SolarTech Power Solutions

Double glass light transmission component parameters

Overview

How is the transmittance of optical glass measured?

The transmittance of optical glass is measured using double beam spectral photometers from the company Perkin Elmer with special modifications. The standard setup enables to measure within a wavelength region from 250 nm up to 2500 nm. The measurement accuracy over the complete spectrum is about ±0.5%.

What is visible light transmittance?

Visible Light Transmittance (Tv, %) is the percentage of incident light in the wavelength range of 380 nm to 780 nm that is transmitted by the glass. Visible Light Outdoors/Indoors (Re out/in, %) is the percentage of incident solar energy directly reflected by the glass.

What is the transmittance model of quartz glass?

The double thickness transmittance model n is the refractive index of quartz glass and the k is the absorption index of quartz glass. The light at each surface of the glass obeys Fresnel's law and Snell's law. Then the transmittance of quartz glass with thickness of L1 and L2 are shown in Eqs.

What is the difference between emissivity and spectral transmittance?

Emissivity, front: the radiative heat exchange ability of the front side of a glass. Emissivity, back: the radiative heat exchange ability of the back side of a glass. Spectral transmittance: the fraction of radiation of a specific wavelength transmitted through a glass.

Do optical glasses have a high transmittance range?

Optical glasses are optimized to provide excellent transmittance throughout the total visible range from 400 to 800 nm. Usually the transmittance range spreads also into the near UV and IR regions. As a general trend lowest refractive index glasses show high transmittance far down to short

wavelengths in the UV.

How does electromagnetic radiation affect the transmittance of a glass?

Electromagnetic radiation influences the transmittance of a glass depending on glass type and the wavelength of radiation. The influence of visible and UV radiation (less than 380 nm wavelength) on glass is called solarization. The UV radiation generates color-centers in the glass leading to a reduced transmittance.

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