UV Block	<p>Fasara™ films block at least 99% of the UV light to reduce the discolouring (fading caused by sunlight) of furniture that is mainly caused by UV light. Performance characteristics are based on test data deemed reliable.</p>

The values above are the results of illustrative lab test measurements and shall not be considered as a commitment from 3M.

**Storage** Shelf life Use within two years from the date of manufacture on the sealed original box. Use within one year after opening the box.

Storage conditions +4°C to +38°C, out of sunlight, original container in clean and dry area.

The shelf life as defined above remains an indicative and maximum data, subject to many external and non-controllable factors. It may never be interpreted as warranty.

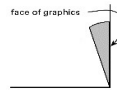
**Flammability** Classification of the reaction to fire performance according to DIN EN 13501-1 is B-s1,d0 (except SH2MAOW).

## Warranty

Unprocessed film The warranty data (appendix page 4) are given for unprocessed film only! This warranty does not apply to film problems caused by defective application.

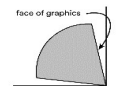
Exposure types

Vertical:



The face of the graphic is  $\pm 10^\circ$  from vertical.

Non-vertical:



The face of the graphic is greater than  $10^\circ$  from vertical and greater than  $5^\circ$  from horizontal.

## Limitations of End Uses

Graphics applied to 3M specifically does not recommend or warrant the following uses, but please contact us to discuss your needs to recommend other products.

- other surface than glass
- other than flat glass
- other than interior applications (except Mat Crystal 2 and Milky Crystal)
- surfaces that are not clean and smooth
- in between two sheets of glass
- indoor side of locations where condensation continuously occurs

Important Notice

- 3M Commercial Solutions products are not tested against automotive manufacturer specifications!
- Non vertical applications will have a significant decrease in durability
- Lamination to plastic materials is not recommended! However, lamination to plastic materials is possible. Certain plastics depending on their age and type of material can exhibit outgassing, which can lead to small air bubbles appearing between the film and the substrate. If you do wish to laminate to a plastic substrate, 3M advises that you contact your plastic material supplier to obtain low-outgassing materials and perform a trial installation on the material before production.

## Maintenance and Cleaning

- If the surface of the film becomes dirty, leaving it could cause film to deteriorate sooner
- Carefully wash with the water using a rubber squeegee do not wipe
- Wipe only one direction on the film surface (do not wipe back and forth)
- Carefully use a rubber squeegee for window glass in particular moving over edges

## LEED®v4 Credits

The products can contribute to credits under LEED®v4. Please note that each application is different. It is the sole responsibility of the end user to evaluate and determine whether LEED®v4 credits are applicable. Refer to Customer Bulletin 'LEED®v4 credits'

[> Customer Bulletin 'LEED®v4 credits' <](#)

## Important Safety Remark

### Application to glass

The application of colored or printed film onto glass with sunlight exposure can lead to glass breakage through thermal expansion of the glass. The local conditions must be examined for the danger of glass break by uneven heat absorption through sun exposure. Type of glass (insulation glass, float glass, LSG, toughened safety glass, semi-tempered glass, etc.), glass dimension, joint condition, flexibility of the sealant, quality of the edge finishing, geographical orientation and partial shadow during sun exposure are the determining factors. Light color designs and application on the outside of the window are to be preferred. A free non-applied framework of 4 mm around the entire window front can help to dissipate the absorbed warmth. According to common knowledge a thermal crack can occur at temperature differences of approx. 130°C (toughened safety glass), approx. 40°C (float glass) or approx. 110°C (semi-tempered glass). Coldest place is usually under the framework in the embedded joined window part, the warmest place is typically on the darkest place in the format. Because of the many above mentioned factors, glass breakage cannot be fully predicted, therefore 3M does not accept liability for glass breakage when using this film for window graphics. 3M specifically does not recommend using any of the following products on glass that may be at risk for thermal expansion:

- Nokto, Radius, Prism Noir, Shutie Black, Arpa Black, Illumina Black and Opaque Black
- Prism Silver and Astral Silver
- Gradiation series

## Remarks

### Important notice

This bulletin provides technical information only.

All questions of warranty and liability relating to this product are governed by the terms and conditions of the sale, subject, where applicable, to the prevailing law.

Before using, the user must determine the suitability of the product for its required or intended use, and the user assumes all risk and liability whatsoever in connection therewith.

As outdoor graphics age, natural weathering occurs causing a gradual reduction in gloss, slight color changes, some lifting of the graphic at the edges or around rivets, and ultimately a minor amount of cracking.

These changes are not evidence of product failure and are not covered by a 3M warranty.

### Additional information

Visit the web site of your local subsidiary at [www.3Mgraphics.com](http://www.3Mgraphics.com) for getting:

- additional instruction bulletins
- a complete product overview about materials 3M is offering



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The use of trademark signs and brand names in this bulletin is based upon US standards. These standards may vary from country to country outside the USA.

## Optical Performance Characteristics and Warranty of all Product Designs

Series	Product	Product Number	Film Thickness [µm] (Excluding liner)	G-value Solar Heat Gain Coefficient	Solar Heat			Visible Light		UV	U-value Heat Transmission Coefficient [W/m²·K]	Warranty		
					Reflectance [%]	Transmittance [%]	Absorbance [%]	Reflectance [%]	Transmittance [%]	Transmittance [%]		Interior [years]	Interior with UV light [years]	Exterior [years]
Border	Lattice	SH2FGLT	84	0,53	22	41	37	28	36	0,0	6,0	5	3	0
	Lattice g	SH2FGLT-G	79	0,69	13	62	26	14	60	0,0	6,0	5	3	0
	Leise	SH2FGLS	81	0,83	9	81	11	9	88	0,0	6,1	5	3	0
	Paracell	SH2FGPR	80	0,62	17	53	30	20	50	0,0	6,0	5	3	0
	Pixela	SH2FGPX	81	0,68	16	62	22	18	60	0,0	6,0	5	3	0
	Slat	SH2FGSL	88	0,53	22	41	37	28	36	0,0	6,0	5	3	0
	Slat g	SH2FGSL-G	83	0,67	14	58	28	16	56	0,0	6,0	5	3	0
Dot / Prism	Astral Silver	SH2CSAS	82	0,37	44	28	28	51	30	0,0	5,8	5	3	0
	Aura 9	SH2PCA9	81	0,84	8	89	3	8	87	0,0	6,0	5	3	0
	Kanon	SH2FGKN	79	0,77	13	73	14	14	78	0,0	6,0	5	3	0
	Luna 6	SH2PCL6	76	0,59	17	48	34	22	46	0,0	6,0	5	3	0
	Luna 9	SH2PCL9	83	0,55	19	43	39	24	39	0,0	6,0	5	3	0
	Prism Noir	SH2CSPN	78	0,58	7	42	51	7	42	0,0	6,1	5	3	0
	Prism Silver	SH2CSPS	78	0,56	28	49	24	31	53	0,0	5,9	5	3	0
	Shizuku	SH2FGSK	81	0,73	13	68	19	16	71	0,0	6,0	5	3	0
Fabric	Vista	SH2FGVI	81	0,72	15	67	18	17	72	0,0	6,0	5	3	0
	Altair	SH2FGAT	86	0,67	17	60	22	23	60	0,0	6,1	5	3	0
	Buckram	SH2FGBU	79	0,75	12	69	19	14	69	0,0	6,1	3	1	0
	Buckram pearl + gray	SH2FGBUG	77	0,66	11	55	34	12	55	0,0	6,1	3	1	0
	Burlap	SH2FGBL	75	0,66	15	57	28	20	57	0,0	6,1	3	1	0
	Burlap champagne gold	SH2CSBLC	79	0,62	23	56	21	26	56	0,0	5,9	3	1	0
	Canvas	SH2FGCV	77	0,58	21	47	33	28	47	0,0	6,1	3	1	0
	Canvas champagne gold	SH2CSCVC	78	0,65	25	61	14	29	61	0,0	5,9	3	1	0
	Grain champagne gold	SH2CSGC	78	0,68	22	64	14	24	64	0,0	5,8	3	1	0
	Grain silver	SH2CSGS	76	0,66	29	64	7	33	64	0,0	5,9	3	1	0
	Kenun	SH2PTKU	97	0,61	21	53	26	28	51	0,0	6,2	5	3	0
	Linen	SH2FGLN	78	0,69	17	64	19	23	65	0,0	6,1	5	3	0
	Linen Crystal	SH2LNCR	81	0,70	13	62	25	17	63	0,0	6,2	5	3	0
	Rikyu	SH2PTRK	103	0,75	7	67	26	8	72	0,0	6,0	5	3	0
	Safu	SH2PTSF	95	0,63	20	54	26	27	54	0,0	6,2	5	3	0
	Sagano	SH2PTSA2	89	0,72	14	66	20	18	68	0,0	6,1	5	3	0
	Sensai Linen	SH2FGSE	74	0,65	16	56	28	21	56	0,0	6,1	3	1	0
	Sensai Linen champagne gold	SH2CSSEC	79	0,67	22	63	15	25	63	0,0	5,9	3	1	0
	Vega	SH2FGVG	86	0,67	16	60	24	21	60	0,0	6,1	5	3	0
	Weave pearl	SH2EMWP	90	0,73	12	66	22	15	66	0,0	6,2	3	1	0
	Weave pearl + dark gray	SH2EMWG	94	0,63	10	50	40	10	50	0,0	6,1	3	1	0
Frost / Matte	Yamato	SH2PTYA	89	0,78	12	74	14	15	79	0,0	6,1	5	3	0
	Chamonix	SH2EMCH	120	0,58	26	51	23	35	47	0,0	6,1	5	3	0
	Cielo	SH2FGCE	81	0,65	19	58	23	26	56	0,0	6,0	5	3	0
	Essen	SH2EMES	120	0,58	23	50	27	26	55	0,1	6,1	5	3	0
	Fine Crystal	SH2FNCR	113	0,82	8	78	14	9	84	0,1	6,1	5	3	0
	Glace	SH2MAGL	85	0,67	14	58	28	18	56	0,0	6,1	5	3	0
	Lausanne	SH2EMLA	113	0,82	8	78	14	9	84	0,1	6,1	5	3	0
	Luce	SH2FGLU	85	0,51	23	39	38	31	34	0,0	6,1	5	3	0
	Mare	SH2FGMR	90	0,79	9	74	18	10	78	0,0	6,1	5	3	0
	Matte Crystal 2	SH2MACRX2	126	0,83	7	79	14	8	86	0,2	6,2	3	3	3
	Matte Crystal i	SH2MACR-I	95	0,82	8	78	14	9	85	0,1	6,1	5	3	0
	Milky Crystal	SH2MLCRX	126	0,35	31	18	51	42	19	0,0	6,2	3	3	3
	Milky Milky	SH2MAMM	105	0,38	34	25	41	43	21	0,0	6,1	5	3	0
	Milky White	SH2MAML	77	0,65	17	57	26	21	59	0,0	6,0	5	3	0
	Opaque Black	SH2BKOP	79	0,34	5	1	94	5	0	0,0	6,1	2	0	0
	Opaque White	SH2MAOW	142	0,26	46	13	41	57	10	0,0	6,0	5	3	0
	Oslo	SH2EMOS	119	0,80	8	76	16	9	83	0,1	6,1	5	3	0
	Reflect (Silver 1)	RE1SIAR	74	0,07	78	0	21	91	0	(0,0)	5,9	5	3	0

Series	Product	Product Number	Film Thickness [µm] (Excluding liner)	G-value Solar Heat Gain Coefficient	Solar Heat			Visible Light		UV	U-value Heat Transmission Coefficient [W/m²·K]	Warranty		
					Reflectance [%]	Transmittance [%]	Absorbance [%]	Reflectance [%]	Transmittance [%]	Transmittance [%]		Interior [years]	Interior with UV light [years]	Exterior [years]
Geometric	Chain Mesh reflect	SH2SICMR	76	0,40	51	36	14	59	36	0,0	5,9	3	1	0
	Cut Glass	SH2CSC	76	0,65	15	55	30	20	55	0,1	6,1	3	1	0
	Cut Glass pearl	SH2CSCP	78	0,66	16	58	26	18	58	0,1	6,1	3	1	0
	Cut Glass silver	SH2CSCS	77	0,55	26	46	27	30	46	0,0	6,0	3	1	0
	Grid	SH2FGGD	79	0,63	18	53	29	23	53	0,0	6,1	3	1	0
	Grid reflect	SH2SIGDR	76	0,61	25	55	20	30	55	0,0	6,0	3	1	0
Gradation	Aerina	SH2FGAR	81	0,79	12	76	13	13	79	0,0	6,0	5	3	0
	Cloud	SH2FGCL	90	0,76	11	70	19	13	73	0,1	6,2	5	3	0
	Diamond	SH2FGDM	80	0,67	16	58	26	20	58	0,0	6,1	3	1	0
	Diamond Ghost reflect	SH2SIDGR	77	0,31	60	27	14	69	27	0,0	5,8	3	1	0
	Diamond reflect	SH2SIDR	77	0,49	37	43	20	43	43	0,0	6,0	3	1	0
	Illumina Reflect (Illumina Silver)	SH2SIIM	77	0,38	50	33	17	59	36	0,0	5,9	5	3	0
	Illumina	SH2FGIM	83	0,62	16	53	31	20	51	0,0	6,0	5	3	0
	Illumina Black	SH2BKIM	79	0,45	6	19	75	6	20	0,0	6,0	2	0	0
	Illumina g	SH2FGIM-G	81	0,72	13	66	21	14	66	0,0	6,0	5	3	0
	Illumina Silky S	SH2SSIM-S	78	0,57	32	53	16	40	48	0,1	6,0	5	3	0
	Illumina Silky W	SH2SSIM-W	78	0,61	29	57	14	36	54	0,1	6,0	5	3	0
	Lontano	SH2FGLO	81	0,64	20	57	23	22	61	0,0	6,0	5	3	0
	Robe	SH2FGRB	85	0,51	23	39	38	31	35	0,0	6,1	5	3	0
	Sabrina	SH2FGSB	90	0,81	9	77	14	10	83	0,0	6,1	5	3	0
	Tsurugi	SH2FGTG	81	0,65	19	58	23	21	61	0,0	6,0	5	3	0
	Venetian	SH2FGVN	85	0,63	18	55	27	23	54	0,0	6,1	5	3	0
Natural	Frost Walnut	SH2PTFW	84	0,84	8	80	12	9	87	0,1	6,2	3	1	0
	Frost Walnut smoke	SH2PTFWS	87	0,65	7	50	43	7	48	0,0	6,2	3	1	0
	Pyrgos	SH2PTPG	88	0,57	19	45	36	25	43	0,0	6,2	3	1	0
Stripe	Straight Washi	SH2FGSW	90	0,67	14	57	29	18	57	0,0	6,2	3	1	0
	Arpa	SH2FGAP	79	0,67	17	61	22	22	67	0,1	6,0	5	3	0
	Arpa Black	SH2BKAP	81	0,47	8	25	67	8	22	0,0	6,1	5	3	0
	Arpa Crystal	SH2APCR	81	0,68	13	59	28	17	58	0,0	6,2	5	3	0
	Fine	SH2FGFN	81	0,56	22	46	32	27	48	0,0	6,0	5	3	0
	Fine String	SH2PTFS	76	0,74	13	69	18	16	69	0,0	6,1	3	1	0
	Fusion pearl	SH2CSFP	78	0,68	16	60	24	21	60	0,1	6,1	3	1	0
	Nokto	SH2CSNK	81	0,39	7	12	81	7	13	0,0	6,0	5	3	0
	Radius	SH2CSR	81	0,35	7	7	86	7	6	0,0	6,0	5	3	0
	Safari	SH2PTSR	85	0,71	13	63	24	16	63	0,0	6,2	3	1	0
	Seattle	SH2DGST	81	0,74	16	70	14	22	74	0,0	6,1	5	3	0
	Seattle Fine	SH2DGST-F	80	0,74	16	71	13	25	68	0,0	6,1	5	3	0
	Shutie	SH2FGST	81	0,67	17	60	24	22	59	0,0	6,1	5	3	0
	Shutie Black	SH2BKST	81	0,61	21	53	26	29	51	0,0	6,1	5	3	0
	String	SH2PTST	77	0,76	17	74	9	22	74	0,0	6,1	3	1	0
	String Reverse	SH2PTSTR	78	0,64	16	54	30	21	54	0,0	6,1	3	1	0
	Wind	SH2PTWD	88	0,70	11	61	28	13	61	0,0	6,2	3	1	0