

# Test methods and certifications

## Test EN 13501-1 (Europe)

The European fire certification EN 13501-1 is the most complete test when it comes to fire. When other tests do not take into account major factors, the European fire certification EN 13501-1 does.

This test serves as the standard of evaluation for the reaction to fire of construction and building materials. It measures five main characteristics: inflammability, combustibility, fire spread, smoke development and droplets. Please note that Reynobond®, Reynolux® and Reynodual® aluminium composite panels and sheets are used for cladding and finishing elements and are not structural products, therefore they are not submitted to fire reaction performance, which gives a duration.



On the test above on our aluminium composite panels we observe that the impact of the fire is confined to the initial heat source because the aluminium hindered the fire to spread further.

Standard tests	Flame spread	Smoke emission	Burning droplets
EN 13501-1 (EU)	✓	✓	✓
ASTM E-84 (USA)	✓	✓	
BS 476: part 6 & 7 (UK)	✓		

## Classification standards

Reactions to fire according to the European fire certification EN 13501-1 are based on 3 criteria: contribution to fire with results going from A to F, smoke opacity from s1 to s3, droplet from d0 to d2.

	Fire rate	Smoke opacity	Droplet	
<b>Zero combustion</b> Incombustible products	<b>A1</b>	-	-	
		<b>A2</b>	s1	d0
			s1	d1
			s2	d0
<b>Limited contribution</b> Hardly combustible products	<b>B</b>	s3	d1	
		s1	d0	
		s2	d1	
<b>Limited contribution</b> Moderately combustible products	<b>C</b>	s3	d2	
		s1	d0	
		s2	d1	
<b>Acceptable contribution</b> Moderately combustible products	<b>D</b>	s3	d2	
		s1	d0	
		s2	d1	

**s1:** Very weak smoke production  
**s2:** Limited smoke production  
**s3:** Heavy smoke production

**d0:** Nonexistent ignited droplets  
**d1:** Continued ignited droplets after 10s  
**d2:** Ignited droplets

## Certifications

Reynobond® Architecture aluminium composite panels with FR or A2 core, Reynolux® aluminium sheets and Reynodual® double sheet aluminium panels are true fire retardant solutions.



A wide range of designs and colours according to the availability

### Colour chart

- Standard
- Wood Design
- Natural Design
- Effects
- Brushed Look
- Minerals Design
- Metals
- Crinkle
- Anodised

### Paint quality

- Polyester
- Duragloss
- PVDF 70/30

### Technical coating

- GreenShield
- EcoClean™
- Anti-Graffiti
- Anti-Bacterial
- StrongProtect

### Gloss

- High gloss
- Satin
- Matt
- MattXtrem

## Arconic Architectural Products and the environment

### Environmentally friendly material

Reynobond® Architecture, Reynodual® and Reynolux® aluminium panels and sheets are the ultimate solutions to provide your building with sustainable products meeting the latest technical requirements with a wide range of designs and colours. Coming from the same manufacturing plant, the three products can be obtained in identical colours and combined in the same project, from the single-family house to residential, commercial and industrial buildings to large prestige projects. Thanks to their exceptional flatness and corrosion-resistance, Reynobond® Architecture, Reynodual® and Reynolux® pre-painted aluminium panels and sheets are easy to use and fabricate.



Reynolux® EN 15088 0036-CPR-M-081-2014

### Controlled French manufacturing

Reynobond® Architecture, Reynolux® and Reynodual® aluminium panels and sheets are fabricated and coated in France based on 50 years of experience. Coil coating is the most economical, efficient, high-quality and environmentally-friendly method for applying coatings to aluminium panels and sheets.

### Commitment to sustainability

Our company's certifications according to ISO 14001 and ISO 50001 illustrates our voluntary commitment to reduce the impact on the environment at all levels – water, energy, waste and use of resources. Moreover we develop continuously by improving the coatings in terms of their composition (solvents and pigments), durability, sustainability and cleaning requirements. For further information ask for the EPD, LEED points or our sustainability brochure.

### Arconic Architectural Products

2, rue Marie Curie  
68500 Merxheim, France  
Tel. +33 (0) 3 89 74 46 00  
Reynobond.Service@arconic.com  
Reynolux.Service@arconic.com  
www.arconicarchitecturalproducts.com



Arconic Architectural Products SAS – Capital 3,000,000 € – Siren 916 220 502 RC Colmar – Arconic Architectural Products reserves the right to change the specification of its products – Misprints and printing errors reserved – Ref. BR36EN – 12/2016



Aluminium solutions for facades and roofs cladding  
Fire safety in high-rise buildings

**Our fire solutions**

Fluoride Hotel Parissien Bld | Colmar | Göteborg | Sweden | Ref: ARKletter AB | Statius

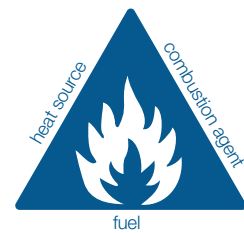
# The fire solutions from Arconic Architectural Products

## Fire is a key issue when it comes to buildings

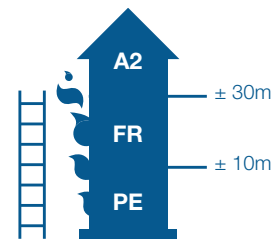
When conceiving a building, it is crucial to choose the adapted products in order to avoid the fire to spread to the whole building. Especially when it comes to facades and roofs, the fire can spread extremely rapidly.

Important to take the "fire characteristic" into account when starting the construction or refurbishment of a building in order to protect the people and assets while limiting fire propagation. It is especially crucial for public establishments such as hospitals, schools, offices, etc.

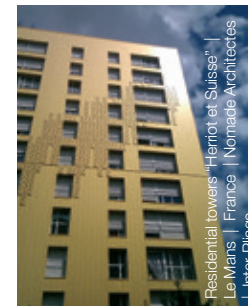
Buildings are also classified according to their height and destination (public buildings, industrial buildings, housings...): it will also define which materials are safer to use. Another important rule when it comes to the height of buildings concerns the accessibility of the fire brigade to the fire in the building: as soon as the building is higher than the firefighters' ladders, it has to be conceived with an incombustible material.



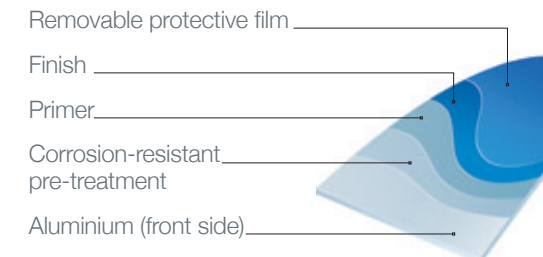
In order to appear and spread, fire needs three elements: heat source, combustion agent (usually oxygen) and fuel.



As soon as the building is higher than the firefighters' ladders, it has to be conceived with an incombustible material.



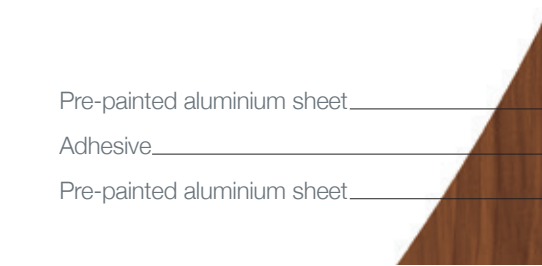
## REYNOLUX®



**Reynolux®** is a pre-painted aluminium sheet manufactured through coil-coating. It can be painted with a unique colour variety of coatings. The benefits of Reynolux® pre-painted aluminium are versatile: in addition to its incombustible properties, its UV and weather resistance, it is also easy to transform and shape.

Fire class	
	<b>A1</b> EN 13501-1: A1

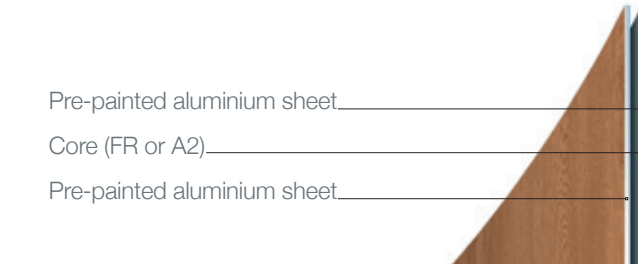
## REYNODUAL®



**Reynodual®** is a coil-coated double sheet aluminium panel for facades with high technical, visual and environmentally-friendly requirements. It offers the possibility of creating complex shapes for an attractive and creative appearance, with the availability of XXL width – up to 2m. Reynodual® guarantees good wind resistance and meets the stringent fire-reaction requirements of the European fire certification EN 13501-1, class A2.

Fire class	
	<b>A2</b> EN 13501-1: A2-s1, d0

## REYNOBOND®



**Reynobond® Architecture with FR core** is a composite panel consisting of two coated aluminium sheets that are laminated to both sides of a fire-retardant core. It offers numerous advantages: its low weight, small extension, high corrosion and weather resistance make it an outstanding product. Reynobond® Architecture composite panel with FR core is non-flammable, which prevents fires from spreading.

Fire class	
	<b>B</b> EN 13501-1: B-s1,d0

**Reynobond® Architecture with A2 core** is a composite panel consisting of two coated aluminium sheets that are laminated to both sides of a non-combustible core. It meets the stringent fire-reaction requirements of the European fire certification EN 13501-1, class A2 while offering an unlimited creative freedom in terms of transformations, applications, designs and colours.

Fire class	
	<b>A2</b> EN 13501-1: A2-s1, d0



## Advantages of our products

Reynobond® Architecture with FR or A2 cores, Reynodual® and Reynolux® aluminium composite panels and sheets represent the ideal material because of several advantages.

### Limit fire propagation

Thanks to the FR or A2 fire-retardant cores of Reynobond® Architecture aluminium composite panels and their respectively fire-retardant and incombustible properties, the fire propagation is limited. The cores of our product are the main keys: the cores are mainly mineral (FR: approx. 70% minerals; A2: approx. 90% mineral).

### Limit fire spreading

Reynolux® pre-painted aluminium sheets and Reynodual® pre-painted double sheet aluminium panels represent a perfect solution to fire spreading. Thanks to its excellent mechanical and physical properties aluminium does not burn and hence prevents the fire from spreading by its nature itself.

### Prevent propagation of fumes

Reynobond® Architecture with FR or A2 cores, Reynodual® and Reynolux® aluminium composite panels and sheets prevent the propagation of toxic and lethal fumes with a S1 classification according to the European fire certification EN 13501-1.

### Avoid droplets falling

There are no droplets falling down, which avoids further spread and harm to people, with a d0 classification according to the European fire certification EN 13501-1.

Property	Reynolux®	Reynodual®	Reynobond® Architecture with FR core	Reynobond® Architecture with A2 core
Thickness composite panel	-	3 mm	3 mm	4 mm
Thickness aluminium sheet	0.2 mm – 2 mm	1.5 mm	0.5 mm (± 0.1 mm)	0.5 mm (± 0.1 mm)
Alloy & Temper	Series 1000, 3000, 5000 (others possible)	Series 3000	Series 3000	Series 3000
Core	-	-	FR – approx. 70 % mineral	A2 – approx. 90 % mineral
Width	20 mm – 2,000 mm (-0 / +2 mm) If above 1,500 mm requested, contact us.	1,000mm / 1,250mm / 1,500 mm (-0/+3 mm) If 2,000 mm requested, contact us.	1,000 mm / 1,250 mm / 1,500 mm / 1,750 mm / 2,000 mm (-0 / +3 mm)	1,000mm / 1,250mm / 1,500mm / 1,575mm (-0 / +3mm)
Length	Available in coils and sheets: 250 mm – 6,000 mm If above requested, contact us.	2,000 mm up to 6,050 mm	2,000 mm up to 6,050 mm	2,000 mm up to 6,050 mm
Weight	To be defined according to thickness	7.9 kg/m <sup>2</sup>	6.0 kg/m <sup>2</sup> 7.6 kg/m <sup>2</sup> 10.8 kg/m <sup>2</sup>	8.2 kg/m <sup>2</sup>
Tolerance in squareness	< 3 mm	< 3 mm	≤ 3 mm	≤ 3 mm
Tolerance in bow	< 2 mm / 500 mm over lengths and widths	< 2 mm / 500 mm over lengths and widths	≤ 2 mm / 500 mm on the width and length	≤ 2 mm / 500 mm on the width and length
Bond integrity	-	4.37 N/mm (mini) or 25 pli	6.99 N/mm (mini) or 40 pli (mini)	6.99 N/mm (mini) or 40 pli (mini)
Tensile strength	165 – 240 MPa according to alloy & temper and width	140 – 185 MPa in 3003H44	165 – 240 MPa according to alloy & temper and width	165 – 240 MPa according to alloy & temper and width
Yield strength	140 – 160 MPa according to alloy & temper and width	≥ 110 MPa in 3003H44	140 – 160 MPa according to alloy & temper and width	140 – 160 MPa according to alloy & temper and width
Stiffness	-	0.166 kN.m <sup>2</sup> /m	0.125 kN.m <sup>2</sup> /m    0.242 kN.m <sup>2</sup> /m    0.596 kN.m <sup>2</sup> /m	0.242 kN.m <sup>2</sup> /m
Thermal expansion	-	2.4 mm/m for a temperature variation of 100 °C	2.4 mm/m for a temperature variation of 100 °C	2.4 mm/m for a temperature variation of 100 °C
Temperature resistance	-	-40 °C / +80 °C	-40 °C / +80 °C	-40 °C / +80 °C
Max. allowable deflection	-	L/90	L/30 (allows higher wind pressure or bigger sized elements)	L/30 (allows higher wind pressure or bigger sized elements)

For more information, ask for the Reynolux® technical datasheet

For more information, ask for the Reynodual® technical datasheet

For more information, ask for the Reynobond® Architecture with FR core technical datasheet

For more information, ask for the Reynobond® Architecture with A2 core technical datasheet