SCHOTT® Solar Glass sphere

A commercial off-the-shelf solar cell cover glass for low-radiation environments

SCHOTT® Solar Glass sphere is a technical glass designed to be a highly transparent and ultra-thin protective cover for space and terrestrial photovoltaic applications in low-radiation environments.

The material's unique composition provides high and stable transmittance over the lifetime of the application while reducing the UV transmittance to an acceptable minimum.

Produced using SCHOTT's exclusive down-draw process, SCHOTT® Solar Glass sphere offers an ultra-flat fire-polished surface on both sides without the need for further polishing or slimming. Standard thicknesses range between the ultra-thin 0.03 mm and 0.15 mm, while thicknesses up to 1 mm are available on request.

With high mechanical strength and the ability to be toughened, SCHOTT® Solar Glass sphere is a commercial off-theshelf product, so offers the best cost-benefit ratio for solar cell applications in low-radiation environments.

Application

As the world generates an increasing amount of power using solar cells, the need for cover glass with precise optical properties becomes more important. Whether used for photovoltaic panels in space or on Earth, solar cells require protective glass with high strength, chemical resistance, and optical transmission, remaining robust and reliable for the entire lifetime of the application.

SCHOTT® Solar Glass sphere is ultra-thin, making it ideal for lightweight optimized solar cells, with a longer lifetime than comparable polymer solutions. Featuring high flexibility, the material can adapt to a wide range of applications, providing designers with a versatile cover glass solution that delivers performance as well as function.

General properties

- Outstanding transmission
- High edge strength
- High absorption of UV radiation
- Fire-polished surface
- Made to withstand UV solarization
- Ultra-thin thicknesses
- Protection against high-energy particle radiation
- Available in large formats

Specific properties

- Available in ultra large formats
- Commercial off-the-shelf

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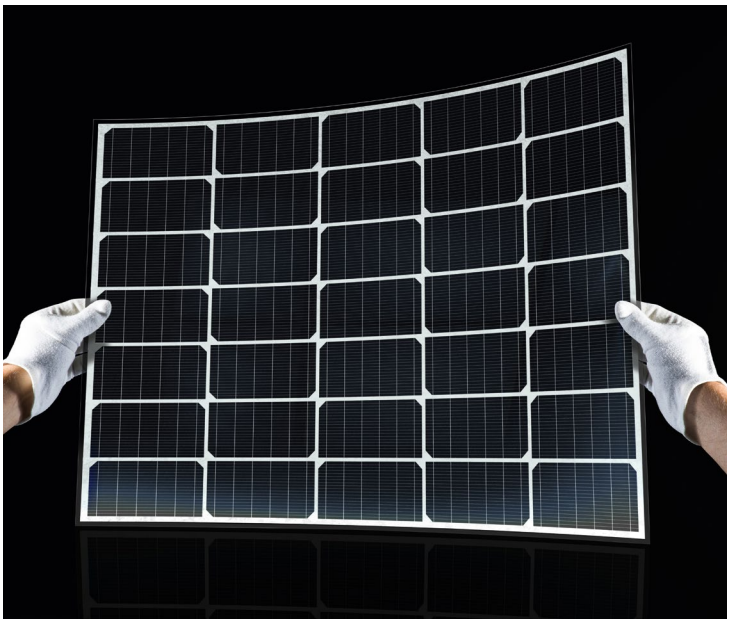
SCHOTT® Solar Glass sphere

Geometrical properties		
Thickness*	mm	0.150
		0.100
		0.070
		0.050
		0.030

* Other thicknesses on request

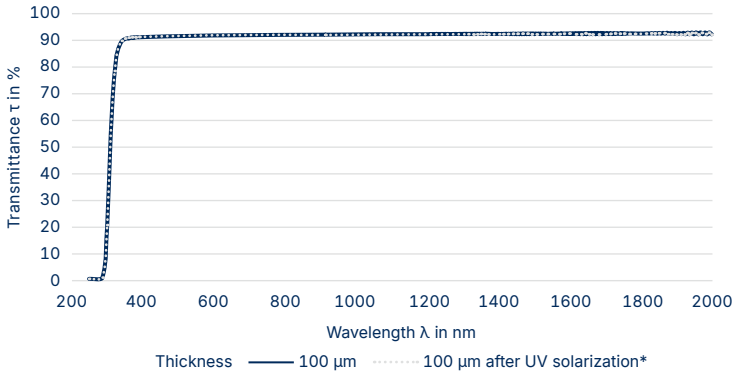


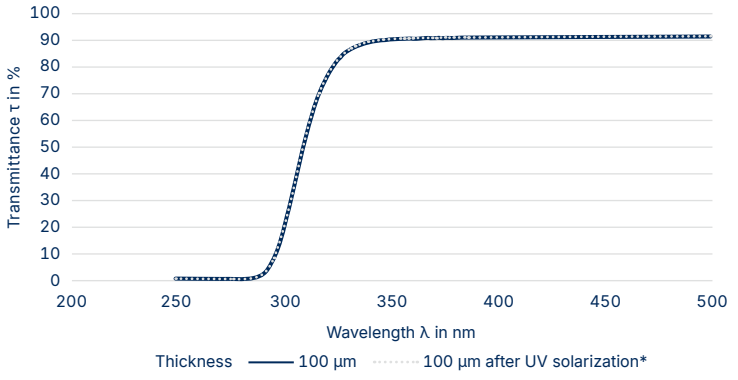
Optical properties		
Refractive index n_d		1.5231
Edge wavelength λ_c (τ = 46 %) at t = 0.100 mm	nm	308

Mechanical properties		
Density ρ	g/cm³	2.51
Young's modulus E	kN/mm²	72.9
Poisson's ratio μ		0.21

Thermal properties		
Coefficient of thermal expansion – CTE $\alpha_{(20;\ 300\,°C)}$	10^{-6}/K	7.2
Transformation temperature T_g	°C	557

Spectral transmittance of SCHOTT® Solar Glass sphere





* Exposure to a UV light source with an integrated intensity equal to 2000 sun-hours. Reference values of typical production quality.

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