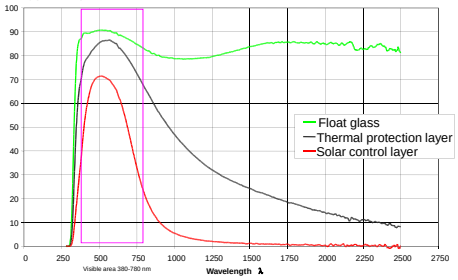
Photometry and radiometry

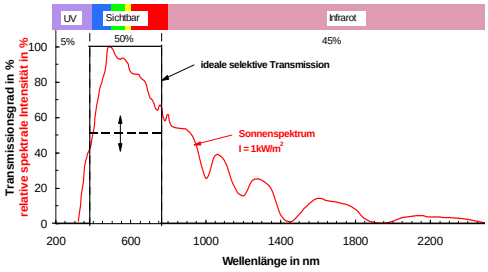
Measurement of luminous and solar characteristics according to EN 410

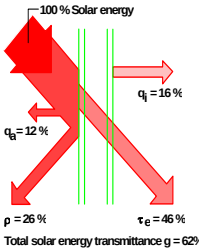
Measurement of the spectral transmission $\tau(\lambda)$ and reflection $\rho(\lambda)$ in the wavelength range between 250 nm and 2500 nm at small samples 40 x 70 mm of single panes in the UV-VIS-NIR-spectrometer

Typical spectral transmittance



The spectrum of the sun





The following values can be measured and/or calculated for glasses

g	total solar energy transmittance (g==τ_e+q_i)	τ_v	light transmittance
τ_e	solar transmittance	ρ_v	light reflectance
ρ_e	solar reflectance	τ_{UV}	UV-transmittance
qi	secundary heat flow		

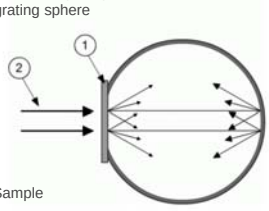
The luminous values of insulating glass units are determined calculative on basis of the measured single panes.

Measurement of light transmission τ_v and light reflexion ρ_v for light diffusing and light channelling products according to DIN 5036

Light diffusing products are e.g. screen-printed glass, etched glass, glass with integrated installation and solar control products like fabrics and lamella.

For systems that have angle depending characteristics, the radiation angle can vary from 0° to 60°

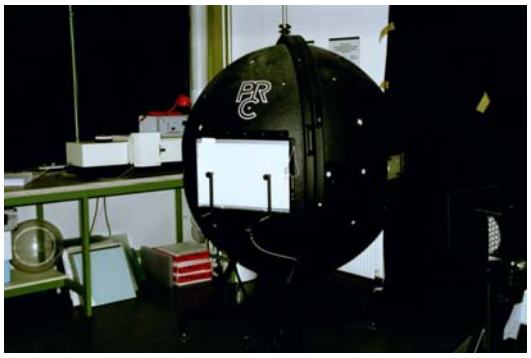
Measurement principle of the integrating sphere



1 Sample

2 Light D65

Picture of the integrating sphere at **ift** Rosenheim



Measurement of emissivity ε_n according to EN 12898

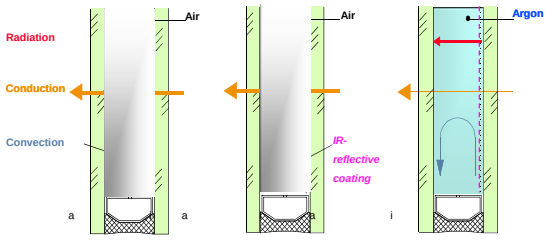
Every body radiates heat. The emissivity of a body indicates how much radiation it gives compared with an ideal radiant warmers, a black body.

The emissivity ε_n of the surfaces has among other things influence on the U_g-value of the insulating glass unit; the lower the emissivity, the lower the U_g-value.

Typical values for $\varepsilon_n$are:

Standard float glass	0.89
Solar control coating	0.02
Thermal insulation coating	0.03 - 0.06

Example for the influence of lowE-coating on the U_g-value



U_g = 3.0 W/(m².K) U_g = 1.5 W/(m².K) U_g = 1.2 W/(m².K)

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