HOMAPAL

# Materialising Sustainability

in collaboration with Nemho Sustainability Team

# Contents

# Executive Summary

## The path toward carbon neutrality

Homapal's history goes back to the 1950s. HPL (High Pressure Laminate) was initially produced in the factory in Herzberg/Germany. Later the company focused on the production of special metal laminates. In 1995, Formica took a stake in the company in the form of a joint venture. In addition, a trading company was founded for the D/A/CH region. In 2015/16, all shares in the business were 100% taken over by Formica. Today, Homapal is the world leader in the field of metallic laminates.

In 2019, Homapal joined Broadview, a company based in the Netherlands, leader in sustainability in the decorative materials market. The acquisition by Broadview has raised the bar for sustainability expectations and provided access to tools and technologies to accelerate Homapal's sustainability improvement trajectory.

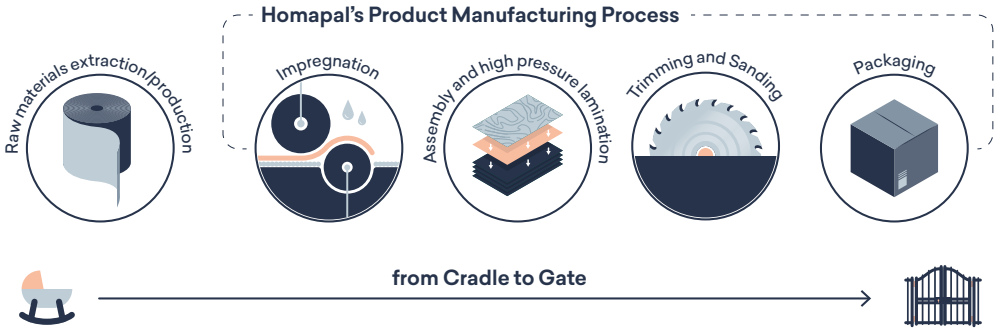
The company has already attached great importance to the careful use of its resources in the past. This affected all areas of the company. One example is energy consumption. Thanks to a large number of implemented projects, consumption was reduced by 13% (energy) in the period from 2012 to 2020.

Our sustainability journey is headed towards the continuous improvement of the environmental performance of our products and the transparent and proactive communication of our environmental performance and our plans for improving it in the future. To do that, every year we publish an annual Sustainability Position Paper that details our journey to reduce emissions in Homapal facilities and will develop offset projects that help reduce or capture carbon emissions in the broader environment. Our path toward carbon neutrality includes a targeted reduction of 10% by 2026, corresponding to 1,000 tons of $CO_2$eq.

## A straightforward approach to sustainability

Reducing our carbon footprint is based on our core belief that it is the right thing to do. We are also convinced that reducing our overall environmental footprint is essential to the long-term success of our business and the environment around us. That is why sustainability is embedded in our business philosophy with the credo *'do no harm, do good, do better'*.

At the core of our sustainability strategy is the principle that we should start with ourselves when we seek to improve the world: *'do no harm'*. Our approach is straightforward: we measure our impact, select targets to reduce this impact and monitor and report on progress. To measure our impact, we use the Life Cycle Assessment (LCA) methodology. LCA captures the details of the entire environmental footprint of our products, from raw material extraction up to leaving the gate of the factory.




The second element of our strategy is to look for opportunities that support the environment beyond the direct scope of our own manufacturing footprint: *'do good'*. This includes creating highly durable products that have a long lifespan limiting the need for replacement. Additionally, we will also develop projects that help to absorb or reduce carbon emissions less directly linked to our factories and our product portfolio.

We believe that addressing sustainability challenges will allow our company to continue to grow and *'do better'* in the future. Investing in sustainability should – in the end – ensure that these efforts continue beyond the horizon of current regulatory changes and ethical/moral considerations.

## Facts on our footprint

We believe you cannot manage what you do not measure. With Broadview, Homapal has been able to leverage leading sustainability tools to fast track its effort to measure its environmental impact through LCA. The LCA results are shown below for the three key environmental indicators: global warming, primary energy demand and water footprint.
The results are expressed for two years: 2019, which is the baseline year for our 5-year targets, and 2021.

| Impact Category | Unit | 2019 Impact[1] | 2021 Impact |
|---|---|---|---|
| Global warming[2] | kg $CO_2$ eq. | 10,687,016 | 9,483,621 |
| Primary energy demand | MJ | 229,329,628 | 201,546,389 |
| Water footprint[3] | $m^3$ | 3,330,047 | 2,773,862 |

[1] *Impacts for 2019 have been updated compared to the previous position paper in light of refinements to the LCA model.*
[2] *Global warming impact includes the $CO_2$ storage of the wood fibres present inside of our panels.*
[3] *The water footprint indicator shall be used with care due to high uncertainties and limited experience as mentioned in the EN15804-A2 standard. Thereby, the water footprint impact indicator in 2019 has been adjusted compared to the previous position paper to reflect an accurate comparison between the years.*

Homapal has plans to address all three environmental indicators, however, the urgency of global warming requires that the reduction of $CO_2$ emissions be our absolute priority for the years to come. Our primary focus will be on projects to cut back 1,000 tons of $CO_2$ emissions generated in the production of our products.

Between 2019 to 2021, Homapal noted an impact reduction on global warming by 11%, driven by a reduction in production volumes.

To further improve our environmental performance in line with our 5-year targets, we will continue implementing impact reduction projects detailed in the next section.

## A clear action plan for the coming five years

Homapal aims to reduce its carbon footprint by 10% (1,000 tons of $CO_2$eq) by 2026. Key drivers of its improvement are outlined in the table below.

| $CO_2$ emission reduction activity | Emission scope | $CO_2$ reduction potential |
|---|---|---|
| **Energy efficiency** – optimise the use of thermal energy at e.g. the presses and boilers | Scope 1 | 4.9% |
| **Sourcing of green power** – sourcing renewable electricity and heat | Scope 2 | 5.1% |
| **Sourcing renewable/more sustainable raw materials** – including resins from biosources | Scope 3 | TBD |
| | **Target reduction total: 10% (1,069,109 kg)** | |

In 2021 we reached our greenhouse gas reduction target. However, since the improvement was driven by the reduction of production volumes, we will continuously explore every opportunity to increase the efficiency of our processes. In addition, we will continue to transition to more sustainable bio-based and renewable sources (both energy and materials) wherever possible, with the objective of keeping our yearly greenhouse gas emissions in line with our reduction targets, regardless the variation in production volumes.

Beyond greenhouse gas emission reduction, Homapal will also pursue a 5% reduction in primary energy demand and a reduction in direct water use.

## We will be transparent about our progress

The goal of our sustainability approach is to provide transparency to our stakeholders about our sustainability efforts and updates each year going forward so you can see progress against our commitments. We will update our targets and initiatives each year as we progress through this journey.

Our Homapal team is more than happy to answer questions - feel free to contact your local Homapal team member for more information.

# Introduction

The family-owned company Homann was founded as a food factory in 1876 by Fritz Homann in Dissen/ Teuteburger Wald. In the second plant in Herzberg, which was acquired in 1929, laminates were produced in addition to wood-based products under the brand name Homapal in the early 1950s.

The huge demand for these decorative and at the same time robust surfaces was the reason why many companies around the world started the production of HPL panels. In the 1960s, this led to great competitive pressure on the market. In the search for alternative products, surfaces and decors that should have a certain unique selling point, the idea was born to produce HPL panels with surfaces made of genuine metal. At the beginning of the 1970s, sales manager Bernd Decker, inspired by the industrial need for copper printed boards, came up with the idea of selling these surfaces for decorative purpose worldwide. The customers were enthusiastic and so the range was quickly expanded to include additional decors and aluminium surfaces. It wasn't however until the 1970s that Homapal started to manufacture special laminates – first metal, later veneers, leather and, in the beginning of the 90s, magnetic boards, which swiftly became popular in Europe and worldwide.

In recent years, the interest for Homapal's products expanded particularly in Asian countries. The implementation of the coil coating process for metal laminates followed in the middle of the 90s. The common history of Homapal and Formica began in 1995 with a joint venture agreement. This agreement was extended in 2010 by the foundation of a sales company Homatrade for the exclusive distribution of Homapal products in Germany and the exclusive distribution of Formica products for the D/A/CH region. In 2015, Formica acquired 100% of the shares in Homapal and only one year later Homatrade was merged in Homapal GmbH. In the factory of Homapal, one hour out of the German city Hannover, Homapal manufactures mainly individual series in small numbers. Working with such a high level of engineering also involves craftsmanship.

The manufacturing nature of Homapal's production process enables to create products that only few companies can offer. Homapal's general approach is to expand its market share with creative and innovative solutions. In 2019, Homapal invested in a new special coating process which gives the laminates scratch-resistant properties. The SRM Scratch Resistant Matt collection was launched in 2020 and is thus creating the conditions for using metal laminates in horizontal interior applications.

In 2019, Homapal was purchased by Broadview Holding, a Netherlands-based global leader in material technology. Part of Broadview's explicit strategy is that each business in its group, including Homapal, will pursue ambitious sustainability initiatives and results. Along with Broadview Holding, Homapal is committed to a long-term planning horizon that includes becoming an industry-leading environmental steward.

A key element to this approach is being highly transparent about our current environmental footprint as well as our plans and targets for reducing our overall impact. Homapal is implementing a common sense, fact-based methodology to sustainability focused on a cradle-to-gate approach that is integrated into the way that we manage every part of our business.

As part of our new sustainability approach, every year we publish our environmental impacts, as well as our targets and initiatives for the coming year. This report is the second of our annual publication of our sustainability data and results.

We are excited to share it with you as we continue to advance our sustainability efforts.

# Overall Philosophy

Homapal's sustainability policy is built upon a basic motivation to shift from "being less bad" for the environment to being "good" and having a positive impact on the world around us. This approach has three stages:

## Do no harm:

we continuously seek opportunities to minimise the environmental impact in all of our operations and products.

## Do good:

we will support our suppliers and customers in realising their sustainability challenges. We will continue to look for opportunities and initiatives to support and promote longer-term sustainability beyond the direct scope of our current operations.

## Do better:

we believe that investing in sustainability is beneficial to the overall environment and to the long-term health of our business. Many sustainability challenges constitute good business opportunities that support our customers while continuing to allow the company to thrive.

# Sustainability Approach

Enhancing sustainability requires a realistic vision, specific actions and integrated approach across the entire company. Homapal's sustainability path is defined by three key principles that shape our thinking and action plans.

### Common Sense

Homapal takes a common sense approach to sustainability. This requires the acknowledgment that, by definition, a product requires resources and energy in its creation and as a result, some level of environmental impact will occur. That said, we have adopted the relentless pursuit of maximising our product functionality while minimising its environmental impact. We believe that sustainability is a balancing act between product functionality and its impact. Our goal is to reduce the impacts without losing sight of the product functionality our customers require.

### Fact-based approach

At Homapal, we believe you cannot manage what you do not measure. In order to address sustainability in a bigger way, we needed to quantify our current impact on the environment. To do this, we implemented the Life Cycle Assessment (LCA) methodology because it represents the most reliable and data-driven tool available to help companies, institutions and governments systematically incorporate sustainability into their decision making process. LCA is a method to evaluate the environmental burdens associated with the entire life cycle of a product, process, or activity. For our business, this assessment is done through the identification and quantification of the energy and materials used in the production of Homapal® brand products and the resulting wastes and emissions released into the environment.

By using a product life-cycle approach, Homapal gets a clear understanding of its actual impact on the environment. We can then identify the drivers of sustainability and prioritise initiatives across the entire value chain – from the raw materials through the consumer's use of the product.

The environmental burden of product or an activity can be expressed through a number of impacts, such as global warming, acidification, eutrophication, ozone depletion, primary energy demand, photochemical oxidant formation, water footprint, abiotic depletion and many others. For Homapal's LCA assessment, we show results tied to three key environmental factors: global warming ($CO_2$ Emissions), primary energy demand and water footprint.

From among these three environmental impacts, global warming represents Homapal's absolute priority. This impact poses a serious threat to our planet, one that demands urgent action on a global scale. Beginning with the Rio Earth Summit, then the Kyoto Protocol and the Paris Agreement, action to tackle this global challenge is speeding up. With the Paris agreement, 191 countries (including China and Thailand) committed to limit global warming to well below 2° Celsius compared to pre-industrial levels. This means aiming to reach global peaking of greenhouse gas emissions as soon as possible to achieve a climate neutral world by mid-century.

## Part of how we run the business

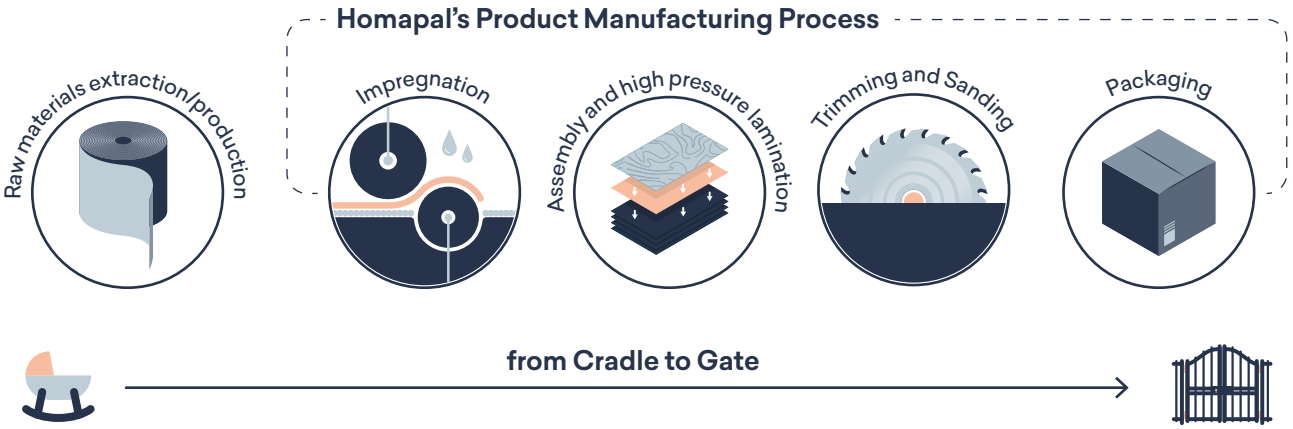
All sustainability initiatives are part of Homapal's rolling business planning and review cycle. Our sustainability priorities stem from the results of our LCA studies and what we believe are realistic but challenging targets for achieving meaningful progress. The review cycle comprises annual target setting in the budgeting process and a monthly management review of progress measured in key performance indicators. Each year, new sustainability targets are set and formalised in a detailed sustainability target agreement. Progress is closely monitored and discussed by the leadership team of Homapal on a quarterly basis during regularly-held sustainability meetings which are our tool for tracking activities and progresses, and brainstorming on new sustainability initiatives.

Moreover, we are incorporating sustainability training into our onboarding process and updates into our employee communications.

We are committed to informing our entire team about our sustainability initiatives and including them in the effort to protect the environment.

# Sustainability Strategy: Cradle-to-Gate Approach

At the heart of Homapal's sustainability vision and approach is reducing the impacts generated from the cradle-to-gate portion of our materials life cycle. Our guiding principle is two-fold: increasing efficiency or "do more with less" and replacing the most impactful energy and material inputs of our process.




## Increasing efficiency

Efficiency upgrades represent the first lever for improving a product's environmental footprint by reducing the required energy and raw material inputs.

### Energy

There are many opportunities to improve the energy efficiency of industrial equipment through the use of modern technology and intelligent system design. Replacing motors and pumps with new high-efficiency designs, storing and recycling heat within a closed-loop system, and optimising the integrated manufacturing system are examples to reduce energy consumption.

### Materials

A large share of industrial emissions is associated with the creation of materials used in our products. A key opportunity is to absolutely minimise material waste at each step in the process. We are focusing on product and process designs that optimise the use of materials so that our finished product can provide outstanding performance while requiring less material input.

Additionally, we will work with the materials suppliers that contribute the most to our impact, to share our ambitions and goals and work with them to find mutually beneficial opportunities to improve our collective environmental footprint.

## Replace most impactful inputs

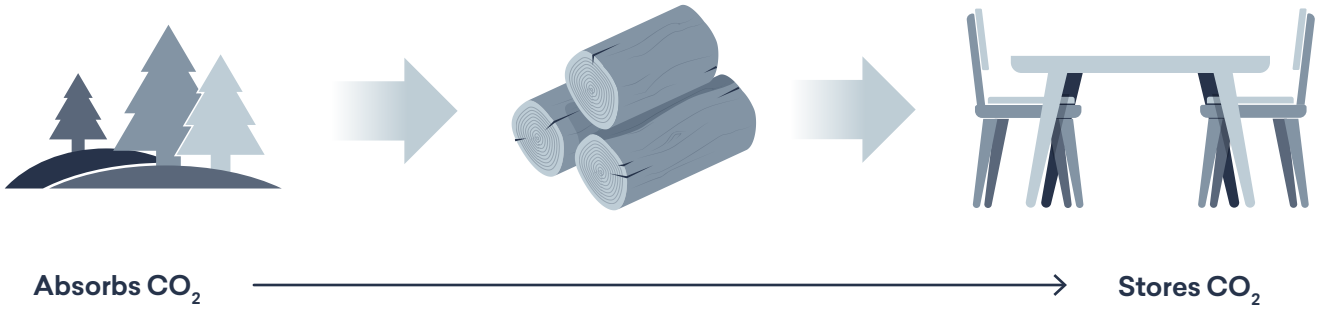
There are also opportunities to shift to lower-carbon alternatives for the energy and raw material inputs we source into our process. This approach normally translates into switching from fossil-based to bio-based and renewable options.

### Energy

The core element of this strategy is to actively pursue opportunities to replace traditional energy sources (electricity and natural gas) with renewable options for gas (e.g. biogas), and electricity (e.g. wind, hydro, solar). This will include working with third parties.

### Materials

Bio-based, renewable raw materials have a lower environmental impact than traditional petroleum-based inputs. They, in fact, help to save fossil resources and can contribute to reducing greenhouse gas emissions. Forest and crops absorb $CO_2$ from the atmosphere during their growth and continue storing it once harvested. To get a bit technical, trees absorb through the photosynthesis $CO_2$ and solar energy in their wood creation and release oxygen in return. The $CO_2$ absorbed is kept in the wood products for their whole life-time.




Our panels are made of a combination of bio-based, renewable materials (wood fibre), resin and metal.

Not much can be done to decrease the impact of metals, a part from putting all the possible efforts to source materials with higher recycled shares. For the remaining components, the rising availability of bio-based materials is making it more and more feasible to further increase the share of bio-based materials within our products. Between selecting bio-based alternatives and better-performing suppliers, sustainability is becoming more and more a critical parameter when choosing our partners.

# Balancing Out Residual Emissions

As mentioned above, global warming ($CO_2$ emissions) represents our absolute priority for the years to come. This means we will put extraordinary efforts to cut the $CO_2$ emissions generated by our products[4]. We will pursue this goal by applying the strategy outlined above to improve our efficiency (of both materials and energy) and replace the most impactful inputs.

Yet, it will not be possible to eliminate all emissions from manufacturing process of our physical product. For residual $CO_2$ generation, Homapal will, in the coming years, compensate with carbon dioxide savings elsewhere. This will be achieved either through purchase of fully-accredited carbon offsets, or, preferably, by developing our own carbon removal projects.

Carbon neutrality is defined by the state when the carbon emissions associated with an activity have been compensated by funding an equivalent amount of carbon savings elsewhere in the world. By buying offsets and developing carbon sequestering projects it is possible to fully balance out residual emissions and hence obtain a carbon neutral product.

Our ultimate goal is to is to achieve carbon neutrality for our products.

[4] *We refer here to a cradle-to-gate approach.*

# Homapal LCA Data: Our Learnings and Progress to Date

In recent years, we have put additional effort toward strengthening our sustainability approach. As a starting point, we have conducted detailed LCA for our facility and have defined a plan to improve our environmental performance. Homapal's recent LCA studies have enabled us to:

- Better understand our mass and energy flows/balances;
- Measure our environmental impacts per standard unit of material, to establish a normalised measure for future improvements;
- Identify the major environmental impact contributors in our process in order to set priorities for action;
- Investigate a number of external activities to understand their potential of decreasing our global warming impact.

## Environmental impacts

In this section, the results of the LCA study for the assessed impact categories are specified. These values are expressed per standard unit of material ($m^2$), and our total impact in 2019, the baseline year for our 5-year targets.
Please note that the results are expressed for cradle-to-gate scope.

| Impact category | Unit | Impact per unit | 2019 Impact[5] |
|---|---|---|---|
| **Global warming[6]** | **kg $CO_2$ eq** | **7.55** | **10,687,017** |
| Scope 1 emissions | | 1.60 | 2,259,691 |
| Scope 2 emissions | | 0.69 | 971,599 |
| Scope 3 emissions | | 5.27 | 7,455,727 |
| **Primary energy demand** | **MJ** | **162.00** | **229,329,329** |
| Fossil | | 36.15 | 51,169,793 |
| Renewable | | 125.85 | 178,159,836 |
| **Water footprint** | **$m^3$** | **2.30** | **3,330,047** |

The unit of scale or reference to which the LCA results are referred relates to the given function of the product, called a functional unit. Based on the function of our product, the input per unit is normalised to a standard measure of decorative surface area.

These numbers provide a baseline of the environmental impact of our products.

[5] *Impacts for 2019 have been updated compared to the previous position paper in light of refinements to the LCA model.*
[6] *Global warming impact includes the $CO_2$ storage of the wood fibres present inside of our panels.*
[7] *The water footprint indicator shall be used with care due to high uncertainties and limited experience as mentioned in the EN15804-A2 standard. Thereby, the water footprint impact indicator in 2019 has been adjusted compared to the previous position paper to reflect an accurate comparison between the years.*

## Progress in 2021

| Impact Category | Unit | Impact per unit 2019 | Impact per unit 2021 | Δ '19 - '21 | Total Impact 2019[9] | Total Impact 2021 | Δ '19-'21 |
|---|---|---|---|---|---|---|---|
| **Global warming[10]** | **kg $CO_2$ eq.** | **7.55** | **7.85** | **4%** | **10,687,617** | **9,483,621** | **-11%** |
| Scope 1 | | 1.60 | 1.80 | 13% | 2,259,691 | 2,180,944 | -3% |
| Scope 2 | | 0.69 | 0.75 | 9% | 971,599 | 900,650 | -7% |
| Scope 3 | | 5.27 | 5.30 | 1% | 7,455,727 | 6,402,026 | -14% |
| **Primary energy demand** | **MJ** | **162.00** | **166.79** | **3%** | **229,329,629** | **201,546,389** | **-12%** |
| Renewable PED | | 36.15 | 36.34 | 1% | 51,169,793 | 43,915,185 | -14% |
| Non Renewable PED | | 125.85 | 130.45 | 4% | 178,159,836 | 157,631,204 | -12% |
| **Water footprint[11]** | **$m^3$** | **2.35** | **2.30** | **-2%** | **3,330,047** | **2,773,862** | **-17%** |

Compared to the baseline year of 2019, the total environmental impact of Homapal panels decreased across all the environmental indicators considered. Comparing the 2019 and 2021 results per unit of product ($m^2$), the impacts slightly increased. This was mainly due to variations in the specific productions, which led to an increase in the use of metallic foils, as well as to a slightly lower production efficiency due to decreased production volumes.

In the coming years we will continue focusing on the improvement activities mentioned in the previous sections in order to enhance the environmental performance per unit of product.

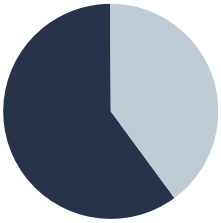
The total and per-unit LCA results of 2020 can be found in the Appendix.

[8] *Impacts for 2019 have been updated compared to the previous position paper in light of refinements to the LCA model.*
[9] *Global warming impact includes the $CO_2$ storage of the wood fibres present inside of our panels.*
[10] *The water footprint indicator shall be used with care due to high uncertainties and limited experience as mentioned in the EN15804-A2 standard. Thereby, the water footprint impact indicator in 2019 has been adjusted compared to the previous position paper to reflect an accurate comparison between the years.*

## Contribution analysis

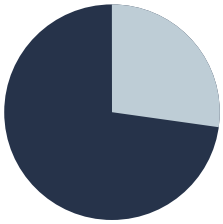
Each of the manufacturing steps described in the cradle-to-gate cycle contributes to a different extent to the total environmental impact of our laminates. Such impact originates from the manufacturing process itself (the energy and water consumed, waste produced and emissions generated) and from the production of the materials from which our panels are made. The chart below shows the contribution of the manufacturing process and raw materials for the three investigated environmental indicators: global warming ($CO_2$ emissions), primary energy demand and water footprint. As it can be seen in the figure below, a significant portion of the impact of our panels is attributable to the raw materials we buy, which guides our approach to making improvements to both our own operations and to the inputs we source.

**Global Warming**



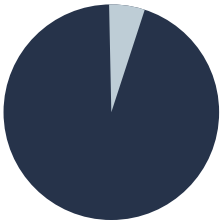
**63 % Material**
37 % Process

**Primary Energy Demand**



**72 % Material**
28 % Process

**Water Footprint**

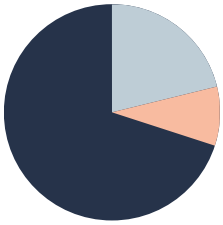


**94 % Material**
6 % Process

Additionally, global warming emissions ($CO_2$ emissions) have been further broken-down in three categories consistently with the Greenhouse Gas Protocol (see figure below):

- **Scope 1** – All direct emissions from the manufacturing plant, including fuel combustion, boilers and afterburners.
- **Scope 2** – Indirect emissions from electricity purchased and used by the plant.
- **Scope 3** – All other indirect emissions from external sources, namely: raw materials extraction, production and transportation; fuel extraction; waste disposal.

**Global Emissions ($CO_2$ emissions)**



21 % Scope 1 emissions
9 % Scope 2 emissions
**70% Scope 3 emissions**

## Cradle-to-gate impact reduction

The entire goal of Homapal's sustainability approach is to define specific targets and actions to reduce our environmental impact, while continuing to supply the same products you have come to expect. Our reduction targets for 2026 (baseline 2019) are:

- Global warming ($CO_2$ emissions): 10% reduction
- Primary energy demand (fossil): 5% reduction

We also aim to reduce our water consumption by 180,000 $m^3$ (which will not translate into a water footprint target as this indicator is almost completely affected by raw materials' production and not by internal water use).

In order to achieve the global warming target, Homapal is undertaking a series of activities and projects detailed in the table below.

| $CO_2$ emission reduction activity | Emission scope | $CO_2$ reduction potential | Status |
|---|---|---|---|
| **Energy efficiency**<br>optimise the use of thermal energy at e.g. the presses and boilers | Scope 1 | 4.9 % | Ongoing |
| **Sourcing of green power**<br>sourcing renewable electricity and heat | Scope 2 | 5.1 | Ongoing |
| **Sourcing renewable/ more sustainable raw materials**<br>including resins from biosources | Scope 3 | TBD | TBD |
| | | **Target reduction total: 10% (1,069,109 kg)** | |

## Balancing out emissions

Along with our internal improvement agenda outlined in the previous section, we also will consider offsetting our $CO_2$ emissions through the use of carbon credits.

We recognise that carbon neutrality is a long journey and there will be significant learnings along the way. As we progress through this process, we will leverage our experiences to update our approach, targets, and timelines. However, we believe it is vitally important to get started on this journey now, start the hard work of creating a more sustainable business, and becoming a leading steward of a better environment.

## Improving our LCA model

Another key component of our sustainability effort is reliable and transparent data embedded in our LCA model. The accuracy of an LCA model is entirely dependent on the data available; ensuring this data quality is at the forefront of our priorities. During the next five years, we will put forth a continuous effort toward increasing the breadth and accuracy of data collected in our plants. In LCA, there is a clear distinction between data collected on site (primary data) and data sourced from third parties (secondary data), with the former preferred over the latter. Given the significant role that raw material play in our products' LCA, we plan to continue to refine our data and collect inputs directly from our paper, chemical and metal suppliers to further improve the specificity and accuracy of that data. Combined, the end goal is to develop and maintain a highly accurate and actionable LCA model for our products.

# What do global warming, primary energy demand and water footprint mean?

**Global warming**

This indicator expresses how much heat greenhouse gases trap in the atmosphere. Greenhouse gases are a group of compounds that are able to absorb the infrared radiation released by the Earth surface heated up by the sun. The more greenhouse gases in the atmosphere, the more heat stays on Earth. The main greenhouse gases are carbon dioxide (which is also the most abundant greenhouse gas), methane, nitrous oxide and fluorinate gases. The global warming indicator is calculated in terms of carbon dioxide equivalents.

**Primary energy demand**

Primary energy is energy found in nature that has not been subjected to any conversion or transformation process (such as primary energy content in crude oil, natural gas, and biomass). Energy that is already converted will require primary energy to provide this "delivered energy" (e.g. steam, electricity or other thermal energy derived from any technical process). Primary energy demand indicates the amount of energy that a system under assessment has extracted from the natural environment.

**Water footprint**

In this paper the water scarcity footprint has been evaluated. This indicator assesses the amount of water consumed weighted by a scarcity indicator, hence accounting for differences in potential environmental impact of water use based on given regional differences in water scarcity.

# Appendix 1
# Why do we use cradle-to-gate scope?

We use the scope cradle-to-gate for our on-site LCAs, because we focus on the stages that are under our control and that we can influence. We can improve our processes to make them more efficient and we can select less impactful raw materials. Moreover, for the lifecycle stages that are after our factory gate, we currently don't have enough data which requires us to make additional assumptions in terms of the disposal of our panels. Lastly, we are currently waiting on upcoming regulations and a general consensus on the topic of carbon storage benefits of long-lasting products at the end of the life time.

For the Environmental Product Declarations (EPDs) instead, we use cradle-to-grave scope as required by the standards.

# Appendix 2
# Impact results for 2020

| Impact category | Unit | Impact per Unit 2020 | Total Impact 2020 |
|---|---|---|---|
| **Global warming**[11] | **kg $CO_2$ eq** | **8.26** | **9,077,296** |
| Scope 1 | | 1.80 | 1,972,133 |
| Scope 2 | | 0.78 | 856,925 |
| Scope 3 | | 5.69 | 6,248,238 |
| **Primary energy demand** | **MJ** | **170.53** | **187,294,986** |
| Renewable PED | | 36.00 | 39,534,056 |
| Non renewable PED | | 134.54 | 147,760,930 |
| **Water footprint** | **$m^3$** | **2.41** | **2,646,716** |

[11] *Global warming impact includes the $CO_2$ storage of the wood fibres present inside of our panels.*

12 2022

HOMAPAL GmbH
Bahnhofstraße 30/32
D – 37412 Herzberg am Harz

T +49 (0) 55 21 856 0
F + 49 (0) 55 21 856 20

homapal.de
info@homapal.de

HOMAPAL