



# HERE TODAY FOR A STRONG TOMORROW

P R E F A S U S T A I N A B I L I T Y B R O C H U R E

[WWW.PREFA.COM/SUSTAINABILITY](http://WWW.PREFA.COM/SUSTAINABILITY)





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# THE BALANCE BETWEEN GIVING AND TAKING

This is essentially what the concept of sustainability comes down to. Even if the term sustainability is used excessively, or even misused, in many places, we at PREFA feel a profound sense of responsibility with regard to our fellow human beings and our environment.

There are many norms, standards and methods available that attempt to provide proof of sustainability. But what does working, producing and acting sustainably actually mean? Like many other companies, we have thought long and hard about this question.

First and foremost, it concerns the efficient use of valuable resources. This not only includes our purchased materials, our supplies and consumables and our machinery – in particular it refers to our highly valued team. So workplace safety is one of our top priorities at PREFA.

To us, sustainable products refer to those made from durable yet environmentally friendly materials, out of which heavy metals cannot leach, as well as materials and designs with excellent recyclability. We also always ensure a high proportion of our input materials come from scrap, which reduces the proportion of mined and produced primary aluminium we use.

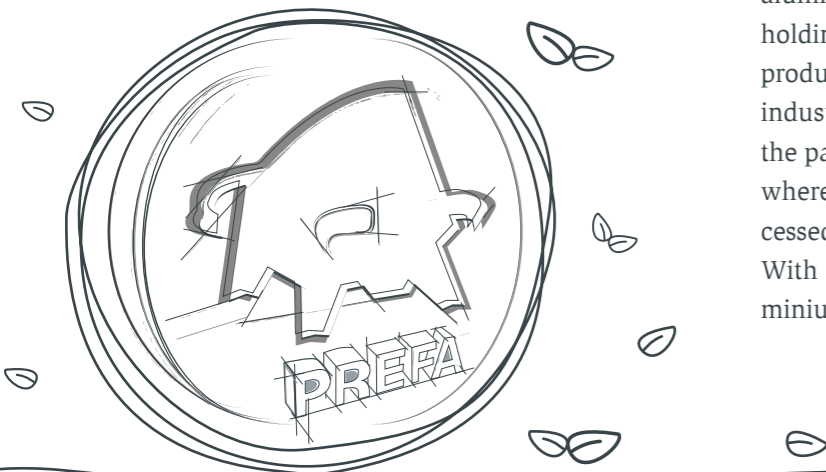
PREFA is part of the CAG Group. Whether in the glass, aluminium or energy sectors, all the operations of the holding company have always ensured that the end product reflects what is invested in it. In the aluminium industry, a change in consciousness has occurred over the past few decades. More and more people are asking where the raw materials come from, how they are processed, and whether their use harms the environment. With all of its properties, we can assure you that aluminium is one of the most flexible and durable con-

struction materials that can be used in architecture. No other recyclable material can boast the same critical properties for use in construction: it is light and easily malleable, while simultaneously stable and durable. Above all, it can be fed back into the material cycle without loss or a reduction in quality – over and over again.

We are delighted to share with you these and many other facts, data, thoughts and aspirations over the following pages. If you have any questions, please don't hesitate to contact us at [office.uk@prefa.com](mailto:office.uk@prefa.com)

Here's to a bright future!

Dr Cornelius Grupp MBA & Leopold Pasquali  
Managing Directors of PREFA Holding GmbH





# PREFA – „PRESSEN UND FALZEN“ (PRESSING AND FOLDING)

*PREFA has always focused on safety and innovation*

PREFA Aluminiumprodukte GmbH has successfully developed, produced and marketed aluminium roof, solar and façade systems throughout Europe for **more than 75 years**. In total, the PREFA Group employs around **700 people** in **19 countries**. It makes more than **5,000 high-quality products** exclusively in **Austria and Germany**, as well as training **3,200 installation partners** every year in **20 training centres** across Europe.

## FACTS AND FIGURES

<b>3</b> production sites	<b>700</b> employees
<b>5,000</b> products	<b>20</b> training centres
<b>19</b> countries	<b>3,200</b> installation partners in training around the world

### ■ COUNTRIES WITH PRODUCTION PLANTS

**AUSTRIA** 3182 Marktl  
3100 St. Pölten  
**GERMANY** 98634 Wasungen

### ■ SALES OFFICES

**FRANCE** 73190 Challes-les-Eaux  
**ITALY** 39100 Bolzano  
**POLAND** 02-295 Warsaw  
**SWEDEN** 218 45 Vintrie  
**SWITZERLAND** 8800 Thalwil  
**SLOVAKIA** 821 05 Bratislava  
**CZECH REPUBLIC** 193 00 Prague  
**HUNGARY** 2040 Budaörs  
**UNITED KINGDOM**  
SW1H 9HP London

### EXPORT COUNTRIES

Ireland  
Belgium  
Luxembourg  
The Netherlands  
Denmark  
Norway  
Slovenia  
Croatia

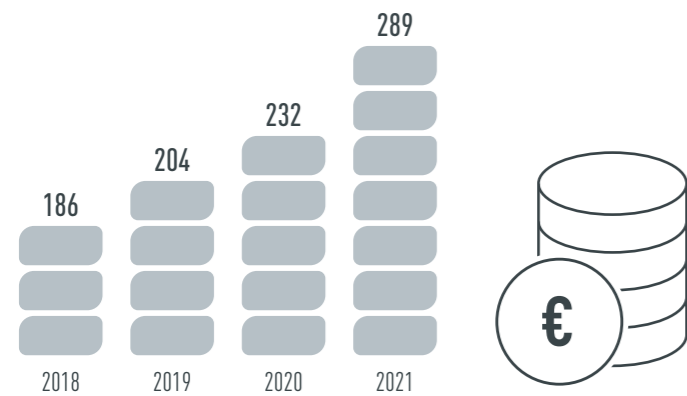
### ○ TRAINING CENTRES



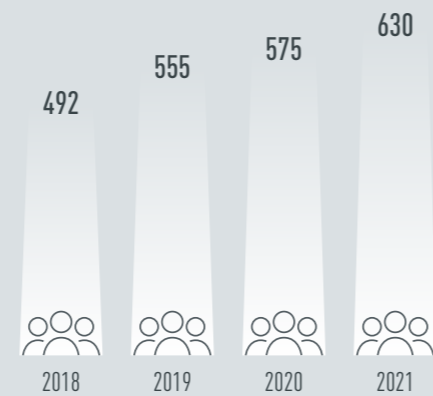
# KEY ECONOMIC FIGURES

*PREFA at a glance*

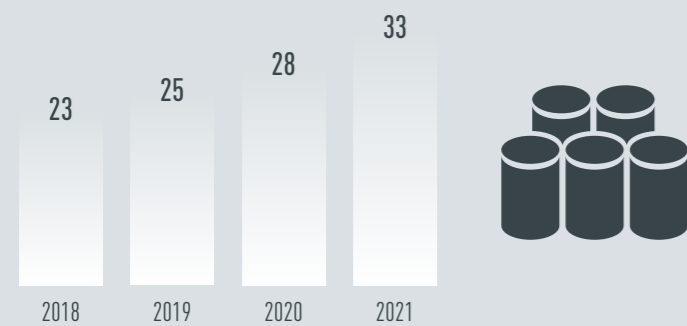
## TURNOVER (in €m)



## EMPLOYEES (annual average)



## PURCHASE VOLUMES OF ALUMINIUM (in thousand tonnes)



## PROPORTION OF FEMALE EMPLOYEES IN 2021



These figures refer to all national and international locations in which PREFA is represented.

# SIGNIFICANT PART OF CAG HOLDING

## A CORPORATE GROUP WITH KNOW-HOW ALL OVER EUROPE

PREFA is a long-established company, part of the corporate group of industrialist Dr Cornelius Grupp which employs over 8,000 staff in over 40 production sites.

**CAG**  
HOLDING GmbH



Packaging  
(aluminium/glass)

Construc-  
tion

Automotive  
industry

Drinking  
glasses

Energy

Roof/  
façade



# OUR OVERRIDING CORE VALUES

*Because good relationships are based on trust*

CAG undertakes to deal with our customers, suppliers, commercial partners, regional authorities and municipalities, shareholders and employees in a sustainable, responsible and ethically correct manner and to develop long-standing relationships based on trust and our core values:

## HONESTY AND INTEGRITY

We have high standards and apply them consistently in our daily interactions. We make no compromises when it comes to honesty.

## LEADERSHIP

We work together on big things, achieve our objectives and ensure customer satisfaction – together we dare to create a better future.

## RESPECT

We respect one another, our environment and all applicable laws, regulations and guidelines.

## CLARITY AND SIMPLICITY

We believe in clear communication and in simple processes, so that we “get it right the first time”.



## INNOVATION

We never stop innovating and are always looking to improve how we do things.

## PASSION

We are passionate about everything we do, so that every day we achieve our goals.

## RESPONSIBILITY

We are responsible for our own results and for making things better – we take responsibility for our actions and their actions of our teams.

# THE CLOSED-LOOP ECONOMY FROM THE PERSPECTIVE OF CAG HOLDING

*Aware of our responsibility and with a long-term outlook*

**We at CAG take our responsibility seriously – for ourselves, for our company and the regions where we operate.**

Our efforts are to continually improve within the company but also to improve living standards in the regions we operate. As a privately managed company, we take a long-term view at the market and the market segments we want to exploit. In particular this includes the closed-loop economy, through which our raw materials can frequently be reused and recycled – as shown by our use of aluminium, glass and biofuel production, among other things.



# CAG'S COMMITMENTS

## *Ecological sustainability*

Sustainability continues to be the foundation of our success as a corporate group. We focus on meeting the highest standards in environmental management and control, and on proactively tackling the challenges of climate change. To this end, we have launched comprehensive programmes for improving energy efficiency, increasing the use of alternative fuels, lowering air pollution, optimising the use of water, reducing waste and improving recycling. Our commitment to ecological sustainability demands that we:

### COMPLY

with all applicable environment protection laws, as well as to improve our ecological responsibility continuously, with the aim of achieving and exceeding the best practice in the sector.

### ENSURE

that our employees and contractual partners acknowledge their responsibility towards the environment.

### PROMOTE

eco-friendly products, process innovations and new business opportunities.

### CONFRONT

the challenges and opportunities posed by climate change, optimising our energy usage and all the resources we use.

### DEVELOP

positive relationships and endeavour to be good neighbours in every community where we operate.

# THE 17 GLOBAL GOALS FOR SUSTAINABLE DEVELOPMENT

## SUSTAINABLE DEVELOPMENT GOALS



In 2015, the global community adopted the 2030 Agenda: a timetable for the future. With the 2030 Agenda, the world community aims to enable life fit for human beings everywhere while preserving the natural world as the basis for all of our lives. The agenda covers economic, ecological and social aspects, and all states are required to align their actions and deeds towards achieving this objective. The 17 global Sustainable Development Goals (SDGs) that form the 2030 Agenda are aimed at everyone: not just governments around the world, but also civil society, the private sector and science. The Goals are also intended to be a framework for companies to help build an ecologically responsible future by addressing global challenges such as poverty, inequality and climate change.

# THE GOALS WE HAVE SET OURSELVES

*Health, innovation and sustainability*

As part of our efforts to promote sustainability, PREFA has set three elementary goals which we will pursue at all times. We believe we can make a valuable contribution towards achieving these selected Sustainable Development Goals (SDGs) in particular.



## GOAL 3 – GOOD HEALTH AND WELL-BEING

*Ensure healthy lives and promote well-being for all at all ages.*

At PREFA, the well-being of our employees, customers, partners and all interest groups is our top priority. Professional safety measures and precautions, such as providing safe and well-structured work areas and minimising dangers and health risks when handling hazardous substances, chemicals and materials, protect staff in plants and on construction sites. And we demonstrate expert leadership and management to enhance internal communication, so that everyone in our team, no matter where they work, has the support and information they need at all times.





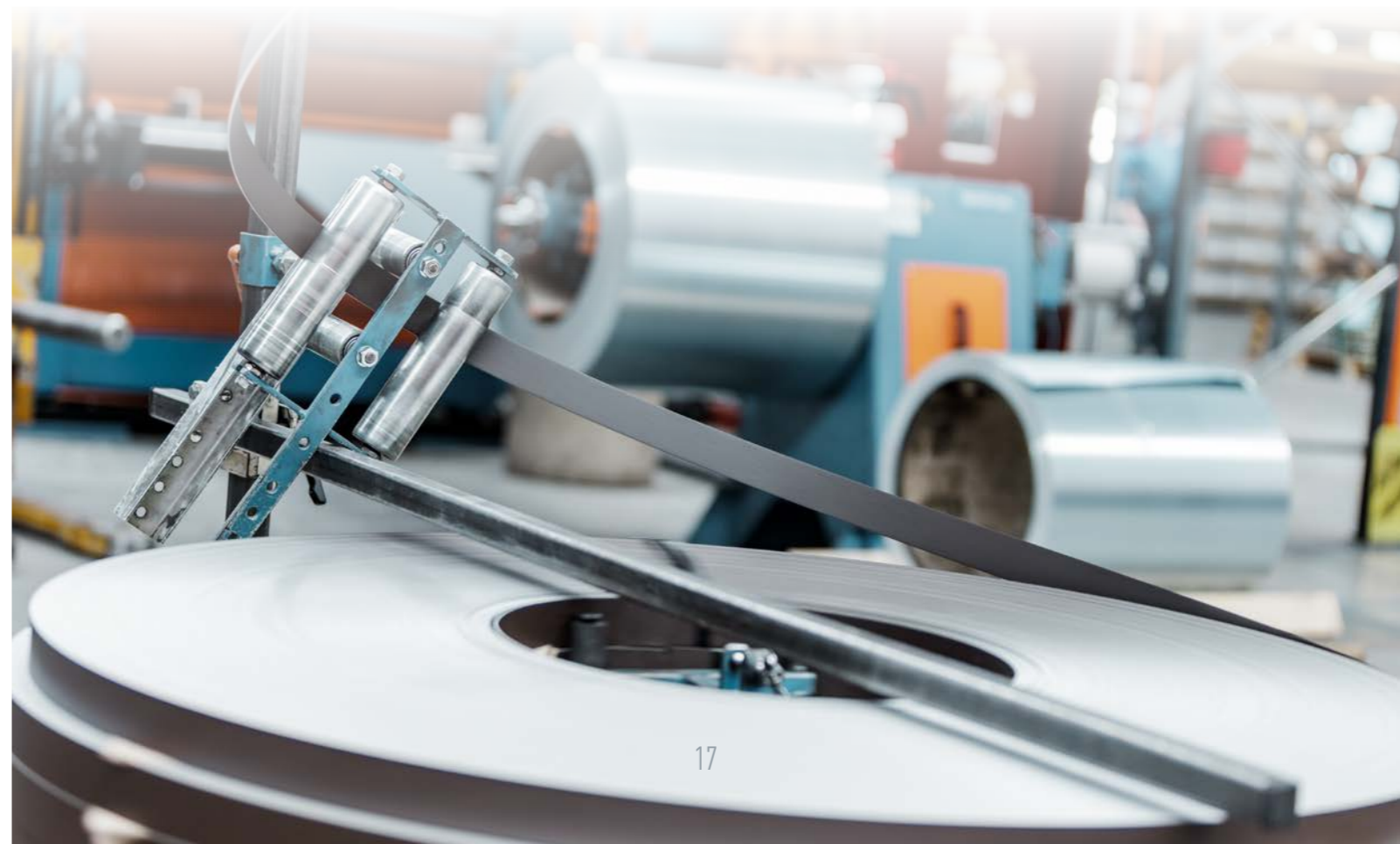


## GOAL 12 – RESPONSIBLE CONSUMPTION AND PRODUCTION

*Ensure sustainable consumption and production patterns.*

In production, organisation and implementation, PREFA aims to ensure we work in a way which is sustainable, protects the environment and conserves resources. Whether it's setting an example with low greenhouse gas emission values, exclusively using renewable energy or producing the best waste balance figures and returns into the closed-loop economy – PREFA sets high

standards. For the most part, we use recycled aluminium, or secondary aluminium, to manufacture our products. And we source the majority of our primary and raw materials from European suppliers. More detailed information regards the subject can be found on following pages.



## GOAL 9 – INDUSTRY, INNOVATION AND INFRASTRUCTURE

*Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.*

Encouraging sustainable, high-quality and reliable industrialisation and developing infrastructure are fundamental corporate objectives for PREFA. Our aim is that the economic and technical developments resulting from this will secure jobs and improve the well-being of the staff at the company's respective

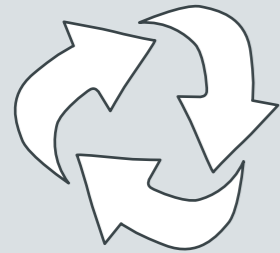
regional locations. These key innovations and product developments for PREFA will ensure we remain competitive and can pursue long-term business activities for generations to come.



# OUR STRONG COMMITMENT TO PRESERVING OUR ENVIRONMENT

*Environmental protection and sustainability are more than just buzzwords for PREFEA. We take our responsibilities seriously.*

From procuring the raw materials to production and disposal, every step in the closed-loop economy is carefully selected, diligently implemented and strictly controlled. At PREFEA, we set high standards in order to meet the various requirements relating to an environmentally friendly and sustainable operation. Here are four of the key measures we take.



## 87 % RECYCLED ALUMINIUM

**Why use something just once when it can be reused repeatedly?**  
Did you know that the small roof formats from PREFEA are made from a remarkable 86.6 % recycled materials? Across all our products, including PREFABOND® and PREFALZ, the proportion of recycled aluminium is 77 %.

## WASTE BALANCE: 89 % GOES BACK INTO THE CYCLE

**Even our waste is valuable. So we recycle it immediately.**  
PREFEA can boast a very impressive waste balance: 51 % goes into recycling, 38 % goes into material recovery, 5 % is used for heating and 6 % is disposed of via a waste treatment plant. That means a remarkable 89 % of the disposed materials flows back into the closed-loop economy.



## THE ELECTRICITY WE USE COMES FROM 100 % RENEWABLE ENERGY

**PREFEA only uses electricity from environmentally friendly sources.**  
Since 2020, 100% of the electricity used in production has come from renewable energy (hydro, wind, solar and biofuel). We plan to keep it this way.



## GREENHOUSE GAS EMISSIONS 3.36 kg OF CO<sub>2</sub>EQ/KG



**Because an unspoiled atmosphere is crucial.**  
With its roof components, PREFEA achieves the best results compared to alternative products in relation to greenhouse gas emissions, with a figure of 3.36 kg of CO<sub>2</sub>eq/kg. In order to compensate for the average emissions from a PREFEA roof of 400 kg – over the 40 years of the warranty – a mere 3.76 trees would need to be planted.  
Best of all, though: an aluminium roof retains its value. Once it is recycled after use, the emission figure drops to just 0.76 kg of CO<sub>2</sub>eq/kg. That's less than half a tree.

As you can see, not only are PREFEA roofs and façades built to last generations – we think just as long-term when it comes to our sustainable future. Visit [www.prefa.com](http://www.prefa.com) to discover everything you need to know.

(Data taken from the 2020 financial year)





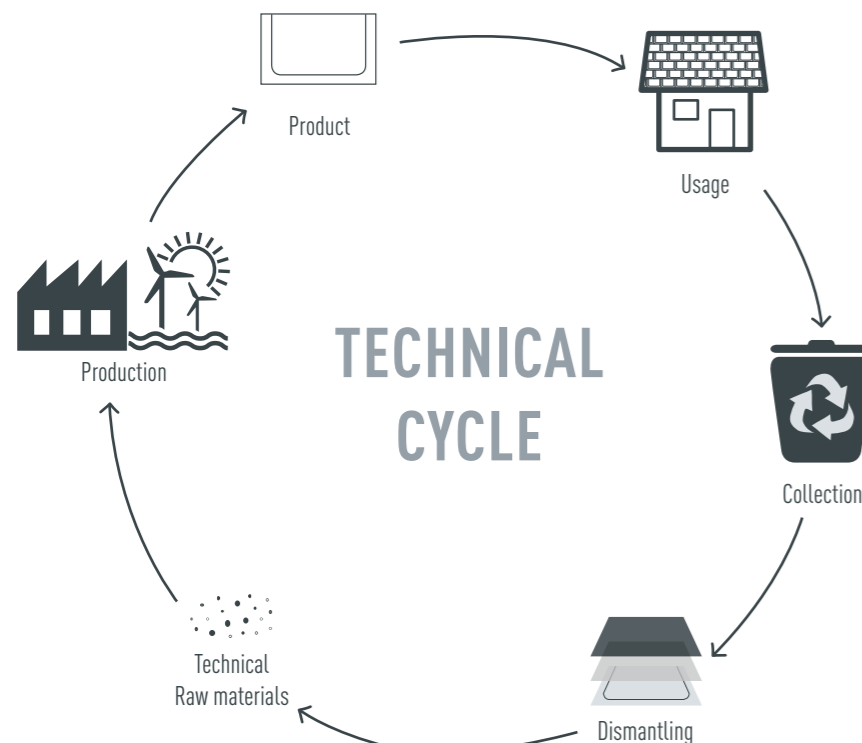
# KNOWING HOW TO USE MODERN RECYCLABLE MATERIALS

## The life cycle of PREFA products

**Used correctly, many modern recyclable materials can be managed sustainably.**

Whether or not a recyclable material produces a sustainable product mainly depends on the technical cycle and on the effects that occur during this cycle. Below is the life cycle of aluminium used in our products.

A recyclable material can have various properties that make it harmful to health or the environment. So this section will also address the risks and opportunities associated with the use of aluminium, especially our products for construction and renovation projects.



The report refers to PREFA's head office in Marktl, Lower Austria.

# HOW IS PREFA ALUMINIUM MADE?

*As a modern building material, aluminium can be adapted and used almost everywhere.*

Aluminium is the most commonly occurring metal in the earth's crust. Due to its property of bonding with other elements, it used to be very difficult to obtain pure aluminium – it wasn't until 1827 that German chemist Friedrich Wöhler succeeded in producing this aluminium in powder form (and in fact, at the time the price of aluminium was higher than gold). So aluminium is a modern construction material. It can be adapted and used pretty much everywhere: as an element and substructure for façade, roof and wall systems, in bridge and supporting structures, as a material for doors, gates and windows, even in interior design. Aluminium is strong, flexible, resistant, durable, dimensionally stable and light.

The lightweight metal meets the toughest of requirements for function, design, cost-effectiveness, sustainability, safety and fire protection. Back around 1950, 21 kWh of electricity were required to produce 1 kg of aluminium. This has been lowered to around 13 kWh thanks to newer systems and improvements in process techniques, and efforts to reduce the energy consumption even further have never ceased. The aluminium produced in aluminium smelters (the primary material from our suppliers) is cast into ingots and then formed by rolling mills. Various metals and minerals are then added to produce the desired aluminium properties. In order to keep our products weath-

er-resistant and to ensure they retain a visually attractive surface over the years, we apply a high-quality HDP (High-Durability Polyester) paint system to our products. The paint is applied in a process known as coil-coating, which is a highly efficient method for continuous coating of metal coils prior to the manufacture of finished parts – with almost 1 million tonnes of pre-painted aluminium per year. This process guarantees high-quality, consistent and reproducible surface properties for use in sectors ranging from construction and industry to equipment and transport. The coil-coated aluminium is produced by recycling scrap aluminium, both unpainted

and coated, with varying quantities depending on the alloy and quality. Metal is cast directly into the hot strip, which avoids the energy-intensive process of pre-heating and hot rolling the ingots. Hot coils are then processed to their final thickness by cold rolling and annealing in chamber furnaces in order to obtain the desired mechanical properties of the aluminium prior to painting. Internal scrap produced during the various process steps is collected and fed back into the casting plant, ensuring the metal reenters the cycle. 88 % of the products we sell are produced with the coil-coating method.



### PRODUCTION OF PRIMARY ALUMINIUM

Producing primary aluminium is very expensive. In addition to smelting the raw material, a high amount of electrical energy is required for fused salt electrolysis, which ultimately produces the metal aluminium. As a global average in aluminium production, generating this electrical energy currently makes up two thirds of the CO<sub>2</sub> emitted. This can only be reduced by improving the energy efficiency of these plants, as well as through CO<sub>2</sub>-neutral power generation (e.g. from renewable sources of energy).

### ADVANTAGES OF EUROPEAN PRODUCTION

In aluminium production, a global average of 16.1 kg of CO<sub>2</sub> is emitted per kg of aluminium. This is because around the world 55.7 % of electricity is produced from coal and only 30 % from hydroelectric power. By contrast, 88.4 % of the electricity used by aluminium smelters in Europe comes from hydroelectric power, 4.8 % from renewable sources of energy, and only 1.6 % from coal. For scrap that has already passed through the cycle of reusable materials, only 0.6 kg of CO<sub>2</sub> per kg of aluminium is produced during reprocessing. (\*)

Our suppliers consistently use aluminium produced in Europe, meaning the emissions from our products are lower than the global average. Due to a lack of data from official sources, however, no emission data per kg of aluminium at the European level can

be disclosed. Some 60 % of the primary material for our products is taken from the secondary cycle, i.e. from recycled scrap. That means the CO<sub>2</sub> emissions of the primary material arising during production can be quantified as 4.68 kg of CO<sub>2</sub>eq/kg of PREFEA aluminium products by the time it reaches our production facilities. The amount of secondary aluminium we use currently stands at 76 %.

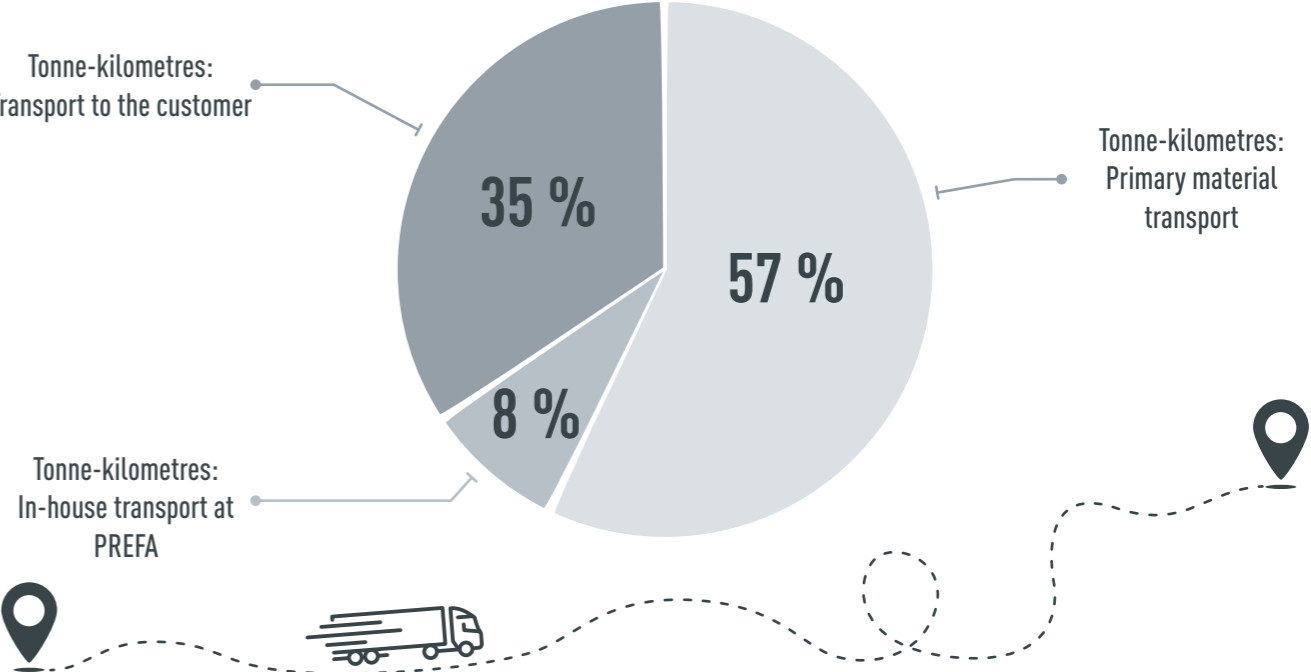
In order to reduce the footprint of our products even further, we constantly increase the proportion of secondary aluminium in our primary material, in addition to choosing European suppliers. A transparent flow of recyclable material forms part of our strategy to reduce our long-term environmental impact.

(\*) Source:  
 Power generation for fused salt electrolysis  
<https://international-aluminium.org/statistics/primary-aluminium-smelting-power-consumption>  
 Greenhouse gas emissions in primary aluminium production  
<https://international-aluminium.org/statistics/greenhouse-gas-emissions-intensity-primary-aluminium/>  
 Greenhouse gas emissions in the aluminium sector (source for CO<sub>2</sub> when using scrap)  
<https://international-aluminium.org/statistics/greenhouse-gas-emissions-aluminium-sector/>

# ENERGY-EFFICIENT PRODUCTION IN AUSTRIA AND GERMANY

For an all-in-one system with over 5,000 products

If you want to see change, you are best off starting with yourself. True to this motto, we are always trying to develop as a company. Forward-thinking strategies and sustainable policies are always at the heart of our developments, and that includes our new locations in St. Pölten and the warehouse in St. Georgen. We optimise our internal production processes to consistently reduce the CO<sub>2</sub> footprint of our products. With production locations in Marktl (Lower Austria), St. Pölten (Lower Austria) and Wasungen (Thuringia), we are centrally located for our suppliers in Spain, Germany, the Netherlands and Italy, as well as our customers across Europe. On average, PREFEA aluminium products travel 1,377 km from preliminary suppliers to our end customers, which equates to 155 g of CO<sub>2</sub>eq/kg.





## CHOOSING THE RIGHT PACKAGING MATERIAL

Packaging is necessary in order to deliver products unharmed and in the desired quality. Plastic has become a commonly used packaging material over the past decades, but mountains of plastic at landfill sites, as well as plastic islands in the seas and oceans, make clear that using it without an effective recycling system only harms our environment in the long run.

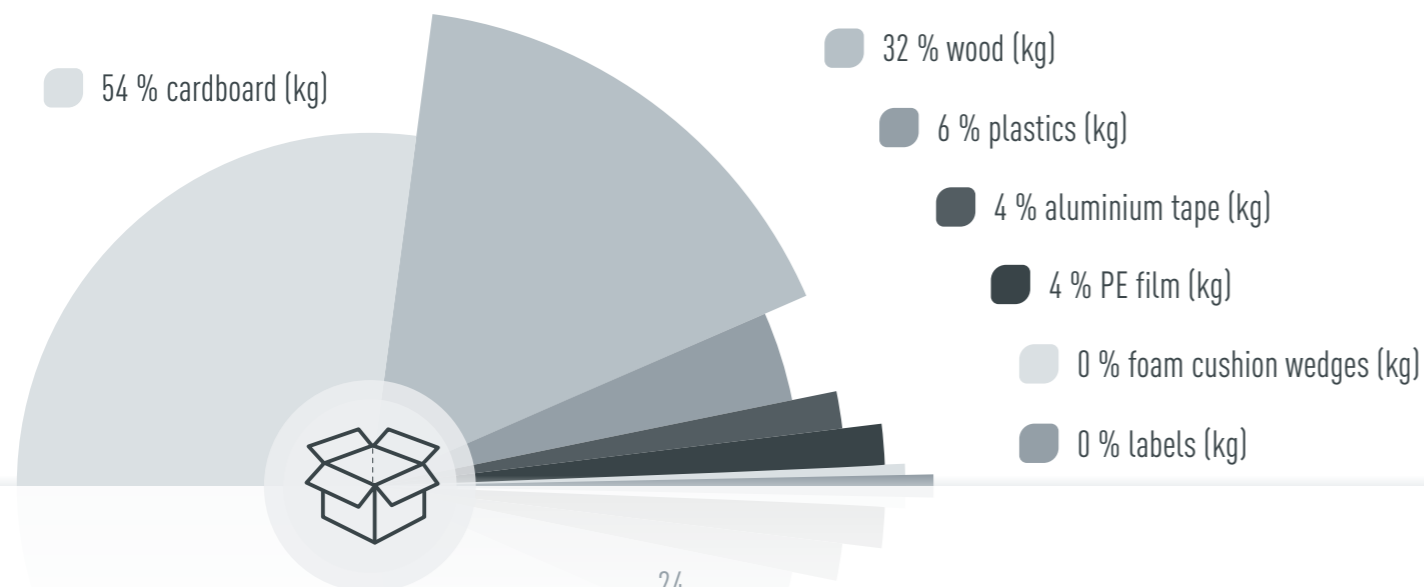
For this reason, the requirements that we place on our packaging material are just as strict as those for our products. We distinguish between two types of packaging: on the one hand, the packaging that comes from the supplier, and on the other, the packaging that is sent to the customer.

The packaging material used by our suppliers which ends up as waste at our production sites is used as efficiently as possible. For example, we are currently setting up a pallet system with our main suppliers, which is designed to our precise warehouse dimensions with the aim of cutting several tonnes of waste wood. Some

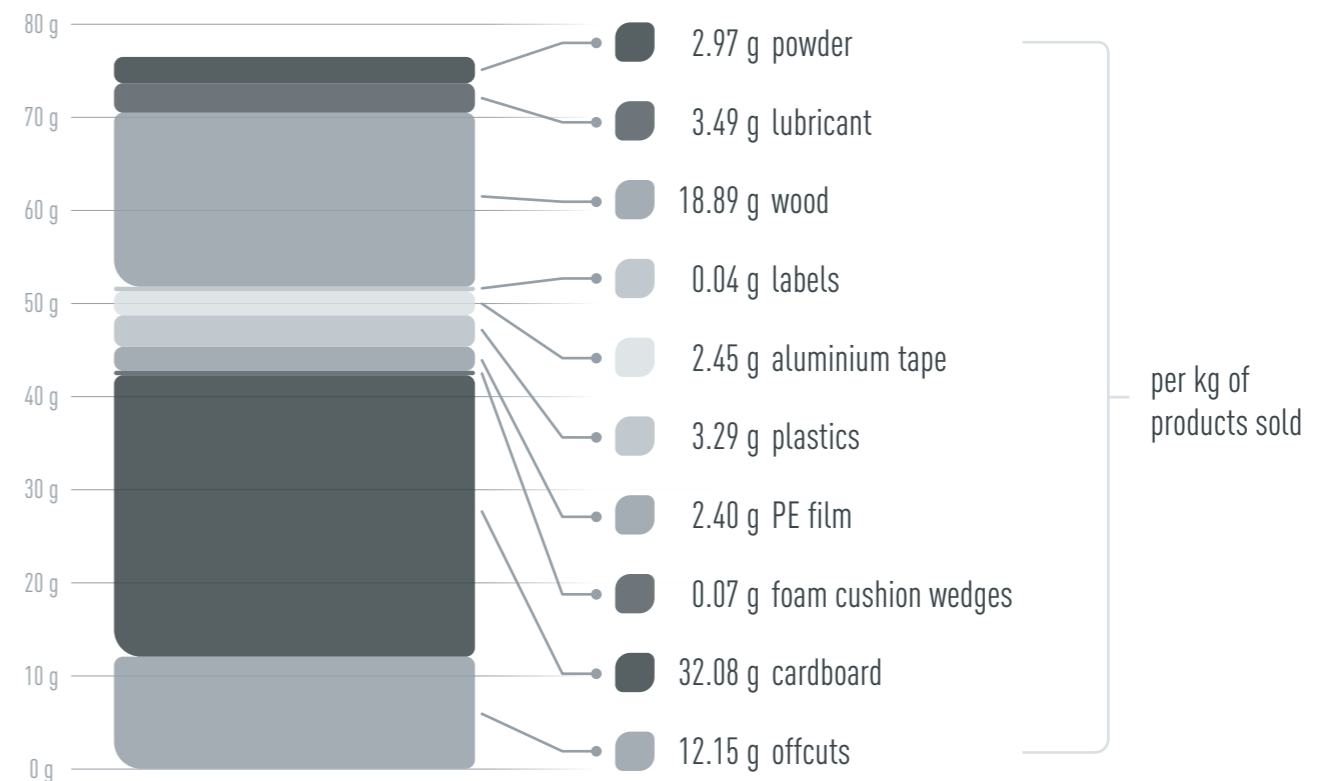
waste wood (old, mostly defective pallets) will still be produced, however, and it must be disposed of. But we don't send it to a disposal company: it goes to a company which uses it to make new chipboard, wood pellets and other products. The figure currently stands at 18 g of discarded waste wood per kg of PREFA aluminium products. We also try to recover the useful materials from the rest of the packaging.

The packaging material we attach at our production facilities usually ends up as waste at our customers, so we use packaging with a high proportion of recoverable materials such as wood, cardboard and paper.

For commonly used PE protective film, which we attach to our products, we choose materials that can be restored using special recycling methods and do not cause any environmental damage through heavy metals or halogens (though whether this is feasible depends on availability in the respective region). Plastic packaging material makes up around 10 % of the weight of packaging used annually.



An evaluation in grams of all packaging and coating materials, supplies and consumables per kg of sold PREFA product can be produced for all product categories, and is shown in the following breakdown:





## DECARBONISING<sup>1</sup> THE INDUSTRY

Lots of energy is still required in the production of our everyday consumer goods. Thermal energy is needed in order to change physical states or and bring materials to very high temperatures to give them certain properties, and this is mostly supplied by natural gas. Unfortunately, natural gas is difficult to decarbonise, so if it is needed in production, the process cannot be decarbonised fully without compensation payments. For this reason, we collectively need to focus on electrifying production processes early on.

## ONGOING MODERNISATION OF PRODUCTION SITES

Our production facilities are equipped with energy-efficient systems, so only low quantities of energy are required to produce our entire product range. Our bending, folding, punching, embossing, pressing and cutting is performed using hydraulic, pneumatic and toggle presses. Annual maintenance, regular inspections and improvements maintain system performance so that we continue to use our energy as efficiently as possible. No natural gas is used in these production steps; we only work using electricity, and the electricity we consume is generated from renewable sources of energy. Plus, a hydroelectric power plant now supplies 9.5 % of the power consumed by the CAG Holding production sites in Marktl, and a large PV system was added to the roofs of our sister plants in 2021. As a result of this and the state-of-the-art powder coating plant, only 29 g of CO<sub>2</sub>eq/kg of PREFA aluminium products is emitted.

The aluminium products are chromium-free passivated in the powder coating plant, which gives the surface the desired properties in order to meet the stringent quality requirements even decades after installation. The pickled metal is sprayed with paint powder and thermally treated, and an evaporator is used to separate the chemicals produced from the water prior to disposal in order to minimise the amounts disposed of. The liquids are disposed of in chemical-physical treatment systems, where they are processed for feeding back into the material usage cycle as much as possible. No wastewater or other chemicals enter the nearest rivers or groundwater. All waste is collected and disposed of properly.

<sup>1</sup> Chemical-physical treatment system for hazardous waste

## WASTE DISPOSAL





Durability of materials used

## 40-YEAR GUARANTEE – BUT AN INFINITE SERVICE LIFE

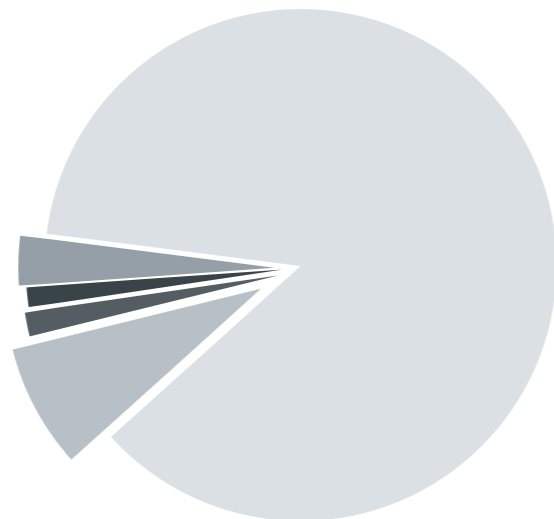
*To protect roofs and the environment, and to ensure our products are as visually appealing as possible, we apply a special paint.*

These liquid paints contain a blend of bonding agents, cross-linking agents and other valuable additives so that ultimately the substance will harden as quickly as possible in the coil coating during the curing process. This is when all the solvents still contained within the liquid paint are burnt off, which prevents the pre-painted product from emitting any VOCs (Volatile Organic Compounds, which disperse at room temperature) into the environment. In addition, the produced is cleverly fed back into the process and reused. Continuous recirculation in the various production stages minimises the water consumption.

An enduring, uniform appearance can only be produced with technically high-end paints – our paint ensures stability for decades and barely loses its gloss even in highly challenging regions.

### MATERIALS USED

- 88 % coil coating
- 6 % powder-coated
- 3 % unprocessed composite panel
- 2 % uncoated (mill finish)
- 1 % processed composite panel





## LEACHING OF HEAVY METALS

Many metals used in the construction industry are not pure elements, and require a variety of alloying compounds to obtain the desired properties. Although these alloys are stable under most circumstances, surfaces can become damaged and individual atoms can leach out of the metals due to acidic or alkaline climatic influences. Roof, façade and drainage systems in particular are constantly exposed to these weather conditions. If alloys or materials are used here that are not protected against leaching of heavy metals and other environmental toxins, this can quickly lead to the cumulative contamination of the surrounding soil, drinking water or vegetation.

(Study: "Leaching of Metal Surfaces and Entry into the Groundwater" from the Swiss Federal Office for the Environment, Rapperswil, 26/03/2019; Study: "Metals and the Environment: How metal sheets respond to environmental influences", Dr Markus Faller, Bern, 14/03/2007: Contamination of soils by heavy metals and environmental pollutants, toxins that are in the soil can leach out and enter our circulation either through the groundwater or through plants used for food or animal feed.)

## NO DANGEROUS CONSTITUENT MATERIALS FOR DECADES

PREFA aluminium products have a 40-year warranty, but an infinite service life. What does that mean exactly? Aluminium is referred to as a passive metal, which means that untreated aluminium forms a passive layer by bonding with oxygen from the air. This coating has several effects, such as preventing aluminium ions from leaching out of the metal sheets. Studies show that the leaching rate of passive metals like aluminium is less than 0.01 g/m<sup>2</sup>/a (detection limit). The leaching rate of aluminium is therefore more than 99 % lower than that of other products made from galvanised steel (2.4 g/m<sup>2</sup>/a), untreated zinc (2.6 g/m<sup>2</sup>/a) or copper (1.3 g/m<sup>2</sup>/a).<sup>1</sup> That means our materials cannot emit hazardous constituent substances for decades, and will not lose any of their quality as a result.

In order to protect roofs and the environment, and of course to ensure our products look as good as possible, our products also have the PREFA HDP

paint system. The paints are free of SVHCs (Substances of Very High Concern) and are continuously tested and, where necessary, adapted to ensure they meet the requirements of the EU's REACH regulation. Studies have shown that coated – i.e. painted – metal sheets have a leaching rate that is 99.85 % lower than the same metal sheets that are untreated. (Burkhardt, M., Hodel, P.; 2019: Leaching of Metal Surfaces and Entry into the Groundwater – Literature research and measurements factoring in three urban pesticides. Report on behalf of the Swiss Federal Office for the Environment (BAFU), Rapperswil, page 12). The combination of a passive metal and a high-quality coating means a minimal leaching rate can be assumed for our products. They retain their appearance for a long time, protect your house from climatic influences and disperse hardly any substances into the soil or groundwater. So they do not pollute the environment when in use.

# RENEWABLE RESOURCES FOR FUTURE GENERATIONS

*Sustainable use of resources means increasing resource efficiency and preserving non-renewable resources for future generations.*

Ideally, resource efficiency means that recyclable materials can be reprocessed and reused without a loss of quality after their period of use. To ensure this can happen, we need to start early: when materials are removed, they must be disposed of in such a way that they can be recycled. When a product or a building reaches the end of its useful life, it is dismantled and handed over for disposal. Only if it is disposed of properly can the maximum amount of recyclable materials be recovered in this process. According to a survey from the European Aluminium Association (EEA), currently

95 % of aluminium products used in the construction industry can be recycled.

A higher proportion of secondary aluminium can be used if recycled aluminium is available with the right alloy. Recyclable materials used in cans, for example, are available for reuse in the industry within one year. Long-lasting products in the construction industry, however, tie up the recyclable materials for decades. So we can assume that over the coming years the proportion of scrap in aluminium products for the building industry will continually increase.

## OBTAINING ALUMINIUM AS PRIMARY ALUMINIUM

When obtaining aluminium as primary aluminium (mining and extracting bauxite and deriving primary aluminium through smelting and energy-intensive fused salt electrolysis), large swathes of landscape are carved up. The top soil layer is removed, the material is extracted, and left behind are barren landscapes often featuring dumped red mud, which becomes a hazard over the long term. There have already been a few successful attempts to restore areas like these, by processing and treating the notorious red mud so that it can be returned back to nature.

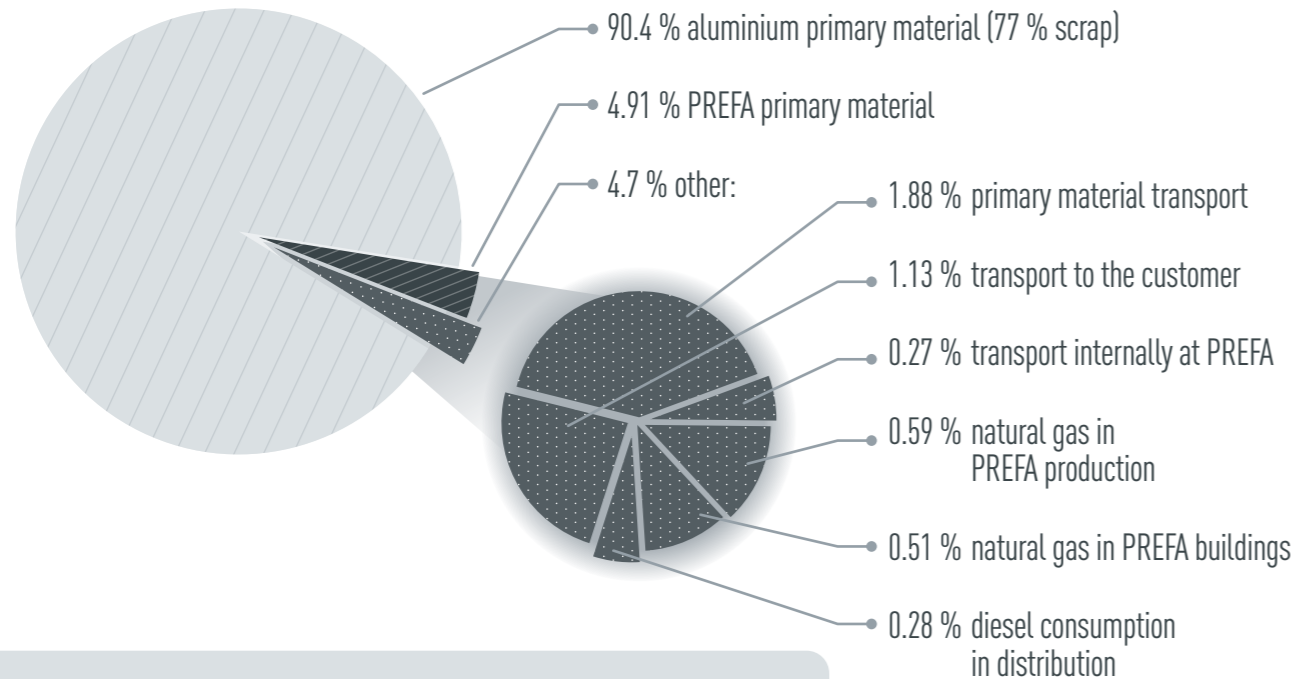
<sup>1</sup> Metals and the Environment: How metal sheets respond to environmental influences, Dr Markus Faller, 14/03/2007, Bern, page 5



## OPPORTUNITIES THROUGH INCREASING THE USE OF SCRAP

Increase the amount of scrap in the primary material has both economic and environmental advantages. As already shown through the CO<sub>2</sub> emissions of our products, the majority of the energy consumed is during the production of the primary material or when obtaining the aluminium. By reducing the use of primary aluminium and increasing the proportion of scrap, the “secondary aluminium”, these emissions can be cut. A functioning recycling economy is also of great benefit to natural landscapes. After all, dumped scrap requires enormous space which could be used for other purposes, and we can reduce or even prevent the invasive carving open of the landscape (through removing the soil layers to obtain the primary aluminium) by increasing the amount of secondary aluminium we use. Our suppliers currently use an average of 77 % secondary aluminium when making their products. And depending on the alloy, some of our products are even made from over 80 % secondary aluminium.

## CO<sub>2</sub> EMISSIONS BREAKDOWN



Recycling 1 tonne of aluminium means 4 fewer tonnes of bauxite and up to 9 fewer tonnes of CO<sub>2</sub> emissions. Using secondary aluminium from our suppliers means that a CO<sub>2</sub> factor of 4.48 kg of CO<sub>2</sub> emissions/kg of primary material can be calculated for our primary material (23 % primary aluminium).

## INFINITELY REUSABLE

*Aluminium is especially well suited for recycling. In addition to the environmental benefits, recycling aluminium is also extremely worthwhile from an economic perspective.*

Aluminium is used in a wide variety of alloys. They are distinguished by the additives used, such as magnesium or copper, as a result of which the products have different properties, such as hardness, resistance and flexibility. Scrap aluminium is therefore collected and sorted according to type as far as possible. On the one hand, this is so we can identify and retain the alloy used; on the other, it means fewer alloying compounds are required during processing. As a result, the environmental burden is reduced both in terms of metal extraction and the alloying compounds. The proportion of scrap used in aluminium production is increasing yearly and, we can expect the current quantity to double by 2026.



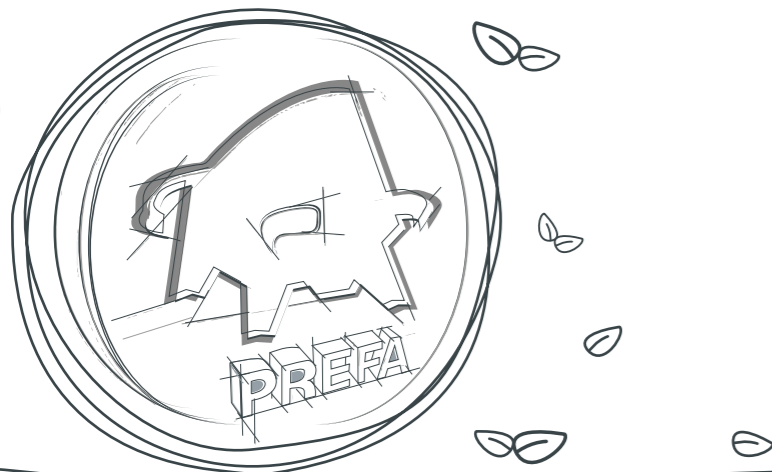


## ADJUSTING THE CYCLE OVER THE LONG TERM

Over the past few decades, indeed within the last century, many new reusable materials have entered the material cycle and are now widely used. As reusable materials that are in use have been removed from the recycling economy, technically the loop is not fully closed. Many primary raw materials still need to be added to keep the cycle going. Materials which have been mined for centuries, such as iron, are already available in large quantities in the cycle and therefore make up a high proportion of scrap in products. However, our aim should be to adjust the cycle over the long term so that materials actually located within the cycle are used (the share of scrap).

## CONSERVING RESOURCES: TODAY'S BUILDINGS ARE THE MINES OF THE FUTURE

Recyclable metals are very rarely lost. Either they are tied up in their usage phase, they are dumped and unused, or they are corroding because they have not been stored correctly. A minimum usage period of 40 years is specified for materials used in construction, such as our own products, so we unlikely to be able to access these materials within this time frame. As a result, it is even more important that all materials that have reached the end of their service life and can no longer be used are removed by specialist contractors and then sent for scrapping. During scrapping, materials are separated from each other and sorted according to type as far as possible. This means they can be returned to circulation as secondary materials, instead of deposit it in waste disposal sites and lose it due to corrosion.



## A BEAUTIFUL, EFFICIENT RECYCLABLE MATERIAL

Expert Jörg H. Schäfer, Head of Recycling and Sustainability at Aluminium Deutschland e.V. (formerly GDA), knows all about the beneficial properties of aluminium. He thinks the material is unrivalled in terms of its functionality, value retention, structural aesthetics and resource efficiency.



*It's all about the value that aluminium brings to architecture.*

Jörg H. Schäfer, Head of Recycling and Sustainability at Aluminium Deutschland e.V.

## LIGHTWEIGHT AND INTRICATE STRUCTURES

“It's all about the value that aluminium brings to architecture,” Schäfer explains. “It's precisely because of its aesthetics that it's so popular in the design sector. The impressive strength-to-weight ratio enables lightweight, intricate structures to be created which not only offer enormous freedom in design but are also extremely robust. With a specific weight of 2.7 g/cm<sup>3</sup>, aluminium is the lightest metal for use in buildings compared to copper, iron and zinc.”

## ALWAYS RECYCLABLE WITH NO LOSS IN QUALITY

Schäfer has a long list of reasons why aluminium is such a good material: “It's unbeatable in terms of resource efficiency, because it requires very little maintenance and is extremely durable”. Whether coated or uncoated and across all applications, aluminium can be melted down and used in high-grade products over and over again with no loss in quality. So from all perspectives – ecological, economic and technical – aluminium is the ideal material for sustainable construction.





**AS STRONG AS A BULL**  
ROOF • FACADE • SOLAR

# STRENGTH IS OUR PROMISE.

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- Aluminium, the strong material for generations
- Perfectly coordinated complete systems
- Over 5,000 products in many colours and shapes
- Guarantee of up to 40 years on materials and colours\*
- Personal, all-round service at every stage



LET'S TALK ABOUT IT.

\* Information about the material and colour guarantee can be found at [uk.prefa.com/guarantee](http://uk.prefa.com/guarantee).