



G.E.P.V.P. Code of practice

Presentation of Performance Data for Insulating Glass Units According to European Standards

This data sheet describes the method of presenting values of thermal transmittance (U-values) and total solar energy transmittance (g or solar factor) for insulating glass units, in particular those incorporating coated glass. Throughout this data sheet reference is made to European Standards produced under the auspices of CEN TC129.

Determination of Thermal Transmittance (U-value)

The U-value shall be calculated in accordance with EN 673 and quoted to one decimal place.

The following characteristics/parameters apply to the calculation:

1. Near normal emissivity (ϵ_n) shall be used (see note 1 below)
2. Airspace width shall be quoted
3. Gas type(s), e.g. air, argon, etc., and concentration(s), i.e. $c_{i,o}$, shall be quoted
4. ΔT is 15K

Where:

- ϵ_n The near normal emissivity shall be determined in accordance with EN 12898. The value shall be quoted to two decimal places
- ϵ_m The measured value of near normal emissivity shall be $\leq \epsilon_d + 0,02$, see prEN 1096-4
- ϵ_d The declared value of near normal emissivity, used for calculation
- $c_{i,o}$ Nominal gas concentration, for calculation of U-value, as defined in prEN 1279-3
- c_i The measured gas concentration shall be $c_{i,o}-5\% \leq c_i \leq c_{i,o}+10\%$ (see note 2 below)
- ΔT The temperature difference between bounding glass surfaces

Note 1. For the U value calculation, the corrected emissivity (ϵ) is determined from the near normal emissivity in accordance with A.2 of EN 673

Note 2. A $c_{i,o}$ of 90% means that the c_i shall be between 85% and 100%

Unless specified by national regulations a nominal gas concentration, $c_{i,o}$, of 90% shall be used.

Determination of Total Solar Energy Transmittance (g)

g shall be calculated in accordance with EN 410 and quoted to two decimal places.

The configuration of the insulating glass unit shall be specified as follows:

1. Glass types and thickness; in the case of a low emissivity glass the value of ϵ_d may be stated, where required
2. Airspace width
3. Gas type(s), e.g. air, argon, etc., and concentration(s), i.e. $c_{i,o}$, shall be quoted



Normative References

EN 410: 1998 – Glass in building – Determination of luminous and solar characteristics of glazing

EN 673: 1997/A2– Glass in building – Determination of thermal transmittance (U-value) – calculation method

prEN 1096-4: 2001 – Glass in building – Coated glass – Part 4: Evaluation of conformity

EN 1279-3: 2002 – Glass in building – Insulating glass units – Part 3: Long term test method and requirements for gas leakage rate and gas concentration tolerances

EN 12898: 2001 – Glass in building – Determination of emissivity

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