

Product specification

EtaPlus Al



Highly selective EtaPlus coating on Aluminium band

The highly selective EtaPlus coating on Aluminium band is an absorber band for use in thermal solar collectors with a closed casing and a transparent cover. EtaPlus is a semifinished product and further production steps are necessary to turn it into an absorber.

The EtaPlus coating is a ceramic metal compound, a so-called CERMET, and consists of several single layers. A CERMET is a coating structure in which metal particles are embedded in a ceramic matrix. EtaPlus has a blank metal back and allows the production of large-surface homogenous absorbers. EtaPlus is temperature resistant and long-term stable as well as adhesive and abrasion-proof. The evaluation of the long-term durability of solar absorber coatings is based on the accelerated aging test according to Task X testing procedure.

Absorptance and emittance

The optical properties of EtaPlus and thus the efficiency of the absorber coating are determined by its absorptance and emittance. These properties are defined as follows:

Solar absorptance: $\alpha = 95 \%$
Thermal emittance: $\epsilon = 5 \%$

Both parameters may deviate by a tolerance of $\pm 2 \%$.

Aluminium band substrate

The highly selective EtaPlus Al coating on Aluminium band is manufactured in fixed widths of up to 1,250 mm and thicknesses between 0.3 mm and 0.5 mm. The properties of the Aluminium band are defined as follows:

Mechanical properties, dimensions and packaging:

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|-------------------------------|--|
| Metal substrate: | Pure Aluminium, min. Al 99,5 (AW-1050), as per EN 485 |
| Temper: | H18/H19; Brinell-hardness (HBW) ≥ 40 |
| Tensile strength (R_m): | $\geq 125 \text{ N/mm}^2$ |
| Proof strength ($R_p 0,2$): | $\geq 105 \text{ N/mm}^2$ |
| Elongation (A50): | $\geq 1 \%$ |
| Thickness: | 0.3 mm - 0.5 mm |
| Thickness Tolerance: | $\pm 0.03 \text{ mm}$ |
| Roughness (R_a): | $\leq 0.2 \mu\text{m}$ |
| Coil weight: | max. 3,000 kg |
| Delivery form: | Coil with intermediate paper layer and laminated carboard core with an inside diameter of 500 mm or sheet material with protective foil in customer dimensions |
| Packaging: | Coil on wooden pallet with wooden wedges, strapped down with a metal band. Packaging with soft cover for protection against damaging or sheet material on pallet (wood or metal), strapped down and safeguarded against slipping |