



MATERIALIZING SUSTAINABILITY

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.

In this 5th Trespa sustainability position paper, as a kick off of a new series of publications, we want to share our past, present and future on sustainability. We hope it inspires you to materialize sustainability every day too.

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. Trespas 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 Trespas, and it will continue to be the foundation of the company's future. In 2015, Trespas International B.V. developed in-house the next generation of its Electron Beam Curing (EBC) technology, which gives Trespas HPL façade panels their exceptional weather resistance and colour stability, while giving the scientific surface applications their scratch and chemical resistance.

Trespas 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 Trespas 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

Trespas will comply with safety, product and sustainability regulations and guidelines set by the countries in which it operates. In addition, Trespas is focused on materializing opportunities that minimize the environmental impact of its operations and products.

DO GOOD

Trespas will support its suppliers and customers in realizing their sustainability challenges. The environmental properties of Trespas products are mentioned in the EPDs available to the market. Moreover, Trespas 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

Trespas 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 refer 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 m² of HPL has been selected. To express the results of the LCA assessment, three key environmental indicators (compared to the six of the past) have been selected based on the current

global environmental challenges and what is relevant to our business: water footprint (introduced here for the first time), global warming and primary energy demand. Though the impacts of eutrophication, acidification, photochemical oxidant formation and ozone depletion considered in the previous studies are still assessed, we narrowed focus based on the twofold criterion of global-urgency and product-relevance. This choice has been made for the sake of clear communication and of the efficiency of our decision-making process.

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 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.”

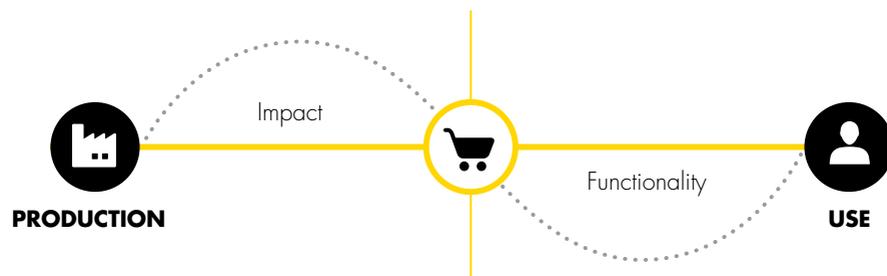


Figure 1. Sustainability as a balancing act

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.

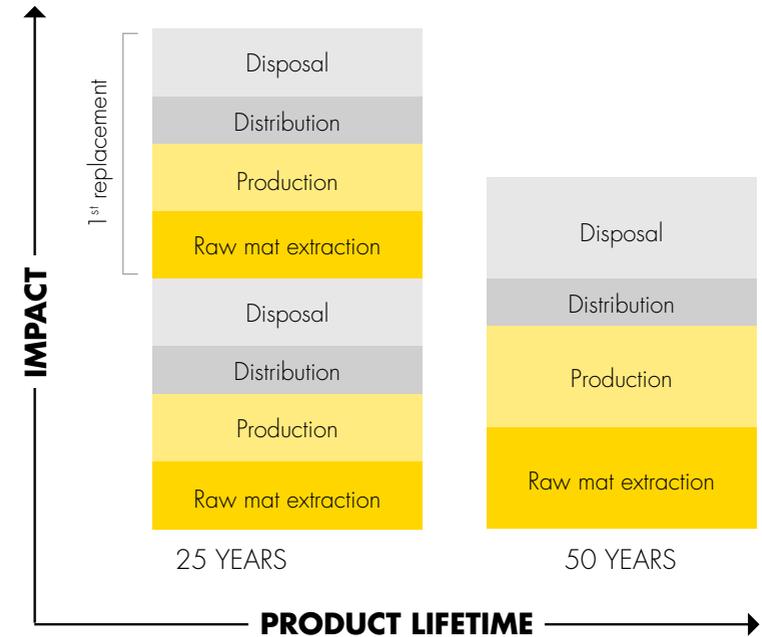


Figure 2. How product lifetime affects the environmental impacts

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

WHAT WE DID SO FAR: OUR LEARNINGS AND PROGRESS

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.

OVER THE PAST YEARS TRESPA PUT A LOT OF EFFORT IN EMBRACING A SUSTAINABLE APPROACH BY MEASURING AND IMPROVING ITS ENVIRONMENTAL IMPACTS.

Our journey towards sustainability started back in 2010 and since then 4 LCA studies were carried out by a renowned consultancy company.

The undertaken LCA studies enabled us to:

1. Better understand our mass and energy flows/balances, which lead to the installation of additional measuring systems or the calibration of the existing ones.
2. Identify the major contributors to our impact.
3. Put in place a number of improvement activities aimed at reducing the energy consumed and the waste generated on site.

of detection sensors in less frequently visited areas, the replacement of the high energy consuming vacuum pumps in the press department by a more efficient Venturi system, the adoption of a new, more efficient steam boiler instead of the old one.

Given its strategic relevance, the sustainability and LCA function was brought in-house starting from end 2016. Having more grip on and control of sustainability and LCA enables us to efficiently build a consistent sustainability culture within the Company, to radiate such culture across all our stakeholders even beyond the Company boundaries and of course to better track our progresses. The LCA scores of the last LCA study outsourced and the one performed in house were compared and found consistent.

Concerning this last point, the implemented improvement plan includes, among others: the replacement of high energy consuming electrical motors in various locations, the replacement of all lighting by low energy consuming LED lighting and the installation

Each of the manufacturing steps described in Figure 3 above contributes to a different extent to the total environmental impact of our laminates. Such impact originates

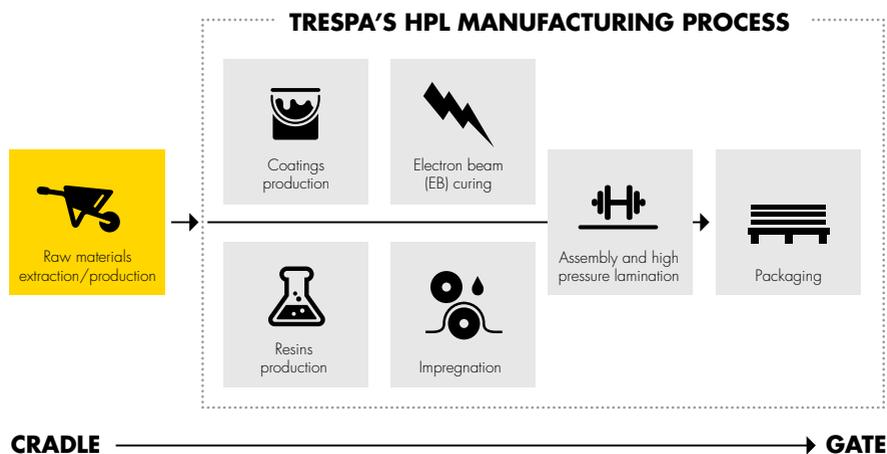
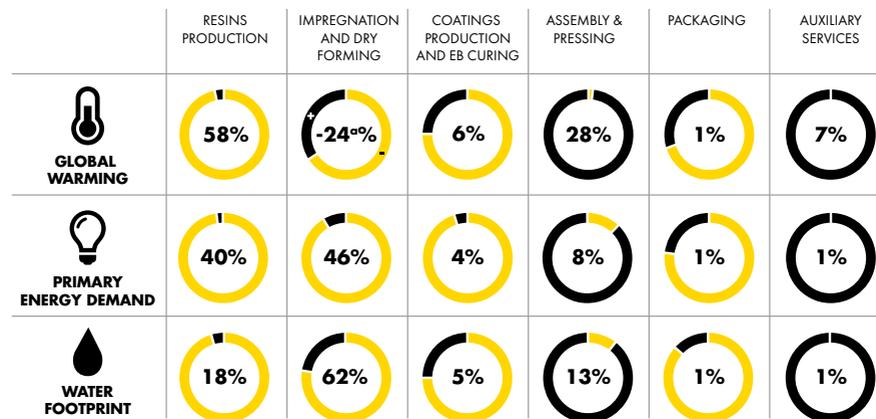


Figure 3. Cradle-to-gate boundaries of HPL life-cycle.

WHAT IS AHEAD: SUSTAINABILITY ROAD MAP TO 2022

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 CO₂ sequestered by the wood used as raw material. The doughnut chart shows that the CO₂ sequestered by the wood (-) is approximately two times the CO₂ emitted during the impregnation and dry forming process (+).

Process contribution
 Materials contribution

LIFE-TIME EXTENSION: THE SECOND LIFE TRESPA PROGRAM

In light of the environmental benefits arising from life-time extension (explained in the paragraph “The main drivers to sustainability”), Trespas decided to launch

the Trespas Second Life program. The Trespas[®] Meteon[®] exterior panels sold within this program frame work will be collected and given a second life after dismantling, instead of being disposed.

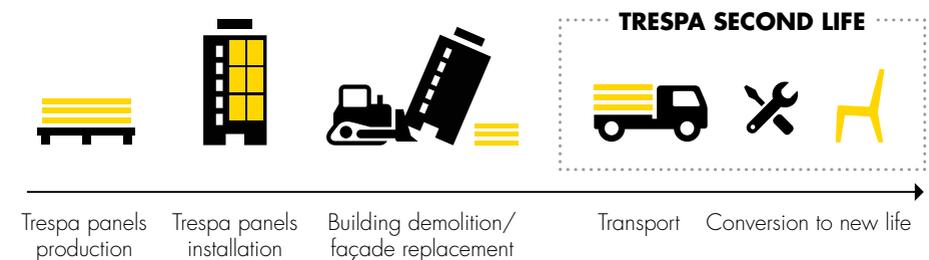


Figure 4. The Trespas Second Life program.

Whether a building is demolished or a façade is replaced for aesthetical reasons, Trespas[®] 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 Trespas[®] 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. Trespas will collect and take care of the conversion of the HPL panels giving them a second life.

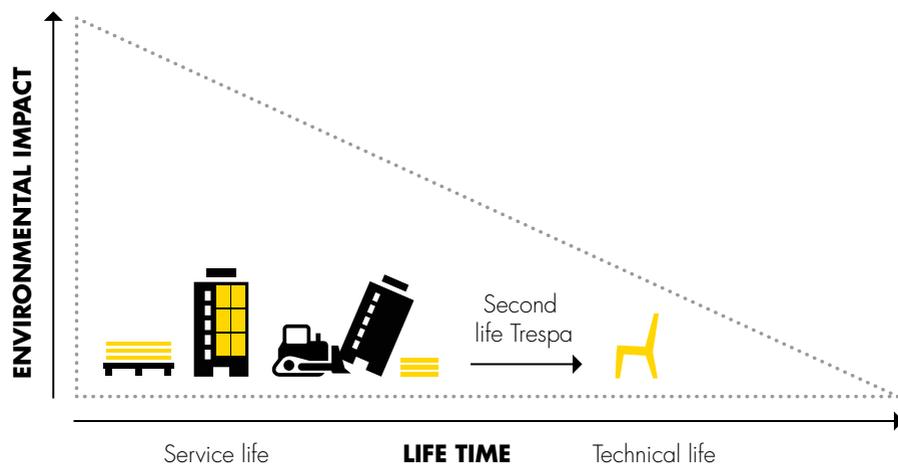


Figure 5. Graphical representation of the environmental benefits associated with the second life Trespa project.

CRADLE-TO-GATE TARGETS

Over the next 5 years, we plan to implement a series of activities and projects which will probably reduce our environmental impact (compared to the 2015 results) as follows:

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

The 2015 in-house LCA results used as a reference for setting these targets are consistent, as specified earlier, with the scores found by the external consultant company for the same year.

The activities

We identified three different and intertwined roads leading to sustainability and we plan to travel 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. In the next 5 years, we will

reach 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 will be given to our top management, R&D team, production coordinators and sales department, our sustainability philosophy and approach will be 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 plan to start collecting inputs for our LCA model from our suppliers directly instead of retrieving average data from databases. In the next 5 years, we aim at getting data from our paper and chemicals suppliers. At the same time, we will put 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% over the next 5 years 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 departments.

Furthermore, we will increase the use of wood chips at the expenses 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 (Nemho), will be created in 2020 expanding further our technological capabilities.

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
Global warming	kg CO ₂ eq./m ² HPL	13.6
Primary energy demand	MJ/m ² HPL	799
Water footprint	m ³ /m ² HPL	9.3

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QUESTIONS

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