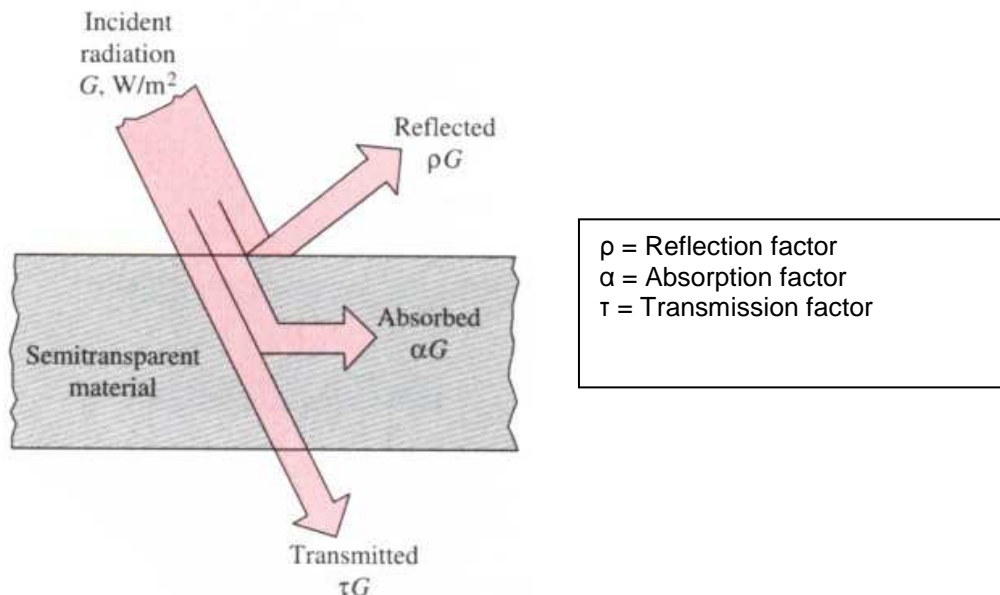


REFLECTION- AND EMISSION DATA

Protan SE

Product	Reflection factor	Emissivity
SE White F01:	0,84	0,84
SE Light grey F91:	0,33	0,86
SE Dark grey F94	0,11	0,85

THE SUM OF REFLECTION, TRANSMISSION AND ABSORPTION = 1



For PVC roofing membrane the value of transmittance can for all practical purposes be set equal to 0

Reflection factor:

Definition: Reflection factor is a measure of the ability of a surface to reflect **light or other electromagnetic radiation**, equal to the ratio of the reflected flux to the incident flux. Symbol ρ where

$$\rho = 0 \leq \rho \leq 1$$

The **reflection factor ρ** determines how large a share of solar radiation is reflected from the roof during the day

Absorption (IR):

Definition: *To retain infrared radiation without radiation or transmission.*

Absorption factor, absorption coefficient, absorption ratio:

Definition: *A measure of the rate of decrease in the intensity of electromagnetic radiation (as light) as it passes through a given substance; the fraction of incident radiant energy absorbed per unit mass or thickness of an absorber; "absorption equals 1 minus **transmittance**"*

A body which absorb all radiation has absorption factor 1

The absorption factor is a measure of the ability of an object to absorb radiation, equal to the ratio of the absorbed radiant flux to the incident flux. For a layer of material the ratio of the flux absorbed between the entry and exit surfaces of the layer to the flux leaving the entry surface is the internal absorption. Symbol α

Transmittance:

Definition: (Physics / General Physics) Also called **transmission factor** *Physics*, a measure of the ability of anything to transmit radiation, equal to the ratio of the transmitted flux to the incident flux; the reciprocal of the opacity. For a plate of material the ratio of the flux leaving the entry surface to that reaching the exit surface is the internal transmittance. Symbol τ

Emissivity:

Definition: *The ratio of the radiation emitted by a surface to the radiation emitted by a blackbody at the same temperature.* Alternative definition: *The ratio of the radiation intensity of a nonblack body to the radiation intensity of a blackbody.*

This ratio, which is usually designated by the Greek letter ϵ , is always less than or just equal to one. The emissivity characterizes the radiation or absorption quality of nonblack bodies. In Physics/General Physics, a measure of the ability of a surface to radiate **energy**; the ratio of the radiant flux emitted per unit area to that emitted by a black body at the same temperature. Symbol ϵ

$0 \leq \epsilon \leq 1$, Varies between 0 and 1
 $\epsilon = 1$ corresponds to a black body.

Emissivity is a function of wavelength, temperature and direction (angle). The *emission factor* determines how large a share of energy, in the form of heat, is radiated out of the roofing at night.

Emissivity for a surface with temperature T is equal to the absorption of radiation from a surrounding black surface with the temperature T. This is Kirchhoff's law:
$$\epsilon(T) = \alpha(T)$$