



TiNOX RSP AI

ROBUST selective solar absorber material with STAGNATION PROTECTION

The **TiNOX RSP** coating reduces the stagnation temperature of typical flat plate collectors by up to 50°C while keeping the collector efficiency on a high level at the same time. The coating is based on the well-established TiNOX robust coating, which is known for its exceptional stability even in more difficult climatic conditions.

OPTICAL PROPERTIES

| | Typical | Standards |
|------------------------------------------------------------|----------------|------------------------------|
| SOLAR ABSORPTION α_{sol} | 93 % \pm 2 % | ASTM E 891-87 and ISO 9845-1 |
| TEMPERATURE CONTROLLED EMISSIVITY $\epsilon_{200^\circ C}$ | 32 % \pm 2 % | DIN ISO 22975-3 |
| COLOUR VALUES – a* | 0 < a < 4 | CIE Lab (D65 / 10°) |
| COLOUR VALUES – b* | 0 < b < -10 | CIE Lab (D65 / 10°) |

TECHNICAL DATA

| | | |
|------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| COATING METHOD | PVD | AIR TO AIR COIL COATING |
| ABSORBER COATING | SELECTIVE SOLAR ABSORBER COATING with STAGNATION PROTECTION | ALUMINIUM SUBSTRATE / ADHESION LAYER / CERMET ABSORBER MULTILAYER/ CERAMIC ANTI REFLECTION AND PROTECTION LAYER |

ENVIRONMENTAL STABILITY

| Conditions | Time | PC = $-\Delta\alpha + 0.5\Delta\epsilon$ * | Cross hatch test | Standards |
|------------------------------------|--------|--------------------------------------------|------------------|------------------------|
| Temperature 291°C | 600 h | < 2% | ✓ | DIN ISO 22975-3 |
| Humidity at 40°C condensing | 600 h | < 1% | ✓ | DIN ISO 22975-3 |
| CLIMATE CHAMBER 85°C – 85% r.H. | 1000 h | < 1% | ✓ | |
| UV 0,53W/mm ² @ 340nm | 100 h | < 1% | ✓ | |
| Neutral salt spray test (NSS) | 24h | < 2% | | ISO 9227 ASTM B 117 |

*) Performance criterion "PC" as defined in DIN ISO 22975-3.



MECHANICAL STABILITY

| | Value | Standards |
|---------------------------|------------------------------------------------|-----------------------------------|
| CROSS HATCH TEST | No more than 2 of 100 test fields delaminating | ISO 2409 / ASTM D 3359 |
| ADMISSIBLE BENDING RADIUS | ≥ 10 mm | |
| SCRATCH RESISTANCE | good | (due to ceramic protection layer) |
| FINGER PRINTS | Nearly not visible | (due to ceramic protection layer) |

SUBSTRATE: MECHANICAL PROPERTIES

| | Value | Standards |
|----------------------------|-------------------------|-----------|
| ALUMINIUM ALLOY | 1050A or purer | EN 573-3 |
| TEMPER | H 18 (hard) | EN 515 |
| TENSILE STRENGTH | ≥ 140 N/mm ² | EN 485-2 |
| YIELD STRENGHT 0.2% | ≥ 120 N/mm ² | EN 485-2 |
| ELONGATION A ₅₀ | > 2 % | EN 485-2 |
| ROUGHNESS: | Ra < 0.5 μm | |

SUBSTRATE: PHYSICAL PROPERTIES

| | Value | Standards |
|----------------------|------------------------|-----------|
| THERMAL CONDUCTIVITY | >220 W/mK | |
| Density | 2.71 g/cm ³ | |

AVAILABLE SIZES

| | |
|-----------|------------------------|
| THICKNESS | 0.3mm, 0.4mm and 0.5mm |
| WIDTH | ≤ 1250mm |

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All information provided is based on up-to-date values where possible. Optical values are average results from 0.4mm substrate and are published for guidance only; they may vary according to raw material thickness. For more detailed information please contact our technical sales department. Physical characteristics of the materials are in accordance with EN (European Committee for Standardization).

General tolerance

Gauge tolerance: ± 0.03 mm
 Width tolerance: ± 0.15 mm
 Length-cut sheets: ± 1 mm/m

Note

All materials listed above can be delivered in various sizes and shapes according to customer requirements. Products with protective tape are guaranteed for six months after delivery if they are stored in a conditioned room (temperature 20-30°C and relative humidity 50-60%) and kept away from sunlight and any heating source. Protective tape is not UV resistant.

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