

ALUMINIUM: THE MATERIAL [1]

Aluminium is a material with many exceptional properties. These properties make it a sought-after material for large-scale use in the construction, industrial and other sectors. Which properties make aluminium suitable for many, diverse applications?

Read more on this page about aluminium's most important characteristics:

- The light weight and relative strength of aluminium.
- The malleability of aluminium.
- Aluminium and the processing options.
- The conductivity and the reflective characteristics of aluminium.
- Aluminium's excellent corrosion resistance.
- The durability of aluminium.

ALUMINIUM: LIGHT AND STRONG

Firstly, the weight of aluminium is interesting. Aluminium is a very lightweight material. This is due to the low density of 2.7 kg per dm³. Aluminium is therefore around three times lighter than steel. Its low density and light weight makes aluminium extremely strong. Thanks to this relative strength, aluminium is ideal for a range of applications. How strong aluminium actually is, depends on the alloy used.

MALLEABILITY

Aluminium is not just light: it is also a relatively soft material and therefore offers excellent malleability. Various processing techniques can be applied to easily create the shape required. As a result, all types of profile, panel and tube can be produced in the right format.

PROCESSING

Also useful: aluminium can be processed in a range of different ways. Processes such as drilling, milling, cutting, punching, welding, bending and tensioning can all be applied. These processing methods make aluminium a very versatile material. Combined with its malleability, aluminium offers endless possibilities.

CONDUCTIVITY AND REFLECTIVITY

Another useful characteristic of aluminium is its conductivity. Aluminium conducts both heat and electricity very effectively. The ratio of density and conductivity is twice as good as copper. Aluminium is therefore often used for cooling and heating systems. Aluminium also offers effective protection against electromagnetic radiation. The better a material's conductivity, the better its protective capacity.

Aluminium is also highly reflective. This applies to both visible light and heat radiation. These characteristics make aluminium very practical for various applications in relation to heating techniques.

CORROSION RESISTANCE

Excellent corrosion resistance is the another great quality of aluminium. Aluminium naturally protects against corrosion. When it comes into contact with oxygen, a thin layer of oxidation forms naturally on the material. This natural oxidation layer protects the aluminium against the impact of outdoor air. In the event of damage, this oxidation layer can repair itself as it is once again exposed to oxygen. The reaction that follows will create a new, thin oxidation layer.

This corrosion resistance can be further reinforced by anodising the aluminium. This applies a thicker oxidation layer to the material by means of an electro-chemical process. The high degree of corrosion resistance and options to further increase this make aluminium a very versatile material with a long lifespan.

DURABILITY OF ALUMINIUM

The long lifespan of aluminium is one of the reasons it is such a sustainable material. In the construction and industrial sectors, aluminium can last for years; the lower limit would be no less than 60 years. Once the material reaches the end of the life cycle, it has another interesting characteristic: aluminium can be endlessly recycled. It can be recycled time after time, without any loss of quality. This means, in practice, that the majority of aluminium is reused. The end of one life cycle therefore becomes the beginning of a new one.

Finally, it is worth noting that aluminium is also the most common metal on the earth. The availability of the material, combined with its long lifespan and its capacity to be recycled makes aluminium a very sustainable material.

ALUMINIUM: THE BOTTOM LINE

All of the aforementioned properties make aluminium ideal for a range of applications. It is strong, light, malleable and easy to process. Aluminium is highly conductive and reflective, has great corrosion resistance and is also a sustainable material. Given all of these characteristics, it is easy to see why aluminium is such a popular material, with applications in various sectors across the globe.

Want to know more about aluminium? Read about the production process and sustainability of aluminium below:

[ALUMINIUM PRODUCTION PROCESS](#)

[2]

[THE SUSTAINABILITY OF ALUMINIUM](#)

[3]

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