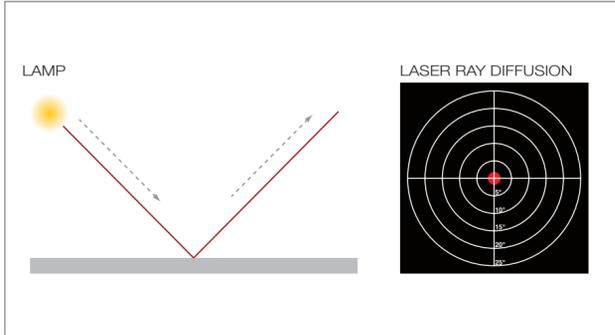
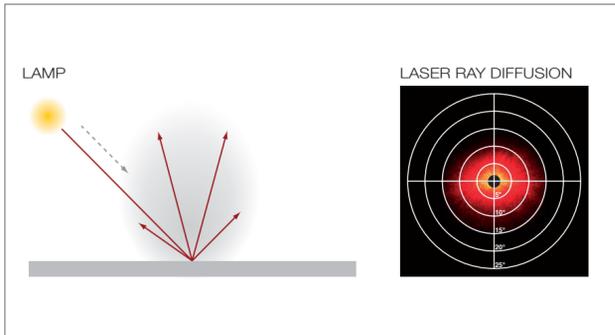


Reflectivity characteristics

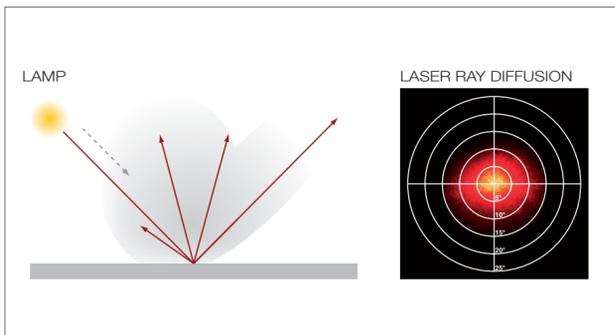
Each material is characterised by three complementary reflective properties



Specular Reflectance
A measure of light reflected at an angle equal to the angle of incidence i.e. mirror reflection



Diffuse Reflectance
A measure of the amount of scattered light



Total Reflectance
This encompasses the total amount of light reflected from the surface as a percentage of the incoming light

Milan, Italy - Bernburg, Germany
Atlanta, USA - Shenzhen, China



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L103 - ENG - 02/2015

Pre-anodized aluminium



Pre-anodized aluminium



Zaventem Airport
Belgium

Fluorescent lighting louver
in internal office

Nova Gorica ground
Slovenia

Introduction Pre-anodized aluminium has been the main reflector material for fluorescent lighting for the past 40 years and with good reason. It offers an excellent combination of high reflection and durability in a large range of finishes and qualities to suit most applications. Anodizing can be carried out economically without damage to the environment and reflectors are fully recyclable as the anodized layer forms only a tiny fraction of the product weight. It is a material with a proven record of durability; Almeco has been producing pre-anodized strip for lighting since 1982 and there are reflectors made from the original Sacall products still in use today.

Why you need anodizing Without anodizing, untreated aluminium is prone to dirt pick-up, oxidation and staining and has inconsistent reflective properties. It is so easily scuffed and scratched that it cannot be cleaned without damaging the surface. The bright anodizing process purifies the surface, enhances reflection and provides a hard clear coating that prolongs the life of the reflector almost indefinitely in normal indoor conditions and allows cleaning and lamp changes without damaging the surface.

Product structure Almeco's bright anodizing process comprises degreasing; brightening; "de-oxidising", anodizing and sealing. The degrease removes oils and dirt which are always present on bright rolled aluminium. Electro-brightening, made in a concentrated acid mixture, is a key process that forces the dissolution of the disturbed surface layers of the aluminium in a way that smoothes the surface to increase its gloss. De-oxidising to remove residue from the brightening completes the preparation of a bright surface. Anodizing itself consists of electrically polarizing the aluminium in acid so that it converts to aluminium oxide. This reaction is carefully controlled to give coating properties and accurate thickness control that are optimized for lighting applications, based on the many years of experience shared by the Almeco staff.

- Key characteristics**
- ▼ **High total reflectance**, ranging from 80% for matt finished products to 87% or more for the highest performing mirror grades.
 - ▼ **Excellent resistance** to tarnishing and staining giving long product life.
 - ▼ **Availability** in a wide range of surface finishes and also in different colours for decoration.
 - ▼ **Integrity of structure** – the anodized oxide layer is formed directly from the metal and is therefore intimately bonded without danger of peeling or de-lamination.
 - ▼ **Light weight and easy formability** for curving and folding reflector and other parts.
 - ▼ **Cleanability and low dirt pick-up.** The products' wear resistance allows reflectors to be cleaned as part of a planned maintained luminaire programme.
 - ▼ **Temperature and fire resistance.**
 - ▼ **Electrical conductivity** allows use for earthing the reflector.

Applications All pre-anodized products

- ▼ Fluorescent lighting reflectors and louvers
- ▼ Floodlight reflectors
- ▼ Two sided cross blades for glare cut-off
- ▼ effective ceiling panels
- ▼ Switch plates
- ▼ Decorative trims and embellishment



Pre-anodized technical data

Product	Type	Total reflectance [%]		Specular reflectance [%]		Diffuse reflectance [%] DIN 5036 - 3	Iridescence scale 1-4	Alloy purity	Temper (hardness)	Min. tensile strength [MPa]	Min. yield strength [MPa]	Min. [%] elongation A ₅ A ₁₀
		ASTM E 1651	DIN 5036-3	60° long	60° trans							
S090	specular standard	86	86	80	77	15	1	Al 99.85	H18	125	105	2
S100	specular brillox 1	86	86	82	80	12	2	Al 99.85	H18	125	105	2
S101	specular brillox	86	86	83	81	10	2	Al 99.85	H18	125	105	2
S103	specular mirror	86	86	84	82	8	3	Al 99.85	H18	125	105	2
S106	specular reflex	87	87	85	84	6	3	Al 99.9	H18	125	105	2
S120	reflectormatt	85	85	60	38	77	3	Al 99.9	H19	140	115	1
S121	reflectormatt	84	84	55	35	80	3	Al 99.7	H19	150	125	1
S125	luminal matt	85	85	70	65	66	3	Al 99.9	H18	125	105	2
S130/2	reflector diffuse	83	83	32	10	80	2	5005	H14	145	120	2
S130/4	reflector diffuse	82	82	28	9	80	3	5005	H14	145	120	2
S130BF	double faced reflector Satinox	78	78	9	4	77	4	5005	H14	145	120	2
S3010 BF	double faced reflector diffuse	78	78	17	5	80	3	5005	H14	145	120	2
S145	semi-specular	84	84	50	45	45	3	5005	H16	165	145	2
SD80	bright diffuse	84	84	35	30	80	4	Al 99.9	H19	140	120	1
S210	stucco	83	83	not relevant		82	3	Al 99.5	H0/H18	125	105	2
S230	concave hammered	85	85	not relevant		84	3	Al 99.85	H18	125	105	2
S235	convex hammered	85	85	not relevant		84	3	Al 99.85	H18	125	105	2
S236	large concave hammered	85	85	not relevant		84	3	Al 99.85	H18	125	105	1
S250	etched rigato	-	-	not relevant		-	4	5005	H14	145	120	4
S250.02	rigato	-	-	not relevant		-	3	5005	H14	145	120	4

NOTE: Iridescence internal classification 1= normal, 2= low, 3= very low, 4= no iridescence
All information provided is based on up-to-date values where possible. Optical values are typical results from 0.4 mm (0.016") metal 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).

Applicable standards

Specular Reflectance (ISO 2813 - ASTM D-523)
Measurements are made with BYK - Gardner GmbH reflectometer.

Total Reflectance (DIN 5036-3)
Measurements are made using a 50 cm integrating sphere (Ulbricht Globe).

Total Reflectance at 30° (ASTM E 1651)
Measurements are made with the Technidyne TR2 integrating sphere.

Diffuse Reflectance (DIN 5036-3)
Measurements are made using our 50 cm integrating sphere with a specular exit port.

Class efficiency (EN 16268:2013)
Performance of reflecting surfaces for luminaire according to above measurements.

European Standards (EN) for aluminium
Ente Nazionale Italiano di Unificazione (UNI)
Alloys UNI-EN 573-3
Mechanical Properties UNI-EN 485-2
Measuring Standards UNI-EN 485-4

Test Standard For Anodic Oxidation
Microscopic measurement of Oxide Layer UNI EN ISO 1463.

General Tolerance
Thickness tolerance: ± 0.03mm / ±0.00118"
Width tolerance: ± 0.15mm / ±0.00591"
Length-cut sheets: ± 1mm/m / ±0.03937"

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 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.

Pre-anodized products are supplied with a peelable self-adhesive polyethylene protection tape, which guards against scratching during transportation and manufacturing.

