MATERIALIZING SUSTAINABILITY

Think Trespa

TRESPA®

INTRODUCTION

SUSTAINABILITY IS NOT SOMETHING YOU DREAM ABOUT, BUT SOMETHING YOU DO. IT'S ABOUT ACTING. THIS IS WHY TRESPA ALWAYS TAKES ACTIONS THAT PROVIDE A 'WIN' FOR THE ENVIRONMENT, OUR BUSINESS, OUR COMPANY AND OUR CLIENTS. THIS IS HOW WE CONTINUOUSLY IMPROVE AND MATERIALIZE SUSTAINABILITY.

Sustainability at Trespa is about common sense, a fact based approach and complete integration in the business planning. It is not about achieving zero impact in the production process but about durability and a cradle-to-gate approach that allows materials and products to re-enter the production cycle and become new and even better products. Especially, sustainability is about creating the products and materials that are so important to people that there is no need to replace them.

THE COMPANY

TRESPA WAS FOUNDED IN 1960. THE COMPANY EXISTS TO CREATE MATERIALS THAT HAVE A POSITIVE IMPACT AND MEANING IN THE LIVES OF PEOPLE, ON SOCIETY, AND ON THE ENVIRONMENT AROUND US.

Since then we have been developing and producing high quality panels for exterior cladding, decorative façades and scientific surface solutions. Trespa's focus is on product development, combining quality-manufacturing technologies with intelligent solutions for architectural and scientific surface applications. Innovation has always been the cornerstone of Trespa, and it will continue to be the foundation of the company's future. In 2015, Trespa International B.V. developed in-house the next generation of its Electron Beam Curing (EBC) technology, which gives Trespa's HPL façade panels their exceptional weather resistance and colour stability, while giving the scientific surface applications their scratch and chemical resistance.

Trespa uses a strategic framework to steer its business towards durable long-term growth. This framework has four key elements: license to operate (LTO), market, cash & cost and capabilities. The thinking behind these elements is to control non-business risk, grow the business, maximize the contribution of growth and ensure that the right skills are on board for successful execution of all plans. Within these elements, the priority lies with our License To Operate, which includes topics such as:

1. Health and Safety of employees and the local community
2. Sustainability and the preservation of the Environment
3. Product compliance to meet regulatory requirements
4. Transparent (financial) reporting and appropriate behaviour by employees

Sustainability became key part of Trespa's LTO strategy in 2010 and a lot of effort has been put since then to improve our environmental performance through the implementation of a number of projects and activities.

SUSTAINABILITY INSIDE

TRESPA'S SUSTAINABILITY POLICY IS BASED ON A DEEPLY FELT MOTIVATION TO SHIFT FROM 'BEING LESS BAD' FOR THE ENVIRONMENT TO BEING 'GOOD' AND CREATING NEW VALUE.

DO NO HARM
Trespa will comply with safety, product and sustainability regulations and guidelines set by the countries in which it operates. In addition, Trespa is focused on materializing opportunities that minimize the environmental impact of its operations and products.

DO GOOD
Trespa will support its suppliers and customers in realizing their sustainability challenges. The environmental properties of Trespa's products are mentioned in the EPDs available to the market. Moreover, Trespa will continue to look for opportunities and initiatives to support and promote longer-term sustainability beyond the direct scope of its current operations.

DO BETTER
Trespa believes that investing in sustainability should be beneficial to the long-term position of the company. Many sustainability challenges constitute good business opportunities that will allow the company to continue to grow.

HANDS ON

MATERIALIZING SUSTAINABILITY REQUIRES A REALISTIC VISION, HANDS ON ACTION AND INTEGRATED APPROACH IN THE ENTIRE COMPANY. TRESPA HAS DEFINED 3 PRINCIPLES THAT SHAPE THE WAY OF THINKING AND ACTING.

COMMON SENSE
Trespa will use a common sense approach in addressing the topic of sustainability.

A product can never have a zero environmental footprint as certain interferences with the environment are unavoidable. By acknowledging that, it goes without saying that the pursuit of "zero impact" products is not the realistic answer to our sustainability challenges. On the other hand merely focusing on functionality does not lead to sustainable improvement. We believe in sensible middle ground: sustainability is a balancing act between "zero impact" and over-functionality. In other words: it means working to reduce the impacts without losing sight of functionality.

FACT-BASED APPROACH
At Trespa we firmly believe that you cannot manage what you do not measure. Addressing sustainability and environmental protection starts with the quantification of the impacts. How? The Life Cycle Assessment (LCA) methodology represents the most reliable and fact-based tool available to help companies, institutions and governments to systematically incorporate sustainability into their decision making process. LCA is defined as a process to evaluate the environmental burdens associated with the entire life cycle of a product, process, or activity. This is done through the identification and quantification of the energy and materials used and the wastes and emissions released into the environment.

By using a product life-cycle approach, Trespa constantly gets a clearer understanding of the actual impact we have on the environment. We identify the drivers of sustainability and prioritize initiatives across the entire value chain all the way down to the consumer's use of the product.

The unit of scale or reference to which the LCA results are referred relates to the given function of the product and it is called functional unit. For quantifying the functional unit, two aspects of the extent of the provided function are to be taken into consideration: the duration of use (in time) and the quantity of actual function provided. Based on the function of our product, the functional unit of 1 m^2 of HPL has been selected.

To express the results of the LCA assessment, three key environmental indicators have been selected based on the current global environmental challenges and what is relevant to our business: water footprint, global warming and primary energy demand.

INTEGRAL PART OF BUSINESS PLANNING AND REVIEW CYCLE

Trespa sets its priorities based on LCA studies and on realistic but challenging targets. All sustainability initiatives have been integrated into Trespa's rolling business planning and review cycle. The review cycle comprises annual target setting in the budgeting process, a monthly management review of progress measured in key performance indicators. In addition we have standardized the sustainability paragraph in the annual report. Each year new sustainability targets are set and formalized in a detailed *sustainability target agreement*. Progresses are closely monitored and discussed within the top management team of Trespa on a monthly basis during the regularly-held *sustainability meetings*. The latter were institutionalized already in 2011 and are now the well-established tool for tracking activities and progresses and brainstorming on new sustainability initiatives.

COMMON SENSE IN SUSTAINABILITY:

"It is not about 'zero'. It is about the perfect balance between impact and longevity/functionality."

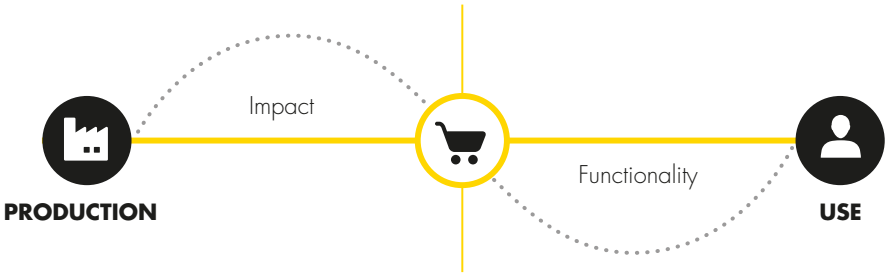


Figure 1. Sustainability as a balancing act

THE DRIVERS TO HPL SUSTAINABILITY

THE MAIN DRIVER TO SUSTAINABILITY: DURABILITY

As the sustainability performance of products is evaluated throughout their entire lifetime, durability, defined as reliability and long service life, is one of the major features of sustainable products. The longer the product lasts, the longer the period of time to spread the environmental impact associated with the production of those raw materials and the environmental costs that incurred in the product's manufacturing, such as energy, waste, and emissions. Furthermore, by implying fewer replacements, long-lasting products entail less use of resources, lower emissions of pollutants and a smaller amount of waste than short life-span goods, even when their production turns out to be more resource and energy-intensive. When prolonging the useful life-time of a product, the environmental impact decreases according the following equation:

$$LCimpacts_{LLT} = \frac{LCimpacts_{SLT}}{LLT/SLT}$$

Where:

- *$LCimpacts_{LLT}$ are the environmental life-cycle impacts associated with long (or longer) life-time (impacts per year of life-time);*
- *$LCimpacts_{SLT}$ are the environmental life-cycle impacts associated with short (or shorter) life-time (impacts per year of life-time);*
- *LLT is the length in years of long (or longer) life-time; and*
- *SLT is the length in years of short (or shorter) life-time.*

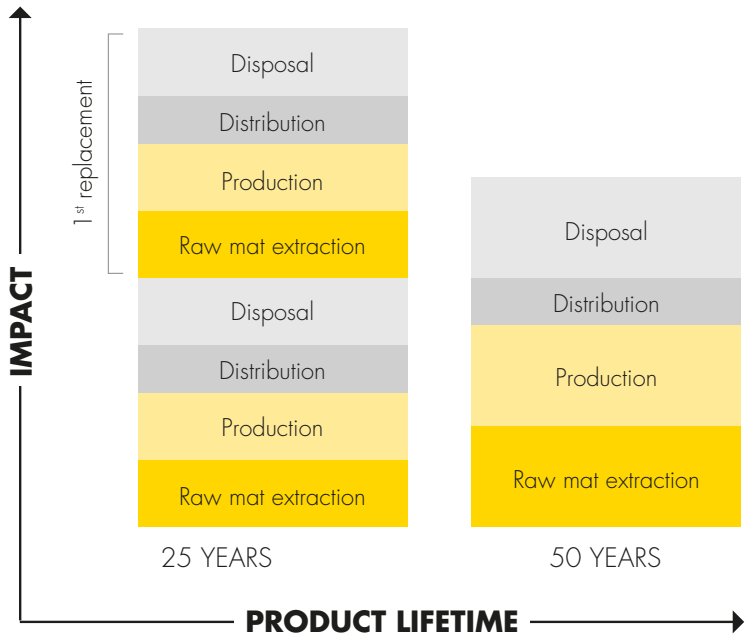


Figure 2. How product lifetime affects the environmental impacts

Durability represents the very starting point of our sustainability strategy and is the main driver to sustainable development in the long run. The effects of reducing the impact associated with goods' manufacturing are watered down by short life-cycles. The maximization of such effects arises from their combination with products' longevity.

The transition from short-lived and disposable items to long-lived and long-lasting products will mark an important point in the battle for a sustainable society.

All of our products and their exceptional quality are a result of this vision, as they are, by definition, very durable, long lasting materials.

BUILDING UP ON DURABILITY: CRADLE-TO-GATE APPROACH

Durability is the solid ground for Trespa's sustainability vision and approach. Still, we aim to further build on those foundations by making the manufacturing of our HPLs more and more sustainable through the reduction of the impacts arising from the cradle-to-gate part of HPL life cycle.

Our guiding principle is “do more with less”, enhancing the functionality of our products and at the same time reducing the inputs required to manufacture them.

Despite its simplicity, the implementation of such a principle is far from easy and its successful adoption relies on the firm commitment of the Company towards the protection of the environment.
The integration of sustainability within our LTO reflects our full engagement and commitment in this sense.

This is the key for addressing the big challenge of “doing more with less” effectively and ultimately becoming more and more sustainable.

Additionally, a further step towards lowering our environmental burden is the replacement of the most impacting materials and processes with innovative solutions characterized by better performances. Being a technology-driven Company helps us a great deal in moving with agility in this direction.

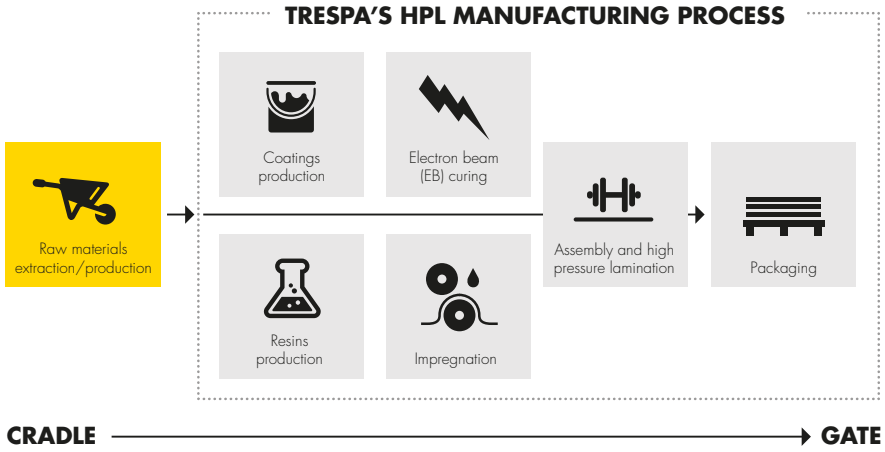
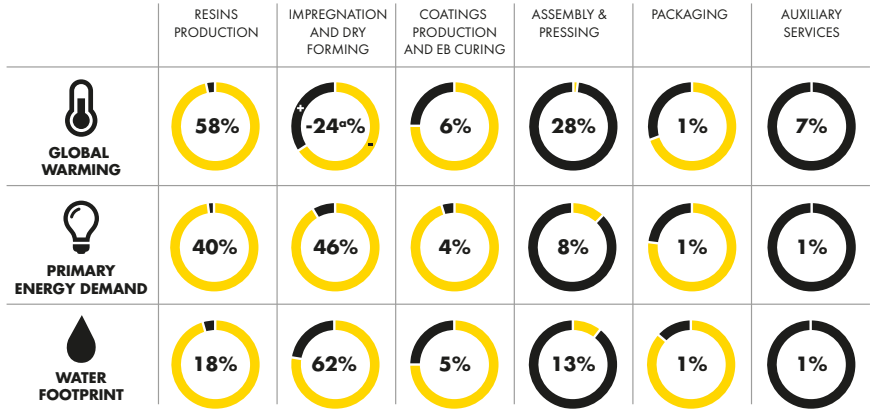


Figure 3. Cradle-to-gate boundaries of HPL life-cycle.

WHAT CONTRIBUTES TO OUR CRADLE-TO-GATE IMPACT

Each of the manufacturing steps described in Figure 3 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 our panels are made of. In the table below, the contribution of the main manufacturing stages is indicated as a percentage over the total HPL production’s impact. Such contribution is in turn split (doughnut charts) into the share attributable to process itself - energy consumed, waste and emissions occurring at that specific manufacturing stage—and the one due to the materials used.



[a] Negative value due to environmental benefits associated with the CO_2 sequestered by the wood used as raw material. The doughnut chart shows that the CO_2 sequestered by the wood (-) is approximately two times the CO_2 emitted during the impregnation and dry forming process (+).

Process contribution
Materials contribution

Figure 4. Craddle-to-gate impact contribution

OUR JOURNEY TOWARDS SUSTAINABILITY: INITIATIVES AND ACTIVITIES

LIFE-TIME EXTENSION INITIATIVE: THE TRESPA SECOND LIFE PROGRAMME

In light of the environmental benefits arising from life-time extension (explained in the section "The main drivers to sustainability" in page 8), Trespa launched in 2018 the Second Life Programme. The Trespa® Meteon® exterior panels sold within this program frame work will be collected and given a second life after dismantling, instead of being disposed.

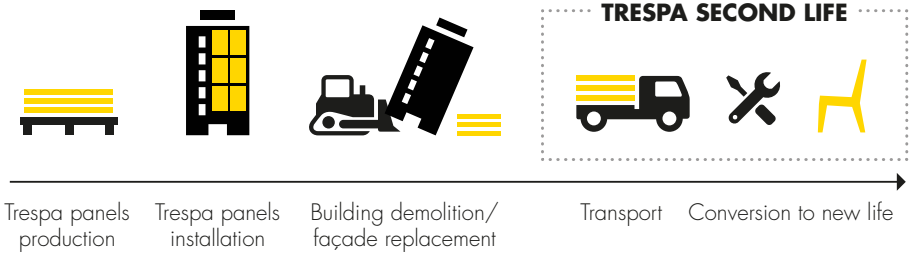


Figure 5. The Trespa Second Life Programme.

Whether a building is demolished or a façade is replaced for aesthetical reasons, Trespa® Meteon® façade panels keep their functionality long after their service life on buildings has come to an end and can therefore still be used or converted in many different applications. The technical lifetime or longevity of Trespa® Meteon® panels can in fact exceed their service life, which is the period of time from the point of sale to the point of discard. Trespa will collect and take care of the conversion of the HPL panels giving them a second life.

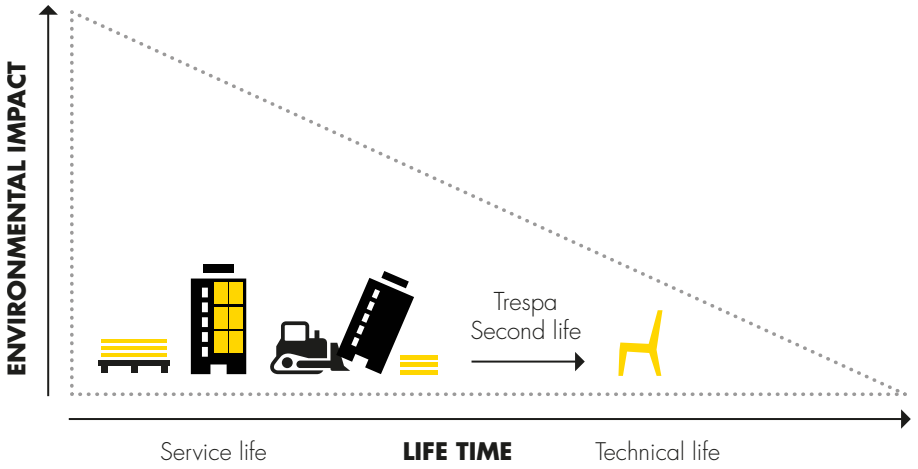


Figure 6. Graphical representation of the environmental benefits associated with the Trespa Second Life Programme.

THE ACTIVITIES

We identified three different and intertwined roads leading to sustainability and we are travelling along all three of them in order to make our process more and more sustainable in the coming years. Education and measurements are the pillars on this three-fold approach, whose routes are: the engagement of our stakeholders in our (and their) sustainability challenge, the improvement of our LCA model to get sounder and sounder results and the reduction of our cradle-to-gate impacts through the implementation of resource-efficiency activities and the replacement of the most impactful factors.

Engaging our stakeholders

Each and every one of us can contribute to make the world more sustainable and the same principle applies to our Company: every employee, supplier and customer plays a role in the sustainability challenge that lies before us. That is why we aim to educate our stakeholders in sustainability and encourage them to embrace a consistent approach to sustainability. We are reaching out to the suppliers that contribute the most to our impact, to explain them our ambitions and goals and to find with them opportunities that will help us to meet our targets.

Moreover, trainings and regular updates are given to our top management, R&D team, production coordinators and sales department, our sustainability philosophy and approach are explained to every new employee coming aboard. We commit ourselves to informing all our people of the initiatives we undertake to lower our impact and to enhance our efforts towards environment protection.

Improving our LCA model
The accuracy of LCA models is very much dependent on the data available. Data quality is at the forefront of our priorities. In LCA a clear distinction is made between data collected on site (primary data) and generic average data (secondary data), with the former being preferred over the latter. We have started collecting inputs for our LCA model from our suppliers directly instead of retrieving average data from databases. This year we got data from our paper suppliers and started to collaborate with some of our chemicals suppliers. At the same time, we are putting continuous efforts to increase the accuracy of data collected in our plant.

Cradle-to-gate impact reduction
As mentioned earlier in this paper, Trespa aims to work on the cradle-to-gate portion of HPL's life cycle to reduce its environmental impact, while keeping the bar straight on product's functionality.

From a practical point of view, Trespa is putting a lot of efforts into reducing the amount of energy required to produce its laminates, aiming at decreasing the consumption of natural gas by 20% by 2022 by carefully optimizing the HPL manufacturing process. In order for that to happen a thorough energy monitoring plan is being put in place across all production department.

Furthermore, we are increasing the use of wood chips at the expense of the more energy consuming paper, affecting – and lowering - the impact associated with raw materials production (cradle of the life cycle).

As Trespa believes in materials improvement and development as part of its sustainability strategy, it is relevant to mention in this document that a new research centre, named Next Material House (Nehmo), will be created in 2020 expanding further our technological capabilities.

2022 CRADLE-TO-GATE TARGETS AND PROGRESS

Based upon a series of activities and projects —that are planned to be implemented by 2022—we, in 2018, defined our "impact reduction targets" as follows (NB: 2015 results are used as a reference):

- Global warming: -8%
- Primary energy demand: -4%
- Water footprint: -5%

In 2018 we carried out a few changes aimed at positively affecting the sustainability performance of our panels, namely:

- Increasing the use of wood chips; thus achieving a higher wood chips/paper ratio in our panels.
- Improving our resource efficiency by reducing steam usage and the amount of waste produced.

Figure 7 shows the 2018 LCA results compared to the reference year (2015). The primary energy demand category has been split into its two components, "renewable" and "non-renewable" resources, as they can be differentiated in terms of LCA behavior. Whilst renewable resources are naturally replenished on a human timescale, non-renewables cannot be readily replaced by natural means on a level equal to their consumption because their formation takes billions of years. Hence, the use of renewable resources is to be preferred over non-renewable resources, the reduction of which should be considered a priority.

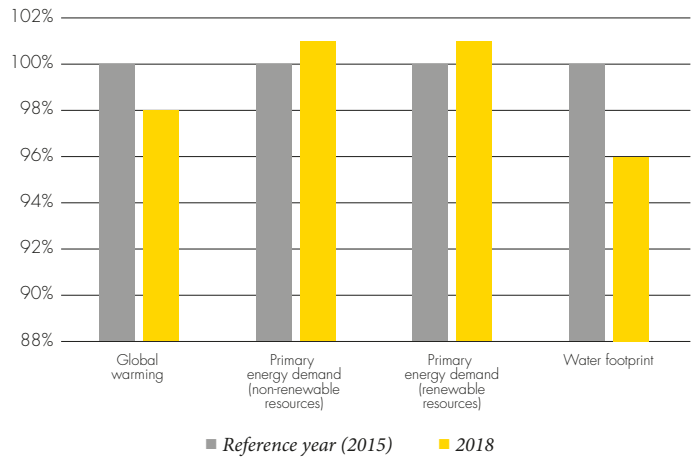


Figure 7. Sustainability performance trend of Trespa HPL (1 m²).

Between 2015 and 2018 the global warming impact of 1 m² of packaged Trespa HPL panel at the plant gate improved by 2%—thanks to the increased use of wood chips. A bigger improvement can be seen in the water footprint category, where the reduction of the impact by 4% is mainly due to an increased efficiency in the use of resources (reduced waste generation). The positive effect of using wood chips and reducing waste were nonetheless diluted by the change in the mix of products produced and sold, which occurred between 2015 and 2018. In year 2018 we witnessed an increase in the market demand of fire-retardant panels, the impacts of which is higher compared to the standard ones. Since the LCA results derive from an annual average performance of the laminates manufactured and sold by Trespa, the market plays a role in determining the mix of inputs and hence of the environmental footprint of our average laminate. For this very reason, the primary energy category got slightly worse in 2018, despite the higher steam efficiency that we have been able to achieve.

In order to highlight the improvements we implemented in 2018 and exclude the effects generated by the market, an element upon which we do not have full control, so the same mix of products was assumed for both the reference year and 2018. Figure 8 shows the results of this scenario. It can be concluded from this that between 2015 and 2018: the global warming impact of one 1 m² of Trespa HPL improved by 6.5%, water footprint by 5%, and the non-renewable primary energy demand by 3%. At the same time we increased the use of renewable resources by 2%.

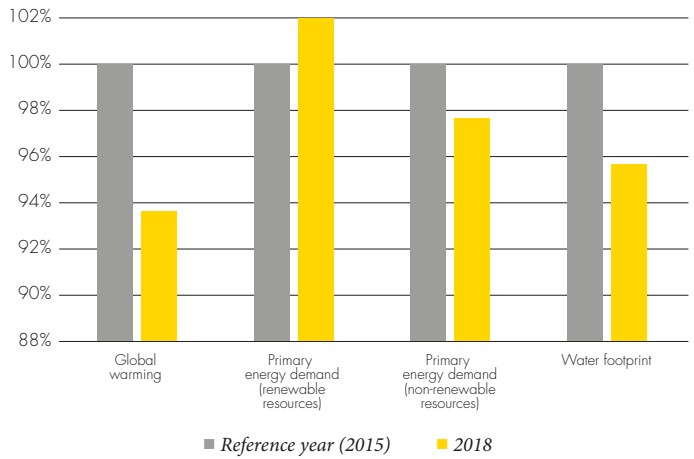


Figure 8. Sustainability performance trend of Trespa HPL (1 m²) – constant product mix.

APPENDIX

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. So 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 is e.g. steam or other thermal energy derived in any technical process, or electricity will require primary energy to provide this "delivered energy". Primary energy demand indicates amount of energy that 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.

LCA SCORES

In this section, the LCA absolute values for the assessed impact categories are specified. These values are expressed per m² of HPL (weighting 11.2 kg), which represents our unit of reference.

IMPACT CATEGORY	UNIT	SCORE REFERENCE YEAR	SCORE REFERENCE YEAR (2018 PRODUCT MIX)	SCORE 2018
Global warming	kg CO_2 eq./m² HPL	13.84	14.48	13.54
Primary energy demand	MJ/m² HPL	736.62	749.14	741.72
Water footprint	m³/m² HPL	0.55	0.56	0.53

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Should you have any questions or comments, please do not hesitate to contact Trespa.

CONTACT US

TRESPA INTERNATIONAL B.V.
P.O. Box 110, 6000 AC Weert
Wetering 20, 6002 SM Weert
The Netherlands
www.trespa.com

CUSTOMER SERVICE DESK EMEA EXPORT
Tel: +31 (0) 495 458 839
Info.Export@Trespa.com

CUSTOMER SERVICE DESK THE NETHERLANDS
Tel: +31 (0) 495 458 850
Info.Nederland@Trespa.com

TRESPA BELGIUM BVBA/SPRL
H. van Veldekesingel 150 B. 19
3500 Hasselt
Belgium
Tel: 0800 15501
Grand Duché de Luxembourg
Tel: 0800 73003
Info.Belux@Trespa.com

TRESPA DEUTSCHLAND GMBH
Johannstrasse 37 3rd floor
40476 Düsseldorf
Germany
Tel: 0800 186 04 22
Info.Deutschland@Trespa.com

TRESPA UK LTD.
35 Calthorpe Road
Edgbaston
Birmingham, B15 1TS
United Kingdom
Tel: 0808-2340268
Info.UK@Trespa.com

TRESPA FRANCE S.A.R.L.
15 Place Georges Pompidou
78180 Montigny-le-Bretonneux
France
Tel: +33 (0) 1 34 98 16 67
Info.France@Trespa.com

TRESPA IBERIA
Calle Ribera 5,
08003 Barcelona
Spain
Tel: +34 (0) 93 315 04 47
Info.Iberia@Trespa.com

TRESPA ITALIA SRL
Via Cappuccini, 6
20122 Milano (MI)
Italia
Tel: +31 (0) 495 458 837
Info.Italia@Trespa.com

TRESPA NORTH AMERICA LTD.
350 Fifth Avenue, Ste 4610
New York, NY 10118
United States of America
Tel: +1 800 487 3772
Info.NorthAmerica@Trespa.com

TRESPA CHILE LTDA.
Eliodoro Yáñez 2831
Torre A - Local 1
Providencia, Santiago
Chile
Tel: +56 2 4069990
Info.Chile@Trespa.com

TRESPA CHINA CO. LTD.
Room 2604-05, HuaiHai Plaza
No. 1045 HuaiHai Road (central)
ShangHai 200031
P.R. China
Tel: +86 (0) 21 6288 1299
Info.China@Trespa.com

CUSTOMER SERVICE DESK ASIA/PACIFIC
Tel: +86 (0) 21 5465 8388
Info.APAC@Trespa.com

VISIT US

TRESPA DESIGN CENTRE WEERT
Wetering 20
6002 SM Weert
The Netherlands
Tel: +31 (0) 495 458 845
TDC.Weert@Trespa.com
www.trespa.com/tdc

TRESPA DESIGN CENTRE BARCELONA
Calle Ribera 5,
08003 Barcelona
Spain
Tel: +34 (0) 93 295 4193
TDC.Barcelona@Trespa.com
www.trespa.com/tdc

TRESPA DESIGN CENTRE SANTIAGO
Eliodoro Yáñez 2831
Torre A - Local 1
Providencia, Santiago
Chile
Tel: +56 2 4069990
TDC.Santiago@Trespa.com
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