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 a non-porous, 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-the-shelf product, so offers the best cost-benefit ratio for solar cell applications in low-radiation environments.

Features and benefits

Developed specifically as a cover glass for demanding, low-radiation environments, SCHOTT® Solar Glass sphere offers a broad range of physical properties that make it ideal for a wide variety of solar applications.

Outstanding transmission

High absorption of UV radiation

Made to withstand UV solarization

High edge strength

Fire-polished surface

Commercial off-the-shelf

Available in large formats

Ultra-thin thicknesses

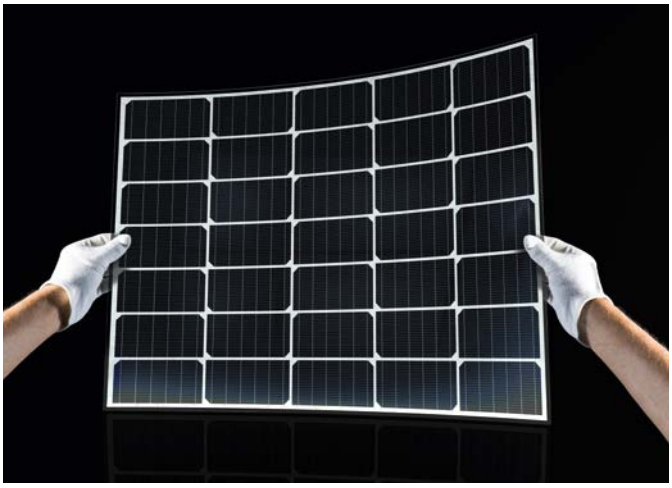
SCHOTT
glass made of ideas

SCHOTT® Solar Glass sphere

Applications

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.



Technical details

Optical properties		
Refractive index n_d		1.5231
Edge wavelength λ_c (τ = 0.46)	in nm (thickness in mm)	308 (0.1)
Luminous transmittance τ_{vD65}	in % (thickness in mm)	91.8 (0.1)

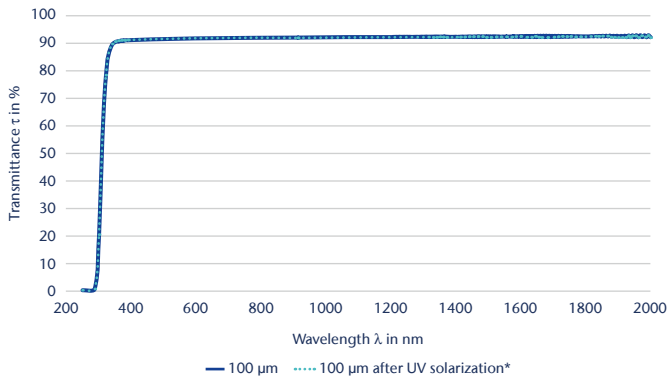
Mechanical properties		
Density ρ	in g/cm³	2.51
Young's modulus E	in kN/mm²	72.9
Poisson's ratio μ		0.21
Breaking strength	Strength-optimized cutting process, details available on request	

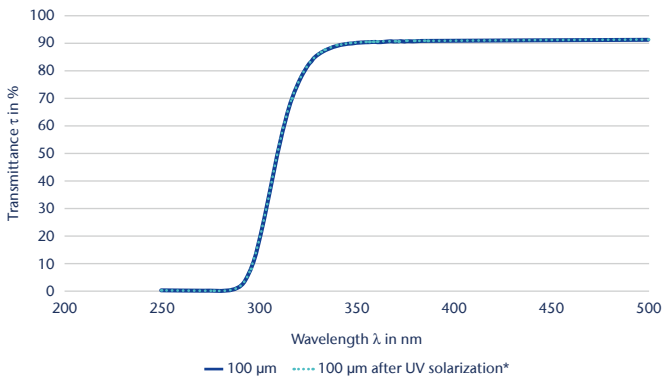
Thermal properties		
Transformation temperature T_g	in °C	557
CTE (coefficient of thermal expansion) α	in $10^{-6} \cdot K^{-1}$ (20 °C; 300 °C)	7.2

Geometrical properties		
Thickness portfolio	in µm	150 100 70 50 30
Standard formats	in mm	710 x 410

Other formats and thicknesses on request

Transmittance





* 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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