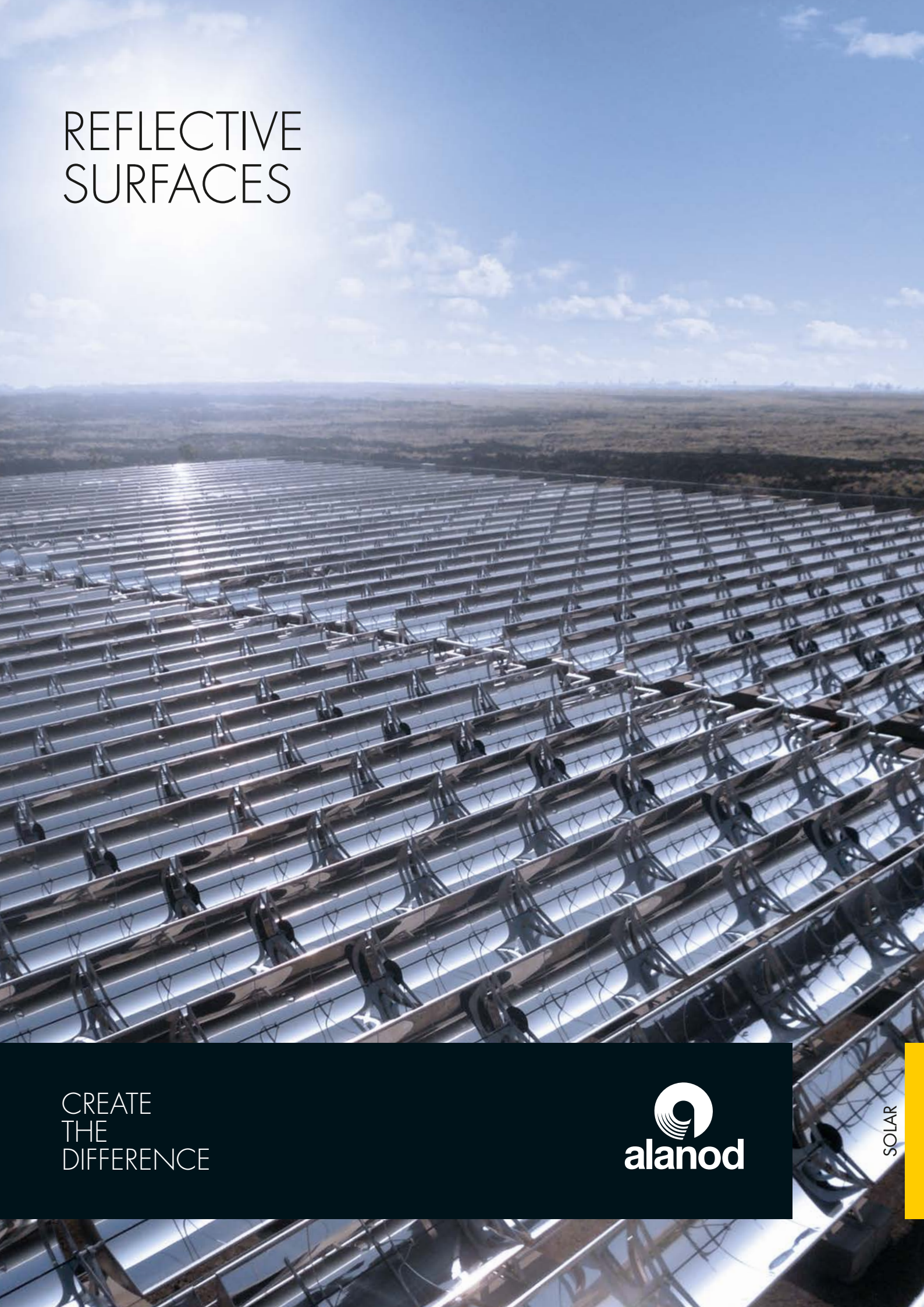


REFLECTIVE SURFACES



CREATE
THE
DIFFERENCE



SOLAR

Concentrate your energy

With our solar reflecting surfaces, we offer you various products with optimal solar reflection for outdoor applications. Thanks to the perfectly matching properties of the nano-composite layer on top of the anodised aluminium – or on top of PVD-coated aluminium – excellent durability is achieved.

Reflective 85 weatherproof and MIRO-SUN® reflective 90 weatherproof are generally used, for example, as CPC reflectors (CPC = Compound Parabolic Concentrator) in evacuated tube collectors and parabolic trough concentrators (CSP = Concentrated Solar Power).

Application examples
of tube collectors with
Alanod reflective surfaces:
Paradigma from Ritter
(left) and Buderus from
Bosch Energie (right)



Your advantages

- 10-year material warranty*
- Weather-resistant*
- Optimised for highest solar reflection
- UV-resistant
- Heat-resistant
- Easy to clean*
- Formable
- Flexible
- Scratch-resistant*
- Environmentally friendly/
emission-free manufacturing process

*valid only for the weatherproof products

Example reflection applications

- Evacuated tube collectors
(CPC Compound Parabolic Concentrator)
- Parabolic trough power plants
(CSP Concentrated Solar Power)
- Micro parabolic trough
(CST Concentrated Solar Thermal)
- Photovoltaics (CPV Concentrated Photovoltaics)
- Solar cookers
- Heliostats



CPC application





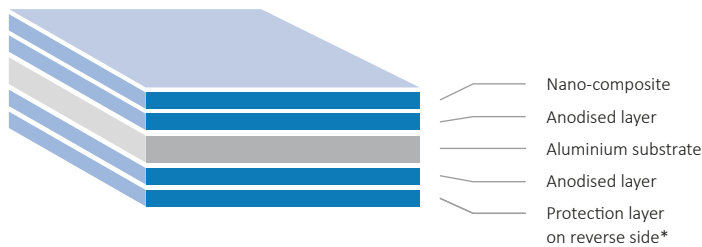
Reflective 85 weatherproof

Reflective 85 weatherproof is a highly reflective surface with a transparent, extra clear nano-composite lacquer, especially developed for high solar transmission, which is resistant against all kinds of environmental influences. Upon request, the surface is available with a similar reverse side lacquer.

Quick Info

- 86% total solar reflection
- Lacquer specially developed for solar applications
- 10-year material warranty

Layer structure for Reflective 85 weatherproof



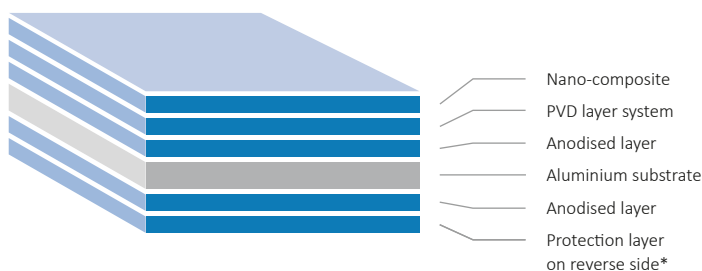
MIRO-SUN® reflective 90 weatherproof

Based on our MIRO® product range, we have developed MIRO-SUN® reflective 90 weatherproof specifically for outdoor use. A highly reflective coating (MIRO®) is deposited via a continuous air-vacuum-air PVD (Physical Vapor Deposition) process on anodised coils. A nano-composite lacquer is then applied onto the PVD coated strip using a coil-coating method. MIRO-SUN® reflective 90 weatherproof provides 90% total solar reflection making it ideal for various outdoor applications.

Quick Info

- 90% total solar reflection
- 10-year material warranty

Layer structure for MIRO-SUN® reflective 90 weatherproof

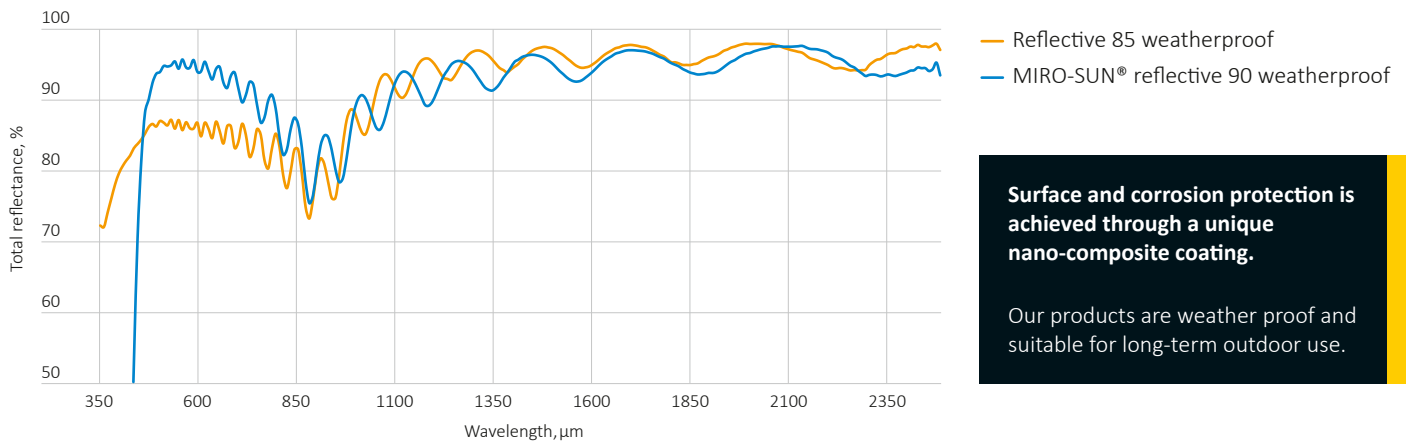


* upon request



Solar Reflectance

Typical reflection spectra of Alanod surfaces



Surface and corrosion protection is achieved through a unique nano-composite coating.

Our products are weather proof and suitable for long-term outdoor use.

Technical Specifications Reflective Weatherproof Products

	Reflective 85 weatherproof	MIRO-SUN® reflective 90 weatherproof
Mechanical		
Tensile Strength Rm [MPa]	>100 ¹⁾	>100 ¹⁾
Yield Strength Rp0,2 [MPa]	>90 ¹⁾	>90 ¹⁾
Elongation A50 [%]	≥2 ¹⁾	≥2 ¹⁾
Bending radius [mm]	≥1,5 fold thickness	≥1,5 fold thickness
Optical		
Total solar reflectance [%]	86±2 ²⁾	90±2 ²⁾
Solar weighted diffuse reflectance [%]	6±3 ²⁾	10±3 ²⁾
Front side	anodised, lacquered	anodised, PVD coated & lacquered
Reverse side	anodised	anodised
Reverse side lacquered	upon request	upon request
Dimensions		
Thickness [mm]	0,5 ⁸⁾	0,5 ⁸⁾
Width [mm]	max. 1.250	max. 1.250
Delivery		
Coils or sheets with	protective film ³⁾	protective film ³⁾
Inner diameter [mm]	400 or 500	400 or 500
Corrosion, Weather Resistance & Warranty		
Corrosion and weather resistance	fit for outdoor use, passed salt spray test ⁴⁾ , ΔT-Test ⁵⁾ , 500h QUV-B-Test ⁶⁾ , 24h boiling test ⁷⁾	fit for outdoor use, passed salt spray test ⁴⁾ , ΔT-Test ⁵⁾ , 500h QUV-B-Test ⁶⁾ , 24h boiling test ⁷⁾
Warranty	10 years	10 years

¹⁾ EN 485-2, ²⁾ ASTM G 173, ³⁾ We guarantee for a period of 6 months after delivery, with appropriate storage (15–25°C and rel. air humidity of not more than 60%), a constant film adhesion and the residue-free removal of our protective films. It is necessary to protect the goods from sunlight and other sources of heat. The protective films are not UV resistant, ⁴⁾ DIN 50 021, ⁵⁾ DIN 50 928, chapt. 9.5, ⁶⁾ DIN EN ISO 4892-3, ⁷⁾ GSB guideline, ⁸⁾ Other thicknesses on request



Reflective standard products

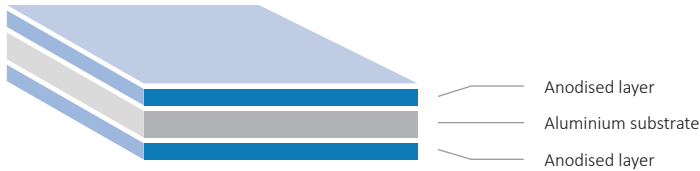
As the global leader in reflective surfaces, we manufacture products with the highest reflection values. For solar applications that are not exposed to environmental influences, we offer our highly reflective product portfolio without a nano-composite coating. This includes the products Reflective 85, MIRO® reflective 90 and MIRO® high reflective 95.

These products, which have proven their value over many years, are durable, extremely stable and stand for the highest overall reflectivity of up to 98%. By using MIRO® products, you are choosing optimum performance.

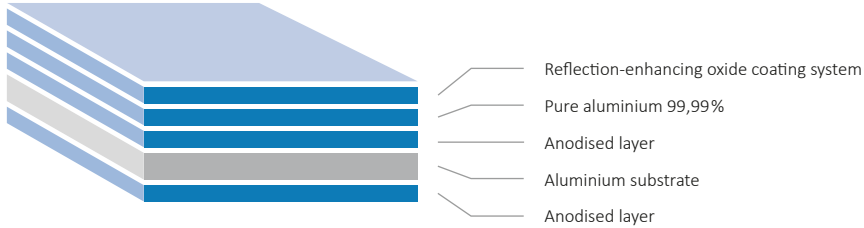
Quick Info

- highly reflective with > 86, 90 and 95% total solar reflection
- durable and robust Products
- Proven quality with more than 20 years of field experience

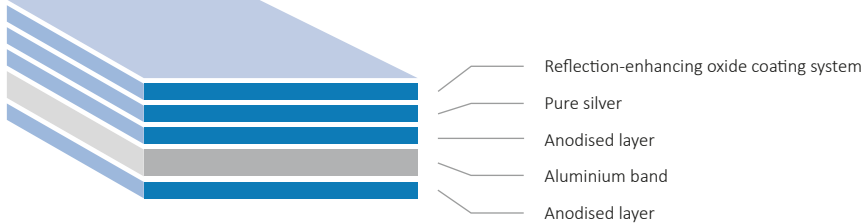
Layer structure for Reflective 85



Layer structure for MIRO® reflective 90

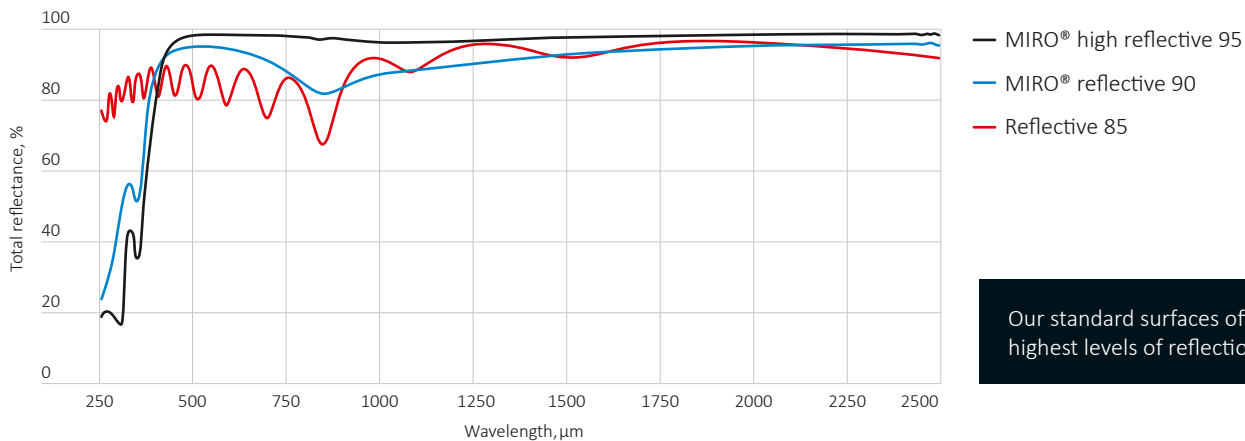


Layer structure for MIRO® high reflective 95



Solar Reflectance

Typical reflection spectra of Alanod surfaces



Our standard surfaces offer the highest levels of reflection.

Technical Specifications Reflective Standard Products

	Reflective 85	MIRO® reflective 90	MIRO® high reflective 95
Mechanical			
Tensile Strength Rm [MPa]	>100 ¹⁾	>100 ¹⁾	>100 ¹⁾
Yield Strength Rp0,2 [MPa]	>90 ¹⁾	>90 ¹⁾	>90 ¹⁾
Elongation A50 [%]	≥2 ¹⁾	≥2 ¹⁾	≥2 ¹⁾
Bending radius [mm]	≥1,5fold thickness	≥1,5fold thickness	≥1,5fold thickness
Optical			
Total solar reflectance [%]	86±2 ²⁾⁴⁾	90±2 ²⁾⁴⁾	95±2 ²⁾⁴⁾
Solar weighted diffuse reflectance [%]	6±3 ²⁾⁴⁾	7±3 ²⁾⁴⁾	5±3 ²⁾⁴⁾
Front side	anodised	anodised & PVD coated	anodised & PVD coated
Reverse side	anodised	anodised	anodised
Dimensions			
Thickness [mm]	0,4–0,5	0,4–0,5	0,4–0,5
Width [mm]	max. 1.250	max. 1.250	max. 1.250
Delivery			
Coils or sheets with	protective film ³⁾	protective film ³⁾	protective film ³⁾
Inner diameter [mm]	400 oder 500	400 oder 500	400 oder 500
Weather Resistance			
	not for outdoor use	not for outdoor use	not for outdoor use

¹⁾ EN 485-2, ²⁾ ASTM G 173, ³⁾ We guarantee for a period of 6 months after delivery, with appropriate storage (15–25 °C and rel. air humidity of not more than 60%), a constant film adhesion and the residue-free removal of our protective films. It is necessary to protect the goods from sunlight and other sources of heat. The protective films are not UV resistant.

⁴⁾ SolarPaces Reflectance Guide V3.1 https://www.solarpaces.org/wp-content/uploads/202004_SolarPACES-Reflectance-Guidelines-V3.1.pdf

Care for the Environment

Conserving natural resources has been part of our corporate philosophy ever since our company was founded. Today, Alanod is a climate-neutral, sustainably run company. Moreover, our production uses “100% green” electricity.



CLIMATE NEUTRAL
PRODUCT
certified by Fokus Zukunft
climate neutral via offsetting

Made in Germany

All our state-of-the-art materials are manufactured solely at one production site in Germany.

ALANOD GmbH & Co. KG
Egerstr. 12 · 58256 Ennepetal · Germany
Tel. +49 2333 986-500
info@alanod.de · www.alanod.com

