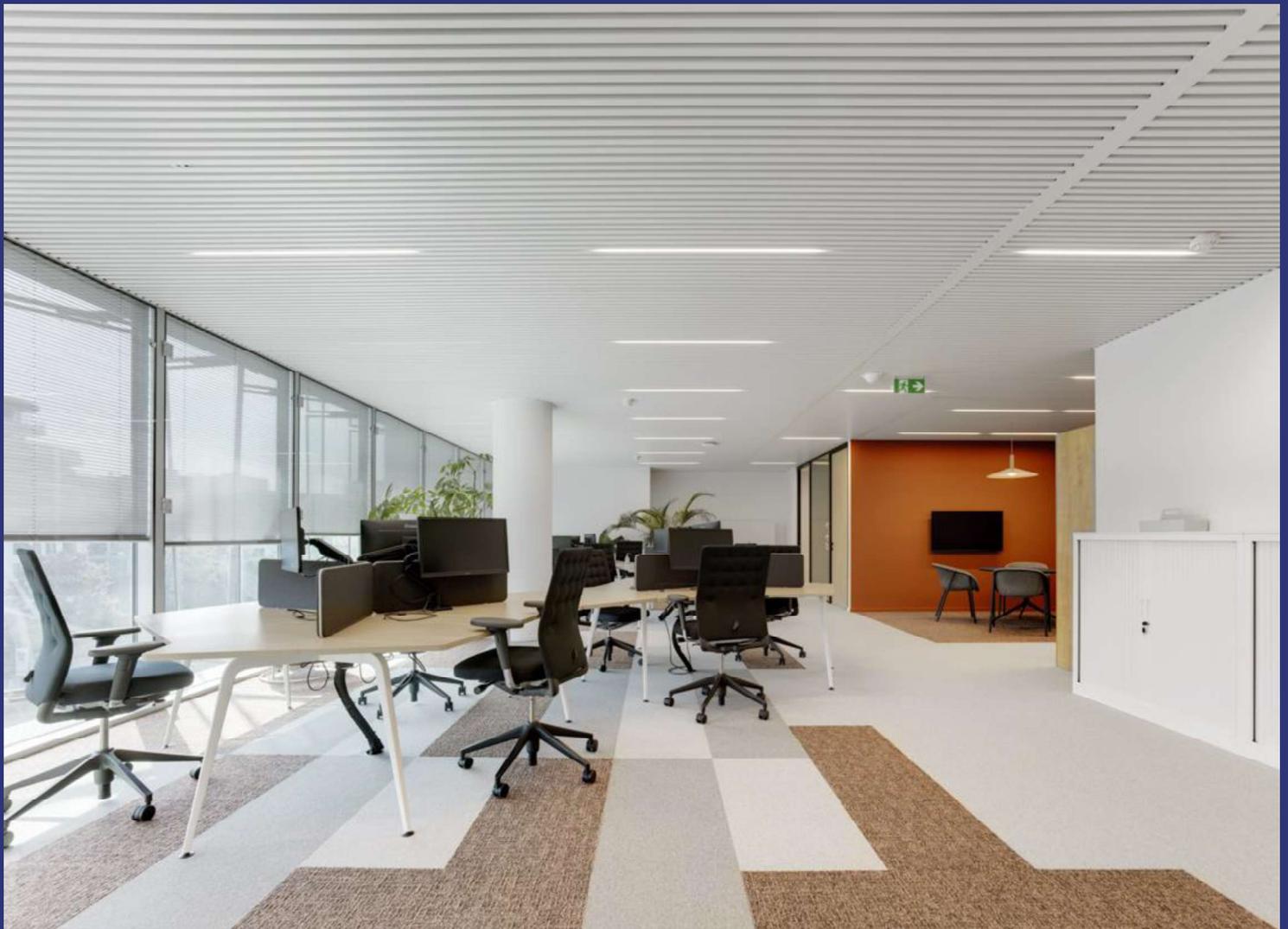


**Environmental
Product
Declaration**

According to ISO14025+EN15804+A2

This declaration is for:
Interalu SAPP® Ceiling - Unalloyed Steel

Provided by:
Interalu NV



MRPI® registration:
1.1.01041.2026

Program operator:
Stichting MRPI®
Publisher:
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www.mrpi.nl

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MRPI® REGISTRATION

1.1.01041.2026

DATE OF THIS ISSUE

18-12-2025

EXPIRY DATE

18-12-2030

SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by Bob Roijen, SGS Intron. The LCA study has been done by An Janssen, Enperas. The certificate is based on an LCA-dossier according to ISO14025+EN15804+A2. It is verified according to the 'Verification protocol for MRPI LCA project report & EPD 21th of May 2025, V. 5.2'. EPDs of construction products may not be comparable if they do not comply with EN15804+A2. Declaration of SVHC that are listed on the 'Candidate list of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

PROGRAM OPERATOR

Stichting MRPI®
 Kingsfordweg 151
 1043 GR
 Amsterdam

PRODUCT

Interalu SAPP® Ceiling - Unalloyed Steel

DECLARED UNIT / FUNCTIONAL UNIT

1 Area (m2)

DESCRIPTION OF PRODUCT

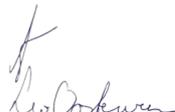
Climate control (suspended) ceiling for interior covering, consisting of steel parts, plastic tubes and ancillary materials. An acoustic insulation material can be added.

VISUAL PRODUCT



MORE INFORMATION

<https://interalu.eu/en/kennis/discover-sappceiling>

<p>Ing. L. L. Oosterveen MSc. MBA Managing Director MRPI</p> 	<p>DEMONSTRATION OF VERIFICATION</p>
	<p>CEN standard EN15804 serves as the core PCR [1]</p>
	<p>Independent verification of the declaration and data according to ISO14025+EN15804+A2</p> <p>Internal: _____ External: X</p>
	<p>Third party verifier: Bob Roijen, SGS Intron</p> 
<p>[1] PCR = Product Category Rules</p>	

DETAILED PRODUCT DESCRIPTION

The product considered in this EPD is called SAPP® Ceiling - Unalloyed Steel.

SAPP stands for Smart Acoustic Passive Power. Unalloyed Steel stands for all iron-carbon alloys, which have a carbon content of 0,05 to a maximum of 2% and contain, besides iron, only the natural iron companions, such as sulphur, manganese and phosphorus.

The SAPP® Ceiling - Unalloyed Steel is a suspended climate control ceiling used for acoustic and climate control.

Its design makes it possible to integrate the entire building in the energy plan through its use of night-time cooling. The SAPP® Ceiling - Unalloyed Steel has low thermal inertia (between 18 and 20°C for cooling and between 30 and 40°C for heating) and high conductivity. The cooling works with 65-70% radiation and 35-30% convection, 103W/m² at Δt 10K. The heating works with 100% radiation, 71 W/m² at Δt 15K. The open structure of the SAPP® Ceiling - Unalloyed Steel offers several different possibilities for optimising acoustics. The ceiling panels can be either or not perforated. SAPP® ceiling - Unalloyed Steel has an acoustic absorbance between 0,4 and 1,0 depending on the perforation of the ceiling panels and the orientation (vertical and/or horizontal) and type of the acoustic insulation.

The product consists of ceiling panels, supporting profiles, edge finishing and ancillary materials for installation of the product, such as ceiling anchors. The ancillary materials and energy use necessary for installing the climate ceiling are included in this EPD.

Furthermore, an acoustic insulation material can be added to the ceiling for acoustical reasons. Different types and dimensions of insulation material are possible, determining the specific characteristics of the SAPP® Ceiling - Unalloyed Steel. In this EPD, the most currently used insulation scenario for the SAPP® ceiling - Unalloyed Steel is considered: horizontal insulation with stone wool sealed with PE foil with a density of 100 kg/m³ and a thickness of 20 mm (i.e. 2 kg insulation per m²). This scenario has an acoustic absorbance of 0,85.

The results in this EPD refer to the SAPP® Ceiling - Unalloyed Steel with the reference acoustic stone wool insulation.

The nett weight per reference flow is 10,812 kg for the SAPP® Ceiling - Unalloyed Steel and the acoustic insulation together. The nett weight per reference flow for the SAPP® Ceiling - Unalloyed Steel is 8,784 kg/m², the nett weight per reference flow for the acoustic insulation is 2,028 kg/m² (i.e. 2,000 kg/m² stone wool and 0,028 kg/m² PE foil).

Production process:

For production of the SAPP® Ceiling - Unalloyed Steel, the prefinished continuous hot dip galvanised unalloyed steel strips for the panels are, if needed, perforated and then roll-formed to the correct sizes and wrapped. The prefinished continuous hot dip galvanised unalloyed steel strips for the support profiles are punched to the correct module size, roll-formed and cut to a fixed length. They are packed in cardboard boxes. The prefinished continuous hot dip galvanised unalloyed steel strips for the edge finishing profiles are rolled and cut to a fixed length. They are packed in metal transport containers together with the panels and support profiles and transported to the site for installation. Clips, ceiling anchors, fasteners and quick hangers are produced and packaged by third parties and delivered at the manufacturing site in Wilrijk. The PE-RT pipes and the acoustic insulation material are also produced and packaged by a third party, but directly transported to the installation site in case of larger quantities. They are also transported to the Interalu NV factory at Wilrijk in smaller quantities, so that Interalu always has a stock.

Reference service life:

The reference service life (RSL) is estimated at 50 years.

The RSL is based on the Interalu technical approval ATG 3112 Interalu Climapipe PE-RT and is valid under normal conditions.

The SAPP® Ceiling - Unalloyed Steel does not require specific maintenance.

Installation:

Materials for fixation and energy use necessary for installation are included. First, holes are drilled into the concrete structure and ceiling anchors are installed. The upper part of a quick-release hanger is hooked into the ceiling anchor with a spring. The support profiles are suspended by inserting the support profile and sliding the quick-release hanger on the spring. The edge trim is placed against the wall. The clips are clicked into the support profiles. The pipes are braided in the form of loops and the PE-RT pipe is clicked into the clips. The ceiling panels are clicked into the support profiles. The insulation is most often placed on top of the metal panels without fixation.

Various loose parts are delivered per truck and are assembled on-site by means of clamping and suspension.

The ancillary materials needed during installation of the products on site are a rotary hammer, a plate shear, small tools, Stanley knives, a saw machine and a drill bit. The impact of the production of these tools is, however, considered to be below cut-off.

Technical data/Physical characteristics

The technical characteristics of the SAPP® Ceiling - Unalloyed Steel are given in the table below. All values are fixed, except for the acoustic absorption α_w , which varies depending on the perforation of the ceiling panels and the type of acoustic insulation added. The acoustic absorption for the SAPP® Ceiling - Unalloyed Steel with the reference stone wool insulation with PE foil is 0,85. More information can be found in the Declaration of Performance (DoP SAPP3020285215).

Technical property	Standard	Value	Unit	Comment
Modulation	EN 13964	50	mm	
Width	EN 13964	30	mm	
Height	EN 13964	39	mm	
Joint	EN 13964	20	mm	
Cooling	EN 14240	103	W/m ²	at $\Delta t = 10K$, 65-70% radiation, 35-30% convection
Heating	EN 14037	83	W/m ²	at $\Delta t = 15K$, 100% radiation
Acoustic absorption α_w	EN 11654	0,85		Depends on the perforation and type of insulation. Can vary between 0,40 and 1,00.
Reaction to fire	EN 13501-1	B-s2,d0		

The general composition of the SAPP® Ceiling - Unalloyed Steel is given in the table below.

Component (> 1%)	(kg / %)
Pre-finished continuous hot dip galvanised unalloyed steel	0,72
PE-RT (temperature resistant polyethylene)	0,09
HDPE (High Density Polyethylene Resin)	<1%
Suspension/anchors (galvanised unalloyed steel)	<1%
Stone wool insulation with PE foil	0,19

SCOPE AND TYPE

This is a specific EPD for SAPP® Ceiling - Unalloyed Steel produced by Interlu NV in Wilrijk, Belgium. The SAPP® Ceiling - Unalloyed Steel is installed in The Netherlands and at its end-of-life waste is treated according to the Dutch end-of-life scenarios. As a result, the EPD is representative for the Dutch market.

Company-specific data for the product stage have been collected by Interlu NV and were provided to Enperas NV through a data collection questionnaire. The modelling of the LCI data has been checked by the EPD verifier (SGS Intron). Enperas NV uses publicly available generic data for all background processes, such as the production of electricity, transportation by means of a specific truck, etc. Primary data is used for modules A1, A2, A3 and A5. The rest of the study is based on scenarios (module A4, modules B1-B7, modules C1-C4 and module D).

The main LCI source used in this EPD is the Ecoinvent v3.9.1 Cut-off by classification database.

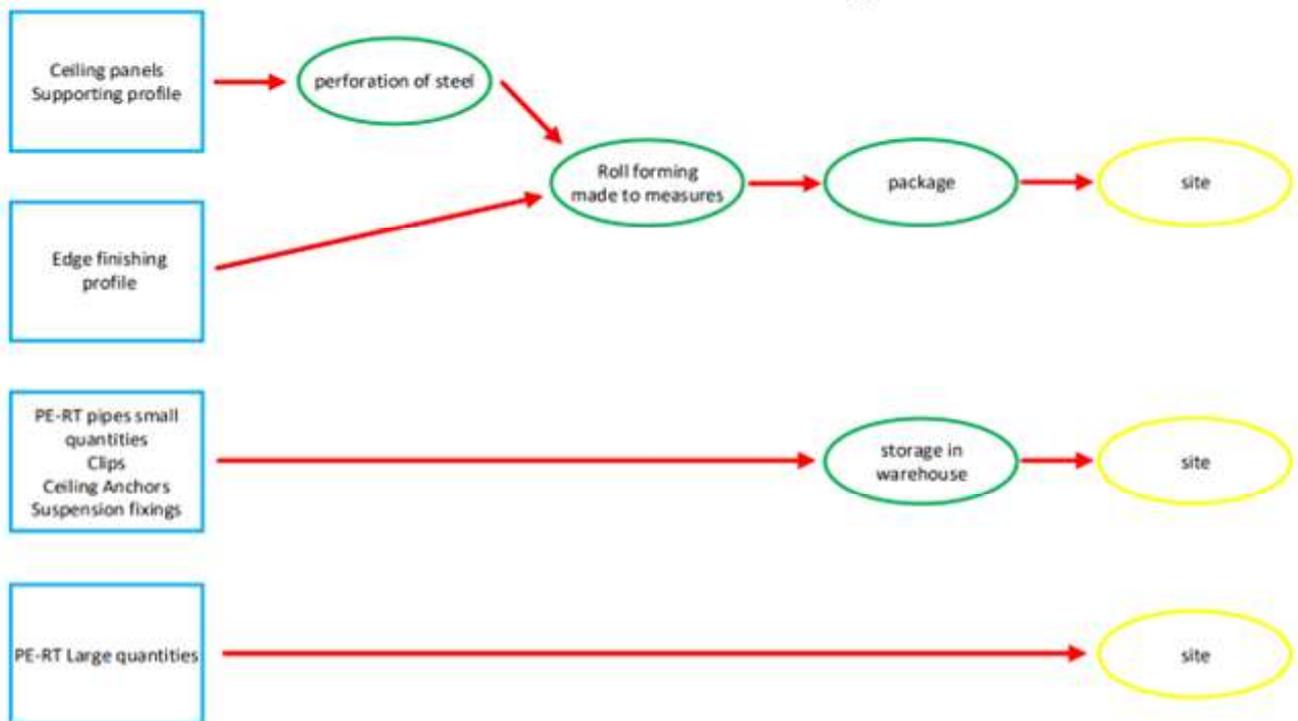
For the calculation of the LCA results, the software program SimaPro 9.6.0.1 (PRé Consultants, 2024) has been used, as well as the Enperas Quadrant LCA tool for Interlu ceilings (Enperas, 2023). The EF3.1 characterisation factors from EC-JRC were applied where relevant. Infrastructure processes have been included and long-term emissions have been excluded.

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport gate to site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse - Recovery - Recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

X = Modules Assessed

ND = Not Declared

PROCESS FLOW - climat ceilings



REPRESENTATIVENESS

The data used for the LCA is representative for the SAPP® Ceiling - Unalloyed Steel, manufactured by Interlu NV in Wilrijk, Belgium, and installed in The Netherlands. The waste treatment scenarios are representative for the country in which the waste treatment takes place.

ENVIRONMENTAL IMPACT per functional unit or declared unit (indicators A1)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADPE	kg Sb eq.	4,41E-04	8,73E-07	4,42E-06	4,47E-04	3,65E-07	1,35E-05	0,00E+00	7,76E-09	1,79E-07	1,73E-08	4,03E-08	9,10E-07						
ADPF	MJ	3,60E+02	4,99E+00	1,60E+01	3,81E+02	2,97E+00	1,21E+01	0,00E+00	1,51E-01	1,46E+00	3,29E-01	8,18E-01	-1,51E+02						
GWP	kg CO2 eq.	2,19E+01	3,34E-01	6,98E-01	2,30E+01	1,95E-01	2,06E+00	0,00E+00	9,62E-03	9,57E-02	2,14E-02	2,69E+00	-9,75E+00						
ODP	kg CFC11 eq.	1,36E-06	5,98E-08	4,95E-08	1,47E-06	3,61E-08	5,03E-08	0,00E+00	4,75E-10	1,77E-08	1,37E-09	9,52E-09	-5,17E-07						
POCP	kg ethene eq.	3,09E-02	1,70E-04	5,98E-04	3,16E-02	1,17E-04	9,89E-04	0,00E+00	1,43E-06	5,74E-05	5,68E-06	7,76E-05	-1,61E-02						
AP	kg SO2 eq.	9,50E-02	8,27E-04	2,48E-03	9,83E-02	8,37E-04	3,21E-03	0,00E+00	1,80E-05	4,12E-04	5,49E-05	4,75E-04	-2,66E-02						
EP	kg (PO4) 3 eq.	1,17E-02	1,26E-04	5,17E-04	1,24E-02	1,67E-04	4,31E-04	0,00E+00	3,71E-06	8,22E-05	1,16E-05	1,13E-04	-3,18E-03						

Toxicity indicators and ECI (Dutch market)

HTP	kg DCB eq.	1,29E+01	1,27E-01	3,10E-01	1,33E+01	8,32E-02	4,52E-01	0,00E+00	1,08E-03	4,09E-02	3,18E-03	9,29E-02	-4,59E+00						
FAETP	kg DCB eq.	1,92E-01	3,48E-03	1,94E-02	2,15E-01	2,44E-03	1,41E-02	0,00E+00	2,99E-05	1,20E-03	7,37E-05	1,53E-02	5,27E-02						
MAETP	kg DCB eq.	4,50E+02	1,31E+01	1,26E+01	4,76E+02	8,71E+00	2,94E+01	0,00E+00	1,26E-01	4,28E+00	2,98E-01	2,89E+01	3,90E+01						
TETP	kg DCB eq.	3,85E-02	4,99E-04	6,97E-03	4,60E-02	2,95E-04	1,50E-03	0,00E+00	4,90E-05	1,45E-04	9,73E-05	8,19E-05	3,68E-01						
ECI	euro	2,88E+00	3,48E-02	8,21E-02	3,00E+00	2,35E-02	1,67E-01	0,00E+00	7,15E-04	1,16E-02	1,75E-03	1,50E-01	-1,05E+00						
ADPF	kg Sb eq.	1,73E-01	2,40E-03	7,69E-03	1,83E-01	1,43E-03	5,81E-03	0,00E+00	7,24E-05	7,03E-04	1,58E-04	3,93E-04	-7,26E-02						

- ADPE = Abiotic Depletion Potential for non-fossil resources
- ADPF = Abiotic Depletion Potential for fossil resources
- GWP = Global Warming Potential
- ODP = Depletion potential of the stratospheric ozone layer
- POCP = Formation potential of tropospheric ozone photochemical oxidants
- AP = Acidification Potential of land and water
- EP = Eutrophication Potential
- HTP = Human Toxicity Potential
- FAETP = Fresh water aquatic ecotoxicity potential
- MAETP = Marine aquatic ecotoxicity potential
- TETP = Terrestrial ecotoxicity potential
- ECI = Environmental Cost Indicator
- ADPF = Abiotic Depletion Potential for fossil resources

ENVIRONMENTAL IMPACT per functional unit or declared unit (core indicators A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	2,09E+01	3,75E-01	8,46E-01	2,22E+01	2,22E-01	2,25E+00	0,00E+00	7,37E-03	1,09E-01	1,73E-02	2,70E+00	-8,12E+00						
GWP-fossil	kg CO2 eq.	2,11E+01	3,75E-01	7,04E-01	2,21E+01	2,21E-01	2,04E+00	0,00E+00	7,35E-03	1,09E-01	1,72E-02	2,70E+00	-8,12E+00						
GWP-biogenic	kg CO2 eq.	-1,18E-01	1,37E-04	1,40E-01	2,22E-02	7,33E-05	2,08E-01	0,00E+00	1,43E-05	3,61E-05	2,84E-05	3,88E-05	0,00E+00						
GWP-luluc	kg CO2 eq.	1,16E-02	1,99E-04	2,06E-03	1,39E-02	1,08E-04	4,37E-04	0,00E+00	2,78E-06	5,32E-05	5,82E-06	1,71E-05	3,30E-04						
ODP	kg CFC11 eq.	5,02E-07	8,14E-09	1,53E-08	5,26E-07	4,86E-09	1,73E-08	0,00E+00	2,31E-10	2,39E-09	4,95E-10	2,12E-09	-2,67E-07						
AP	mol H+ eq.	9,74E-02	8,43E-04	3,11E-03	1,01E-01	1,03E-03	3,38E-03	0,00E+00	1,70E-05	5,09E-04	5,97E-05	6,46E-04	-2,13E-02						
EP-fresh water	kg P eq.	9,41E-04	3,31E-06	2,51E-05	9,70E-04	1,82E-06	2,99E-05	0,00E+00	3,06E-07	8,95E-07	6,14E-07	6,41E-07	-2,52E-04						
EP-marine	kg N eq.	1,78E-02	2,06E-04	8,77E-04	1,89E-02	4,07E-04	7,09E-04	0,00E+00	3,57E-06	2,00E-04	1,89E-05	2,92E-04	-5,31E-03						
EP-terrestrial	mol N eq.	2,20E-01	2,16E-03	8,58E-03	2,31E-01	4,39E-03	8,51E-03	0,00E+00	4,24E-05	2,16E-03	2,13E-04	3,23E-03	-6,17E-02						
POCP	kg NMVOC eq.	1,01E-01	1,28E-03	2,64E-03	1,05E-01	1,53E-03	3,62E-03	0,00E+00	1,29E-05	7,55E-04	6,41E-05	9,38E-04	-3,71E-02						
ADP-minerals & metals	kg Sb eq.	4,17E-04	1,44E-06	6,28E-06	4,24E-04	6,90E-07	1,29E-05	0,00E+00	6,65E-08	3,39E-07	1,35E-07	1,01E-07	-3,09E-06						
ADP-fossil	MJ, net calorific value	2,97E+02	5,30E+00	1,57E+01	3,18E+02	3,20E+00	1,01E+01	0,00E+00	1,06E-01	1,57E+00	2,44E-01	8,08E-01	-9,63E+01						
WDP	m3 world eq. Deprived	8,36E+00	2,20E-02	8,22E-01	9,20E+00	1,39E-02	2,82E-01	0,00E+00	1,02E-03	6,85E-03	2,08E-03	1,73E-02	-8,24E-01						

- GWP-total = Global Warming Potential total
- GWP-fossil = Global Warming Potential fossil fuels
- GWP-biogenic = Global Warming Potential biogenictotal
- GWP-luluc = Global Warming Potential land use and land use change
- ODP = Depletion potential of the stratospheric ozone layer
- AP = Acidification Potential, Accumulated Exceedence
- EP-freshwater = Eutrophication Potential, fraction of nutrients reaching freshwater end compartment
- EP-marine = Eutrophication Potential, fraction of nutrients reaching marine end compartment
- EP-terrestrial = Eutrophication Potential, Accumulated Exceedence
- POCP = Formation potential of tropospheric ozone photochemical oxidants
- ADP-minerals & metals = Abiotic Depletion Potential for non-fossil resources [1]
- ADP-fossil = Abiotic Depletion for fossil resources potential [1]
- WDP = Water (user) deprivation potential, deprivation-weighted water consumption [1]

Disclaimer [1]:

- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.



ENVIRONMENTAL IMPACT per functional unit or declared unit (additional indicators A2)

Unit		A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Disease incidence	1,30E-06	2,52E-08	3,42E-08	1,36E-06	2,17E-08	4,54E-08	0,00E+00	7,73E-11	1,07E-08	8,77E-10	1,09E-08	-3,36E-07						
IRP	kBq U235 eq.	5,13E-01	3,18E-03	2,04E-02	5,37E-01	1,65E-03	1,67E-02	0,00E+00	2,43E-04	8,14E-04	4,82E-04	4,85E-04	1,31E-01						
ETP-fw	CTUe	1,76E+02	2,68E+00	3,05E+00	1,82E+02	1,57E+00	5,93E+00	0,00E+00	1,73E-02	7,74E-01	5,23E-02	8,17E-01	-8,99E-01						
HTP-c	CTUh	1,07E-07	1,92E-10	5,11E-10	1,08E-07	1,19E-10	3,44E-09	0,00E+00	2,44E-12	5,86E-11	9,10E-12	3,59E-10	7,68E-08						
HTP-nc	CTUh	2,46E-07	3,74E-09	6,78E-09	2,57E-07	2,48E-09	9,23E-09	0,00E+00	8,91E-11	1,22E-09	1,85E-10	2,33E-09	6,82E-09						
SQP	-	7,30E+01	2,80E+00	1,28E+01	8,86E+01	2,40E+00	3,04E+00	0,00E+00	2,30E-02	1,18E+00	1,66E-01	7,47E-01	-1,54E+01						

- PM = Potential incidence of disease due to PM emissions
- IRP = Potential Human exposure efficiency relative to U235 [1]
- ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]
- HTP-c = Potential Comparative Toxic Unit for humans, cancer [2]
- HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]
- SQP = Potential soil quality index [2]

Disclaimer [1]:

- This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste.

Disclaimer [2]:

- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit (A1 en A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	3,83E-03	3,66E-05	5,57E-05	3,93E-03	2,01E-05	1,21E-04	0,00E+00	3,44E-07	9,90E-06	9,26E-07	4,93E-06	-9,05E-04						
NHWD	kg	3,29E+00	2,25E-01	1,84E-01	3,69E+00	2,02E-01	2,37E-01	0,00E+00	3,95E-04	9,95E-02	8,87E-04	2,01E+00	5,83E-01						
RWD	kg	3,74E-04	2,13E-06	8,89E-06	3,85E-04	1,07E-06	1,20E-05	0,00E+00	2,13E-07	5,29E-07	4,19E-07	3,29E-07	1,08E-04						
CRU	kg	0,00E+00	0,00E+00	2,40E-02	2,40E-02	0,00E+00	1,84E-01	0,00E+00	9,33E-01	0,00E+00	0,00E+00								
MFR	kg	0,00E+00	0,00E+00	6,68E-02	6,68E-02	0,00E+00	3,68E-01	0,00E+00	7,01E+00	0,00E+00	0,00E+00								
MER	kg	0,00E+00																	
EEE	MJ	0,00E+00	0,00E+00	9,32E-02	9,32E-02	0,00E+00	6,23E-01	0,00E+00	3,75E+00	0,00E+00									
ETE	MJ	0,00E+00	0,00E+00	1,86E-01	1,86E-01	0,00E+00	1,25E+00	0,00E+00	7,50E+00	0,00E+00									

- HWD = Hazardous Waste Disposed
- NHWD = Non Hazardous Waste Disposed
- RWD = Radioactive Waste Disposed
- CRU = Components for reuse
- MFR = Materials for recycling
- MER = Materials for energy recovery
- EEE = Exported Electrical Energy
- ETE = Exported Thermal Energy

RESOURCE USE per functional unit or declared unit (A1 and A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1,60E+01	9,58E-02	3,66E+00	1,97E+01	4,98E-02	1,28E+00	0,00E+00	1,88E-02	2,45E-02	3,68E-02	2,25E-02	5,86E-01						
PERM	MJ	1,94E+00	0,00E+00	4,39E-01	2,38E+00	0,00E+00	-2,09E+00	0,00E+00	0,00E+00	0,00E+00									
PERT	MJ	1,79E+01	9,58E-02	4,10E+00	2,21E+01	4,98E-02	-8,05E-01	0,00E+00	1,88E-02	2,45E-02	3,68E-02	2,25E-02	5,86E-01						
PENRE	MJ	2,53E+02	5,30E+00	1,04E+01	2,68E+02	3,20E+00	1,42E+01	0,00E+00	1,06E-01	1,57E+00	2,44E-01	3,83E+01	-9,88E+01						
PENRM	MJ	4,45E+01	0,00E+00	5,50E+00	5,00E+01	0,00E+00	-5,28E+00	0,00E+00	-2,21E+00	-3,75E+01	0,00E+00								
PENRT	MJ	2,97E+02	5,30E+00	1,58E+01	3,18E+02	3,20E+00	8,91E+00	0,00E+00	1,06E-01	1,57E+00	-1,96E+00	8,08E-01	-9,88E+01						
SM	kg	1,28E+00	0,00E+00	0,00E+00	1,28E+00	0,00E+00	3,83E-02	0,00E+00	0,00E+00	0,00E+00									
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NSRF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m3	2,12E-01	7,61E-04	3,29E-02	2,45E-01	4,51E-04	7,78E-03	0,00E+00	5,47E-05	2,22E-04	1,10E-04	8,81E-04	-2,76E-02						

- PERE = Use of renewable primary energy excluding renewable primary energy used as raw materials
- PERM = Use of renewable primary energy resources used as raw materials
- PERT = Total use of renewable primary energy resources
- PENRE = Use of non-renewable primary energy resources excluding non-renewable energy resources used as raw materials
- PENRM = Use of non-renewable primary energy resources used as raw materials
- PENRT = Total use of non-renewable primary energy resources
- SM = Use of secondary materials
- RSF = Use of renewable secondary fuels
- NSRF = Use of non-renewable secondary fuels
- FW = Use of net fresh water

BIOGENIC CARBON CONTENT per functional unit or declared unit (A1 and A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
BBCpr	kg C	0,00E+00																	
BCCpa	kg C	0,00E+00	0,00E+00	0,00E+00	1,36E-01	0,00E+00													

- BCCpr = Biogenic carbon content in product
- BCCpa = Biogenic carbon content in packaging

CALCULATION RULES

Allocation:

At Interlu NV, different ceiling types are produced. Only facility level data were available for the use of electricity, natural gas, etc. The facility level data have been allocated to the analysed product using their respective annual production volume (expressed in m² ceiling or kg ceiling if relevant; physical relationship). Material inputs and outputs, which were not available at the product level, were allocated similarly.

The following processes are considered to be below cut-off:

- Transportation of the packaging of the raw materials to the production site in module A2;
- Transportation of the ancillary materials to the production site in module A3;
- Packaging of the ancillary materials in module A3;
- Metal transport containers for panels and support profiles in module A3 since several times reused;
- Installation tools in module A5;
- Impact of cleaning in module B2.

Environmental impacts caused by the personnel of the production plants, e.g. waste from the cafeteria and sanitary installations, accidental pollution caused by human mistakes, or environmental effects caused by commuter traffic, have also been excluded from the inventory.

In all cases, it is assumed that the cut-off criteria of EN 15804+A2 are met.

Manufacturer specific data have been collected for the year 2024.

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

A1 – RAW MATERIAL SUPPLY

This module takes into account the extraction and processing of all raw materials and energy which occur upstream to the studied manufacturing process.

A2 – TRANSPORT TO THE MANUFACTURER

The raw materials are transported to the manufacturing site of the SAPP® Ceiling - Unalloyed Steel by truck (freight, lorry, 16-32 ton, EURO 6 or 3,5-7,5 ton, EURO 6). EURO 6 trucks are the most used in Belgium (Statbel, 2024).

A3 – MANUFACTURING

This module takes into account the production process of the SAPP® Ceiling - Unalloyed Steel. The prefinished continuous hot dip galvanised unalloyed steel strips for the panels are, if needed, perforated and then roll-formed to the correct sizes and wrapped. The prefinished continuous hot dip galvanised unalloyed steel strips for the support profiles are punched to the correct module size, roll-formed and cut to a fixed length. They are packed in cardboard boxes. The prefinished continuous hot dip galvanised unalloyed steel strips for the edge finishing profiles are rolled and cut to a fixed length. They are packed in metal transport containers together with the panels and support profiles and transported to the site for installation. Clips, ceiling anchors, fasteners and quick hangers are produced and packaged by third parties and delivered at the manufacturing site in Wilrijk. The PE-RT pipes and the acoustic insulation material are also produced and packaged by a third party, but directly transported to the installation site. They are transported in smaller quantities to the manufacturing site in Wilrijk as well, so that Interlu NV always has a stock. Production losses are also taken into account. The waste treatment of the packaging of the raw materials is modelled according to the default end-of-life scenarios in Belgium.

A4 – TRANSPORT TO THE BUILDING SITE

The final products (i.e. SAPP® Ceiling - Unalloyed Steel parts and acoustic insulation material) are for 100% transported from the factory in Wilrijk to the installation site in The Netherlands (Utrecht) over a distance of 134 km by a truck, unspecified, according to the requirements within the Dutch NMD Bepalingsmethode v1.2 (2025).

A5 - INSTALLATION IN THE BUILDING

At the construction site, energy is consumed for fixation of the SAPP® Ceiling - Unalloyed Steel parts. The acoustic insulation material is generally loosely laid upon the ceiling structure. Furthermore, packaging materials are released. The waste treatment of the packaging is modelled according to the default end-of-life scenarios of the Dutch NMD Bepalingsmethode v1.2 (2025). Additionally, 3% material losses are taken into account.

B - USE STAGE

B1: SAPP® Ceiling - Unalloyed Steel does not have any impact during its entire use phase.

B2: Impact of cleaning (water and soap) of SAPP® Ceiling - Unalloyed Steel is assumed to be below cut-off.

B3: SAPP® Ceiling - Unalloyed Steel does not require any repair during its entire service life.

B4: SAPP® Ceiling - Unalloyed Steel does not require any replacement during its entire service life.

B5: SAPP® Ceiling - Unalloyed Steel does not require any refurbishment during its entire service life.

B6: SAPP® Ceiling - Unalloyed Steel is connected to the central heating system (similar to underfloor heating). Water is pumped and heated by the central heating system and flows through the SAPP® Ceiling - Unalloyed Steel. The impact related to the heating and the pumping is fully allocated to the central heating system.

B7: SAPP® Ceiling - Unalloyed Steel is connected to the central heating system (similar to underfloor heating). Water is pumped and heated by the central heating system and flows through the SAPP® Ceiling - Unalloyed Steel. The impact related to the heating and the pumping is fully allocated to the central heating system.

C1-C4: END-OF-LIFE

The default end-of-life (EOL) scenarios of the Dutch NMD Bepalingsmethode v1.2 (2025) have been applied to the different components of the SAPP® Ceiling - Unalloyed Steel, i.e. steel parts and plastic parts, and to the stone wool insulation with PE foil.

C1: It is assumed that demolition of the product requires the same amount of energy as for its installation.

C2: Transport of final product components to sorting, landfill and incineration according to the Dutch default scenarios.

C3-C4: EOL of final product components according to the Dutch default scenarios: steel parts are 87% recycled, 12% reused and 1% landfilled, plastic parts are 5% recycled, 85% incinerated and 10% landfilled and stone wool insulation is 10% recycled, 5% incinerated and 85% landfilled.

MODULE D - LOADS AND BENEFITS BEYOND THE SYSTEM BOUNDARIES

In module D, following waste streams originating from the final product are considered after their end-of-waste point: the main metal (steel, 87% recycled), the different plastic parts (5% recycled and 85% incinerated) and the insulation material with PE foil (stone wool, 5% incinerated and 10% recycled; PE foil, 5% recycled and 85% incinerated). For packaging waste: wooden packaging (40% recycled and 40% incinerated), plastic packaging (20% recycled and 75% incinerated) and core board packaging (97% recycled and 3% incinerated). The EOL waste treatments are according to the Dutch default scenarios for the different waste materials within the NMD Bepalingsmethode v1.2 (2025).

DECLARATION OF SVHC

The product does not contain materials listed in the "Candidate list of Substances of Very High Concern for authorisation"

REFERENCES

- ISO 14040:2006: Environmental Management-Life Cycle Assessment-Principles and framework.
- ISO 14044:2006: Environmental Management-Life Cycle Assessment-Requirements and guidelines.
- ISO 14025:2006: Environmental labels and Declarations-Type III Environmental Declarations-Principles and procedures.
- NBN EN 15804+A2:2019
- Stichting Nationale Milieudatabase, 2025, Bepalingsmethode Milieuprestatie Bouwwerken, version 1.2
- Wernet, G., Bauer, C., Steubing, B., Reinhard, J., Moreno-Ruiz, E., and Weidema, B., 2016, The ecoinvent database version 3 (part I): overview and methodology. The International Journal of Life Cycle Assessment, [online] 21(9), pp.1218–1230. Available at: <http://link.springer.com/10.1007/s11367-016-1087-8>
- Ecoinvent, 2023, Ecoinvent v3.9.1 Cut-off by classification database
- Pré Consultants, 2024, SimaPro 9.6.0.1 [Computer Software]. Amersfoort, The Netherlands
- Enperas, 2023, Quadrant LCA tool for Interlu ceilings, third party verified
- Project report: Life cycle assessment of SAPP® Ceiling - Unalloyed Steel, Enperas, 2025

REMARKS

The set 1 indicators have been calculated using the Ecoinvent v3.6 database. The set 2 indicators have been calculated using the Ecoinvent v3.9.1 database. The declared results for the indicator EP-freshwater are according to the unit kg P eq., as is required by the EN15804+A2 standard and the NMD Bepalingsmethode v1.2 (2025).