LE PAVE®

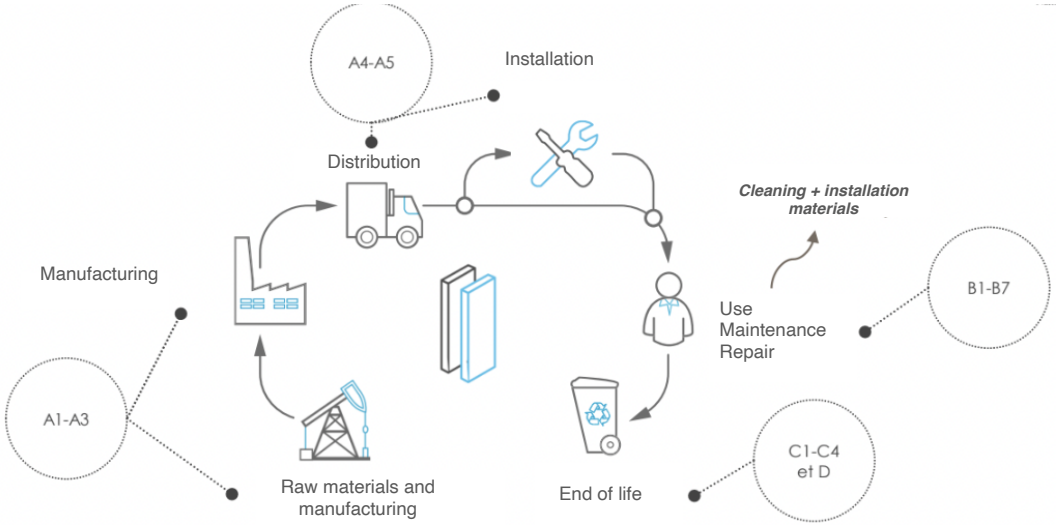
Life Cycle Analysis - SoftSurface PS 14.10.2024

EPD RESULTS - General different stages of the life cycle

EPD
THE INTERNATIONAL EPD SYSTEM

FULL LCA RESULTS INCLUDE THE ENTIRE LIFE CYCLE

- **Manufacturing stage A1-A3**: raw materials, supply of MP, manufacturing
- **Implementation stage A4-A5**: transport to site/ distributor and installation
- **Implementation life stage B1-B7**: maintenance and repair throughout the product life
- **End-of-life stage C1-C4**: removal, transport to end-of-life management sites and impact of options (incineration, landfill, recycling)



FUNCTIONAL UNIT

EPD RESULTS - Elements of the life cycle contributing to the environmental impact

Dimensions
15mm
15,5 kg per m2

Plastic material
rPS post consumer
Supply <325 km

Intern process
<23 kWh/m2
Net water use : none / production waste is recycled

M3S Adhesive
Silane-modified polymer-based adhesive - 100.1 g
Origin: Europe

Clamex
Fiberglass-reinforced plastic and zinc - 53.6 g
Origin: Europe

Processes
Sanding: 2 min/m²
Screwing
Loss during implementation: 10%

Screws
Stainless steel - 6.9 g
Origin: Europe

Screw Cover Caps
100% recycled PS - 10.8 g
Origin: France
Transport: 300 km by truck

→ Facilitated removal through mechanical assembly and reduced bonding for jointing

352 KM

Europe
% of sales: 12.6%
Distance: 703 km
Transport: 100% road

France
% of sales: 87.4%
Distance: 303 km
Transport: 100% road

→ Increased impact of delivery with international opening

Cleaning*
Water: 5.7 L/tear
Vinegar: 5.4 g/year

Repair
Sanding: every 3 years, 15 min/m2

**Conservative scenario: 50% horizontal case and 50% vertical case*
Vertical case: Typical consumption per panel of 1L water/year + 0.1 g detergent applied 4 times/year
Horizontal case: 0.1L water twice a week (e.g., countertop use), or even daily

→ Extended product life through gentle cleaning and repair

(France scope)

Landfilling

Panel: 74%
Cardboard packaging: 16%
PE film packaging: 49%
Pallet: 38%

Incineration and Energy Recovery

Panel: 9%
Cardboard packaging: 19%
PE film packaging: 51%
Pallet: 62%

Recycling

Panel: 17%
Cardboard packaging: 65%
PE film packaging: 0%
Pallet: 0%

→ Packaging as well as panels are recycled according to the national scenarios' rates for building waste, for each material

EPD RESULTS - SoftSurface™ PS different stages of the life cycle

EPD
THE INTERNATIONAL EPD SYSTEM

SoftSurface™ 15 mm Le Pavé =

	Complete ACV		Phases A1-A3		
Impact category	Total per kg	Total per m2, 15mm-panel	Cradle to gate per m2, 15mm-panel	Cradle to gate per m3	Cradle to gate per kg
Climate change	1,35	21,19	9,95	663,53	0,632

in kg CO2 equivalent

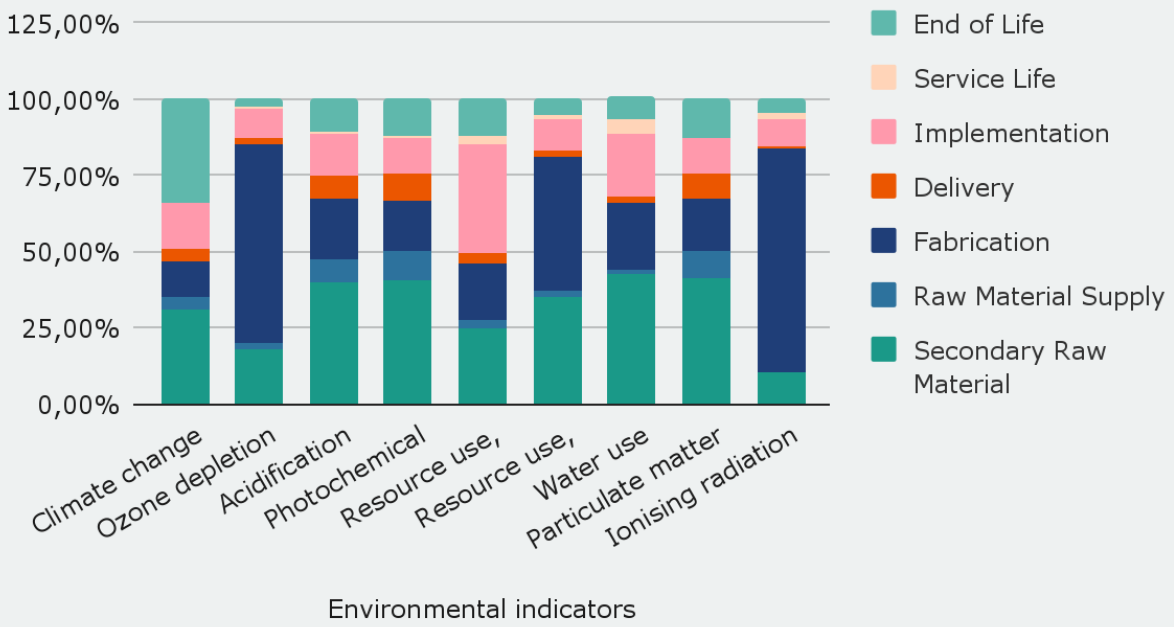
While Global Warming contribution of the incineration of 1kg PS = 2,97 kg eq. CO2/kg

The product impacts the environment in several ways; here we decided to express the contributions to 3 environmental indicators :

- *global climate change,*
- *acidification of ecosystems*
- *depletion of fossil energy resources*

EPD RESULTS - Overview of the contribution of each stage of the life cycle on the total impact

CONTRIBUTION TO MAIN ENVIRONMENTAL FACTORS



SoftSurface™
12 mm Le Pavé

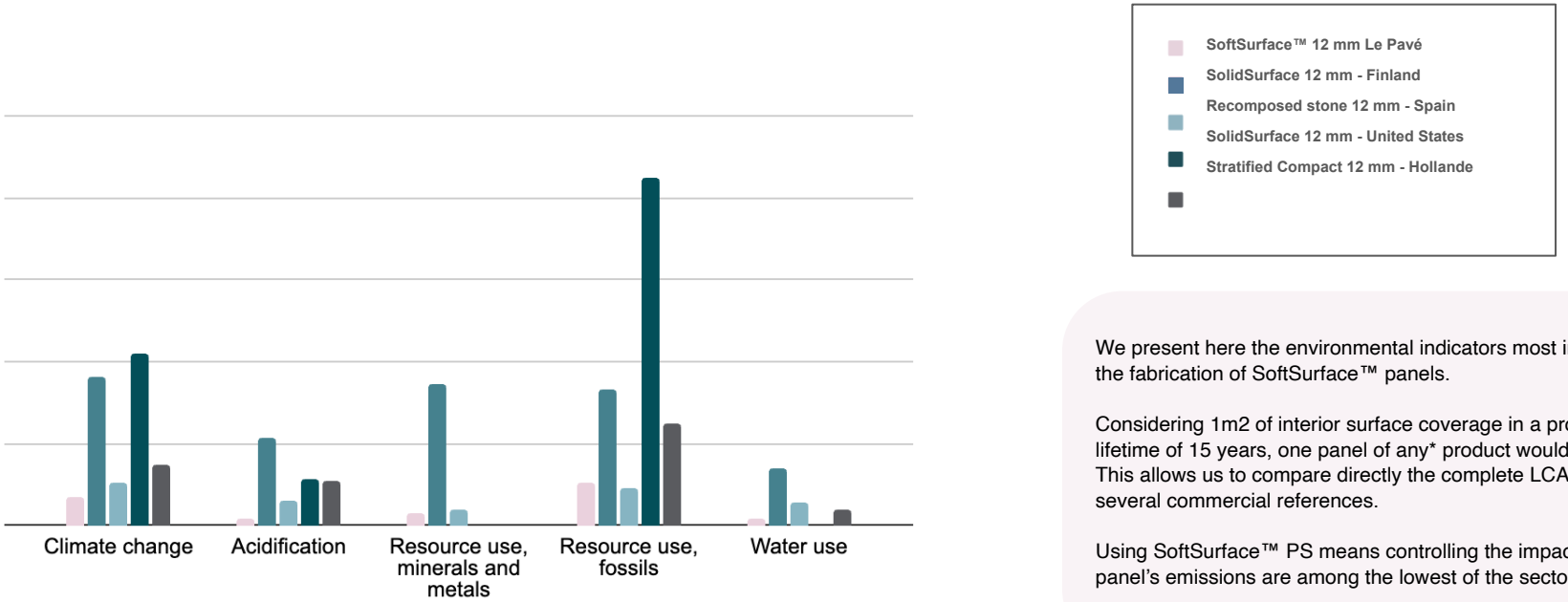
MAIN CONTRIBUTION TO

Climate Change:
40% Recycled plastic material
35% End of Life
10% Installation
10% Transportation

Fossil Resource Depletion:
40% Material Cost
40% Production
20% Use and End of Life

Methodologies : EPD International vV5 0.0 & BOARDS, BLOCKS, PANELS, SHEETS OF PLASTICS, OR IN COMPOSITE SYSTEM, FOR STRUCTURAL APPLICATION (NON-CONSTRUCTION) V1.0.3

EPD RESULTS - Complete LCA of SoftSurface™ PS compared to other materials



We present here the environmental indicators most impacted by the fabrication of SoftSurface™ panels.

Considering 1m2 of interior surface coverage in a project with a lifetime of 15 years, one panel of any* product would be needed. This allows us to compare directly the complete LCA results of several commercial references.

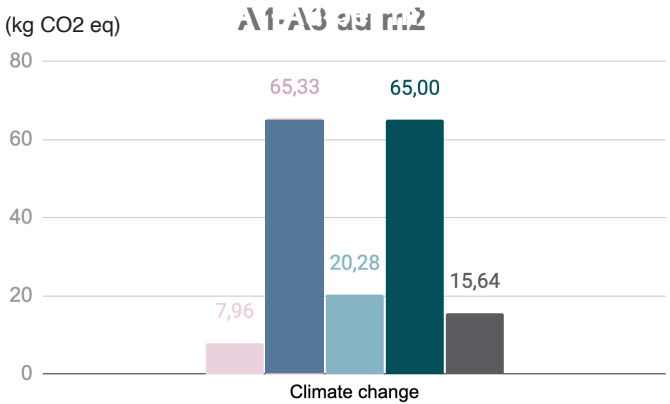
Using SoftSurface™ PS means controlling the impact since the panel's emissions are among the lowest of the sector.

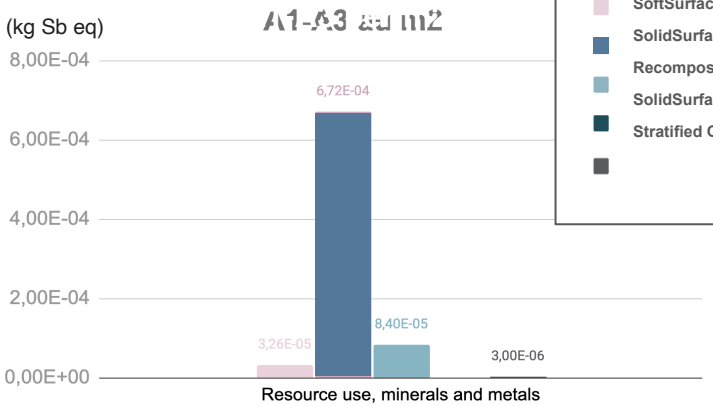
→ Compared to other solutions, our SoftSurface™ has a very low environmental impact

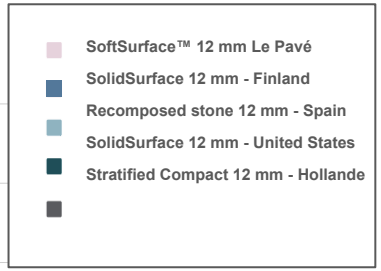
Comparison on phases A-C
Some variations can be due to the fact that some phases of the LC are not taken into account for some products : transport to construction site or certain use stage phases.
Data for SolidSurface - United States on 2 indicators (Mineral depletion and water deprivation) were not communicated in the EPD.
No replacement phase (B4) was taken into account.
Results for SoftSurface PS 12mm were calculated from our EPD results on PS 15mm using surfacic or massic factors depending on the phase

Coefficients have been applied on actual figures in order to allow visualization of all indicators on a single graph regardless their order of magnitude

EPD RESULTS - SoftSurface™ PS compared to other materials 1/2







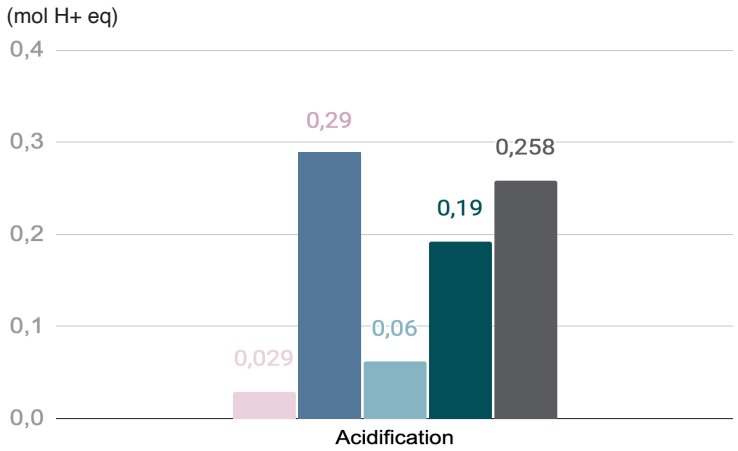
The emission of greenhouse gases generated in order to obtain 1m2 of SoftSurface™ is about the lowest among most Compact Surfaces and represents only 15% of the emission from Solid Surfaces.

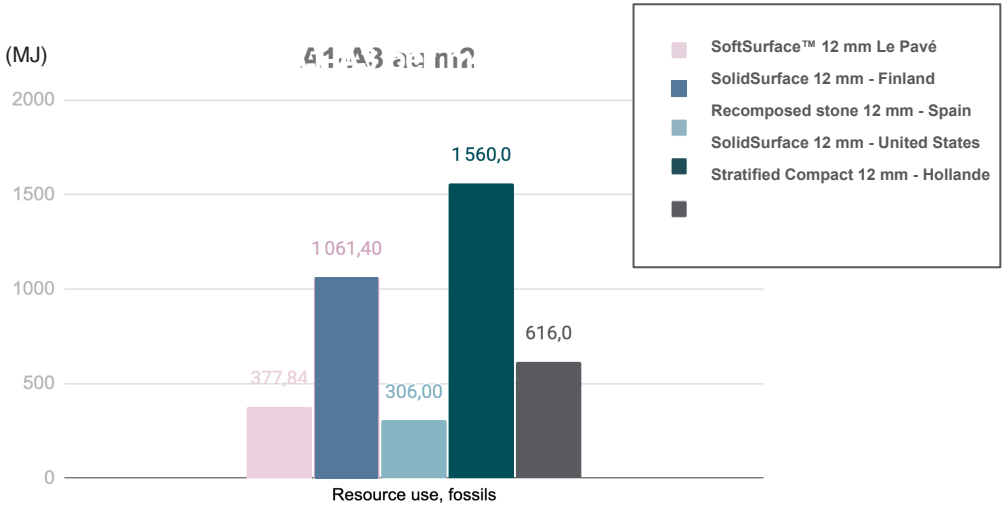
30% of the impact of SoftSurface™ in the depletion of mineral and metallic resources can be accounted for by the preconisation of Clamex.
SolidSurface - United States, with its ATH content, is expected have a comparable impact as SolidSurface - Finland on that indicator

→ Efficient product design, recuperation could be encouraged more

*The assumptions made by the manufacturers of the materials used vary significantly depending on the EPDs we were able to study. Thus, to facilitate the comparison, we decided to focus on the concrete data given between phase A1 and A3 including the raw material and the manufacturing phase.***
Results for SoftSurface PS 12mm were calculated from our EPD results on PS 15mm using a thickness factor.

EPD RESULTS - SoftSurface™ PS compared to other materials 2/2





In the meantime, the emission of acid gases having an impact on the aquatic species, soils and flora is among the lowest and up to 10 times lower than conventional alternatives

The energy consumption needed for such production is also comparable to the depletion of fossil resources induced by the Compact products. It remains 2 to 3 times lower than solid surfaces

→ Production facility already efficient but can be optimized

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Results for SoftSurface PS 12mm were calculated from our EPD results on PS 15mm using a thickness factor.

EPD DATA - Complete LCA and Cradle to gate results of SoftSurface™ PS compared to other materials

			SOLID SURFACE	SOLID SURFACE	COMPACT
Unité: kg CO2 eq.			33% Mineral, 67% Resin Polyester	70% ATH, 30% PMMA	Papier, résine phénolique
	Le Pavé PS 15mm	**Le Pavé PS 12mm**	**Finland 12mm**	**USA 13mm**	**HPL Compact 12mm**
Climate change m2 A1-A3	9,95	7,97	65,33	65,00	15,64
Climate change kg A1-A3	0,63	0,63	3,57	3,01	1,93
Climate change total m2	21,19	17,62	90,92	105,10	37,5192
Climate change total kg	1,35	1,40	4,97	4,87	5,9554
Facteur					
Climate change m2 A1-A3		1	8,2	8,2	2,0
Climate change kg A1-A3		1	5,6	4,8	3,1
Climate change total m2		1	5,2	6,0	2,1
Climate change total kg		1	3,6	3,5	4,3