

# SUNMAX PREMIUM REFLECT THICK

Extra clear thick mirror for Concentrated Solar Power (CSP)



SunMax Premium Reflect Thick is a high reflectivity flat solar mirror available in thickness 3 mm and 4 mm. SunMax Premium Reflect Thick is perfectly suited for use in power tower and linear Fresnel reflectors. SunMax Premium Reflect is designed to provide customers with the highest possible reflectivity and the required durability thanks to its composition. SunMax Premium Reflect conforms to EN1036.

SunMax Premium Reflect range is Cradle to Cradle Certified™ Bronze.



## SunMax Premium Reflect Thick

### Applications

- Power tower
- Linear Fresnel reflectors

### Performances

#### Main Characteristics\*

Solar hemispherical reflectance (%)**	3mm: average 94.4 4mm: average 94.0	ASTM G173 ASTM G173
Specific weight (kg/m <sup>2</sup> )	3mm: 7.5kg 4mm: 10kg	
Typical length	Up to 2550mm	
Typical width	Up to 3210mm	

Other dimensions and thicknesses available on request.

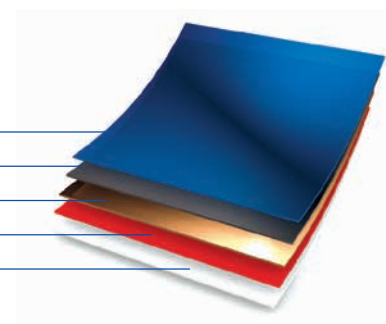
AGC can help evaluating these values according to other standards and/or to the specificities of the final application.

\*\* The monochromatic hemispherical reflectance loss at 660nm is 0% after a Neutral Salt Spray test (NSS – ISO 9227) according to SolarPACES reflectance measurement guideline.

#### Durability tests\*

Humid chamber - 480h	Passed	ISO 6270-2 (EN 1036)
Neutral salt spray test – 480h	Passed	ISO 9227
CASS - 120h and 600h	Passed	ISO 9227
Thermal / humidity cycling – 960h	Passed	85°C to -39°C to 40°C / RH 98% 85°C / 85 % RH to -15°C
EMMAQUA	Passed	ASTM G147 / ASTM G90 30 year equivalent exposure
UV resistance	Passed	UVA 340 lamps, 40W/m <sup>2</sup> (300 – 400nm), 0.8W/m <sup>2</sup> /nm (340nm), 60°C
UV + humidity exposure - 1500h	Passed	ASTM D4587 - 8h dry cycle: UVA 340 lamps, 40W/m <sup>2</sup> (300 – 400nm), 0.8W/m <sup>2</sup> /nm (340nm), 60°C - 4h wet cycle: dark period - Condensation @50°C
Cross cut	Passed	ISO 2409
Taber	Passed	ISO 7784-2 800 cycles
Sand storm test (4mm)	Passed	Based on MIL-STD-810G

- Glass
- Silver
- Copper
- Prime Coat
- Top Coat



### Mechanical Characteristics\*

Mechanical strength (MPa)	45	Annealed
Young modulus (GPa)	70	EN572
Poisson ratio	0.2	EN572
Hardness Moh (scratch hardness)	6	EN572
Knoop (indentation hardness)	470	Indenter load 500g
Density (kg/m <sup>3</sup> )	2500	EN572, at 18°C

### Thermal characteristics\*

Hemispherical emissivity	0.84	Between -18°C and 66°C
Expansion coefficient (10 <sup>-6</sup> 1/K)	9	EN572, between 20°C and 300°C
Specific heat (J/kg/K)	720	EN572
Thermal conductivity (W/m/K)	1	EN572
Softening point (°C)	722	
Annealing point (°C)	552	
Strain point (°C)	500	

### Chemical composition\*

Silicon dioxide (SiO <sub>2</sub> , %)	69 to 74	EN572
Sodium oxide (NaO, %)	12 to 16	EN572
Calcium oxide (CaO, %)	5 to 12	EN572
Magnesium oxide (MgO, %)	0 to 6	EN572
Aluminium oxide (Al <sub>2</sub> O <sub>3</sub> , %)	0 to 3	EN572
Trace elements (FeO, etc., %)	<1	

AGC is committed to environmental stewardship through the use of recyclable materials and sustainable process in the manufacturing and distribution of our state-of-the-art, energy efficient flat glass products.

\*The information contained in this datasheet is intended to assist you in designing with AGC materials. It is not intended to and does not create any warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose. The user is responsible for determining the suitability of AGC materials for each applications.

### AGC GLASS EUROPE, A EUROPEAN LEADER IN FLAT GLASS

Based in Louvain-la-Neuve (Belgium), AGC Glass Europe produces, processes and markets flat glass for the construction industry (external glazing and interior decoration), car manufacture and other industrial sectors (transport, solar power and high-tech). It is the European branch of AGC, a world leader in flat glass. It has over 100 sites throughout Europe, from Spain to Russia. AGC Glass Europe has representatives worldwide - More info on [www.agc-glass.eu](http://www.agc-glass.eu).

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# SUNMAX PREMIUM REFLECT THIN



Extra clear thin mirror for Concentrated Solar Power (CSP)



SunMax Premium Reflect Thin is a high reflectivity flat solar mirror available in thickness 1 mm and 2 mm. SunMax Premium Reflect Thin is perfectly suited for lamination purposes and use in parabolic trough, power tower, dish/engine and CPV systems. Once laminated with an appropriate adhesive onto a support material, the mirror is perfectly well protected and shows a very high chemical and mechanical durability. SunMax Premium Reflect is designed to provide customers with the highest possible reflectivity and the required durability thanks to its composition. SunMax Premium Reflect conforms to EN1036. AGC can suggest you a set of qualified adhesives in function of your support structure.

SunMax Premium Reflect range is Cradle to Cradle Certified™ Bronze.



## SunMax Premium Reflect Thin

### Applications

- Dish/engine
- CPV
- Parabolic trough
- Power tower



### Performances

#### Main Characteristics\*

Solar hemispherical reflectance (%)	1mm: up to 95.5	ASTM G 173
Minimum radius of curvature (m)	1mm: 3.8	Based on 10MPa as design stress
Specific weight (kg/m <sup>2</sup> )	1mm: 2.5	
Typical length	From 150mm to 3210mm	
Typical width	From 150mm to 1605mm	

Other dimensions and thicknesses available on request.

AGC SunMax Premium Reflect Thin can be cut to shape.

AGC can help evaluating these values according to other standards and/or to the specificities of the final application.

#### Durability tests\*

Humid chamber	Passed (not laminated)	EN1036
Neutral salt spray	Passed (not laminated)	ISO 9227
CASS	Passed (not laminated)	ISO 9227
Thermal cycling	Passed (not laminated)	From -20°C to +75°C, up to 100% RH
EMMAQUA	Passed	ASTM D4364
UV resistance	Passed (laminated)	UVA 340 lamps, 40W/m <sup>2</sup> (300 – 400nm), 0.8W/m <sup>2</sup> /nm (340nm), 60°C

### Mechanical Characteristics\*

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