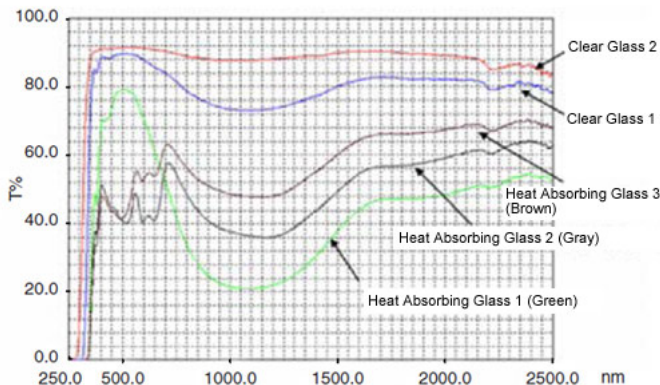


Measurement of Solar Transmittance through Plate Glass

In recent years, various types of functionally enhanced glass with heat-blocking properties have been used in windows to inhibit the transmission of infrared light, as one way to combat global warming, the heat island effect, and other problems. JIS regulates solar transmittance as an index of the transmission characteristics of sunlight, which includes visible to near-infrared light. In this example, several types of glass were measured using a UV-3600 UV-VIS-NIR spectrophotometer and their solar transmittance was calculated using solar transmittance software.

Transmittance through five types of commercially sold plate glass (5 mm thick) was measured over the wavelength range from 250 nm to 2500 nm. The results show that while the clear glasses transmit all wavelengths above 350 nm well, the three types of heat-absorbing glass had a lower transmittance level than clear glass in the near-infrared region.

Based on these transmittance spectra, solar transmittance measurement software was used to calculate solar transmittance and visible light transmittance values. The results indicated that the heat-absorbing glasses with relatively low transmittance for both visible and near-infrared regions had the lowest solar transmittance values. A formula similar to the formula on the previous page was used to calculate visible light transmittance in the range of 380 nm to 780 nm, which is regulated along with solar transmittance by JIS R 3106 Testing method on transmittance, reflectance and emittance of flat glasses and evaluation of solar heat gain coefficient. Visible light transmittance values indicate a transmittance level that takes into consideration the human eye's sensitivity to light.



Transmittance Spectra of Five Types of Glass

Sample Name	Solar Transmittance (τ_e)	Visible Light Transmittance (τ_v)
Clear Glass 1	81.412	88.733

Clear Glass 2	89.612	91.339
Heat Absorbing Glass 1	47.428	75.051
Heat Absorbing Glass 2	44.367	43.323
Heat Absorbing Glass 3	52.023	50.029

Solar Transmittance and Visible Light Transmittance of Samples

UV-3600 UV-VIS-NIR Spectrophotometer

Solar transmittance is defined as the ratio of solar radiation perpendicularly incident on window glass that is transmitted through the glass and calculated according to a formula specified in JIS R 3106 Testing method on transmittance, reflectance and emittance of flat glasses and evaluation of solar heat gain coefficient.



Solar transmittance measurement software* is used to calculate solar transmittance (or reflectance) values from transmittance (or reflectance) spectra according to the specified formula.

* This software can only be used to calculate values for single panes of glass and cannot be used for multiple panes of glass.



Related Information

[Analysis Guidebook](#)

[Application Note](#)


[\[Testing Machine Configurator \] -
Create your own testing system
configuration](#)

NEWS / EVENTS



For Research Use Only. Not for use in diagnostic procedures.

This page may contain references to products that are not available in your country. Please contact us to check the availability of these products in your country.

 Contact Search

 Quotation

 Product Inquiry

 Technical Inquiry

 Other Inquiry

 FOLLOW US:    