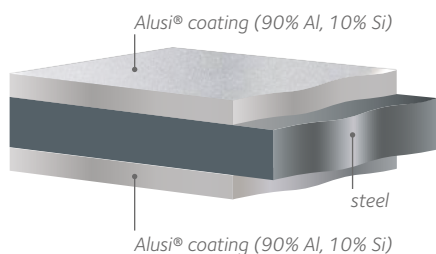




Alusi®

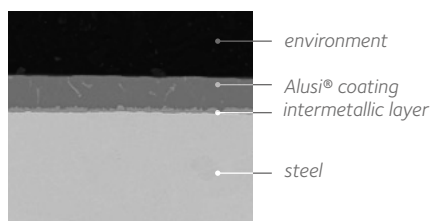
High temperature resistance and heat reflectivity

Alusi® is a metallic-coated steel which is covered on both sides by an aluminium (90%) and silicon (10%) coating. Alusi® is equivalent to EN10346 (ASTM A463/A463M, aluminium-silicon alloy coating Type 1) and is produced on a hot dip galvanising line. Alusi® maintains its properties at high temperatures while reflecting up to 80% of the solar radiation which hits the steel.



Corrosion resistance against chemical agents

Alusi® contains a very high percentage of aluminium (90%). This enables Alusi® to offer excellent resistance to corrosion and chemical attacks by substances with pH values ranging from 4.5 to 8.5. Alusi® withstands oil, kerosene, gasoline, fuels, acetone, alcohol, printing ink, acid...



When the coating comes into contact with oxygen, a film of aluminium oxide is formed immediately on the surface. The oxide creates a passivation layer which prevents corrosion. In the case of damage (such as scratches), the passivation layer renews itself naturally to provide continuous protection.

Heat resistance and reflectivity at high temperature

Alusi® is much more corrosion resistant than galvanised steel. The presence of silicon allows it to be used at temperatures up to 800 °C (depending on steel grade) without flaking or surface changes. At 480 °C, Alusi® performs about ten times better than aluminium.

Alusi® combines the mechanical strength of steel with the reflective properties of pure aluminium.

Alusi® is particularly suitable for applications requiring excellent resistance to oxidation at high temperatures. Up to 450 °C, the top surface of the Alusi® coating does not alter. It reflects up to 80% of the radiant heat in its environment – an important property for heat shield applications.

High emissivity Alusi® grades are available: DX53D and DX54D.

Formability

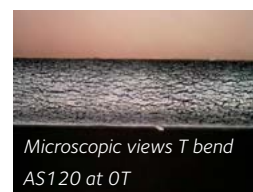
The forming and joining techniques currently used for uncoated steel are also suitable for Alusi®.

The bendability of Alusi® coatings is equivalent to that of classic galvanised steel.

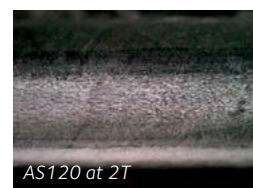
For applications with ultra deep drawing requirements, low coatings weights are available (AS50, AS60).



Oil filter with deep drawability



Microscopic views T bend AS120 at 0T



AS120 at 2T

Whatever the T-bend radius, no flaking is observed on Alusi® samples.

Weldability

Alusi® can be welded using various types of resistance welding processes including spot welding, high frequency induction welding, and laser welding.

In many applications, Alusi® welds can be left unprotected. If required, the welds on Alusi® can be re-protected using aluminium-rich paint or aluminium metallisation.

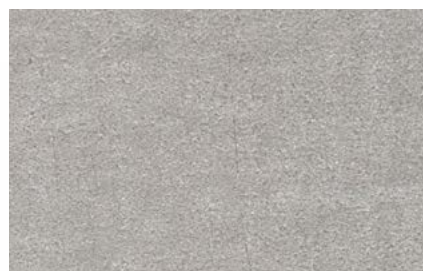
Paintability

Painting can be done directly on Alusi® but phosphating is recommended. When supplied oiled, Alusi® needs degreasing and surface treatment before painting.

Alusi® can be supplied with Easyfilm®, a thin organic surface treatment which protects the steel during transportation and handling. Alusi® supplied with Easyfilm® can be painted directly, without any surface treatment. However, the paint must be compatible with the Easyfilm® resin. If required, a 50 µm protective film can be applied to one side of the steel. The film is easy to peel off.



Z275 sample showing severe degradation after 600 hours at 350 °C



Alusi® AS120 sample after 3,650 hours at 350 °C



Heat shield

Certifications

RoHS-compliant (European Directive 2011/65/EU on electric and electronic equipment)

Food contact compatibility (Regulation EC 1935/2004)

Applications

The high temperature resistance qualities of Alusi® make it ideal for the manufacture of visible components. They can be used in their as-supplied state or post-painted. Possible applications include:

Automotive



Heat shields, tanks, oil filters, exhaust systems, gaskets...

Domestic



Ovens, cooking pans, toasters, baking trays, mufflers, furnaces, barbecues and accessories, fireplaces, chimneys, stove pipes...

Industrial



Heat exchangers, radiant tubes, heating, ventilation, and air-conditioning (HVAC) units.

Advantages

- Corrosion resistance against chemical agents
- Heat resistance up to 800°C
- Heat reflectivity
- Food contact compatible

Feasibility and technical characteristics

Alusi® according to EN 10346 (ASTM A463/A463M Type 1)

Alusi®	Coating weight double sided (g/m ²)	Coating thickness double sided (µm per side)
AS50	50	8.5
AS60	60	10.0
AS80	80	13.0
AS100	100	17.0
AS120	120	20.0
AS150	150	25.5
AS240	240*	40.0

* Width up to 1200 mm

Grades	Cold-forming grades	DX51D up to DX57D
	Structural grades	H220D (not in EN 10346), S250GD, S280GD, S320GD, S350GD
	HSLA	HX260LAD, HX300LAD, HX340LAD, HX380LAD, HX420LAD
	IFHS	HX220YD
	High emissivity Alusi®	DX53D, DX54D +AS

Dimensions	Thickness	0.30* to 3.20 mm
	Width	up to 1525 mm

* Below 0.30 mm upon request

Surface treatment	O	Oiled
	C	E-passivation
	SE	Easyfilm®

Surface finishes	Coated (A)	Improved (B)	Best (C)

Credits

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