

Owner: Hz Acoustic ApS
No.: MD-26105-EN
Issued: 19-08-2026
Valid to: 19-08-2031

3RD PARTY **VERIFIED**

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | **ISO 14025 & EN 15804**



Hz ACOUSTIC



Owner of declaration

Hz Acoustic ApS
Toftegårdsvej 32
9900 Frederikshavn
CVR: 36927674
<https://hzas.dk/>


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Programme

EPD Danmark
www.epddanmark.dk



- ☐ Industry EPD
☒ Product EPD

- ☒ Product specific
☐ Average
☐ Worst Case

Declared product(s)

Hz Basic 001/009 acoustic panel with 9 mm glass granulate and 20 mm mineral wool.
Hz Dual 007/011 acoustic panel with 9 mm glass granulate and 40 mm mineral wool.

Number of declared datasets/product variations: 2 incl. variation in installation method Basic (glued) and Dual (screwed).

Production site

Toftegårdsvej 32, 9900 Frederikshavn, Denmark.

Hz Acoustic ApS uses green electricity from 100% hydropower in their production.

Use of Guarantees of Origin

- ☐ No certificates used
☒ Electricity covered by GoO
☐ Biogas covered by GoO

Functional unit

1 m² of installed acoustic panel has a service life of 60 years. The acoustic function is achieved in combination with Hz acoustic plaster: 001/009 class D with plaster 03, class B with plaster 09 or Fine; 007/011 class C with plaster 03, class B with plaster 09 or Fine.

Year of production site data (A3)

2025

EPD version

1

Basis of calculation

This EPD is developed and verified in accordance with the requirements of EN 15804+A2.

Comparability

EPDs of construction products may not be comparable if they do not comply with the requirements of EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

Validity

This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue

Use

The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

EPD type

- ☐ Cradle-to-gate with modules C1-C4 and D
☐ Cradle-to-gate with options, modules C1-C4 and D
☒ Cradle-to-grave and module D
☐ Cradle-to-gate
☐ Cradle-to-gate with options

CEN standard EN 15804 serves as the core PCR

Independent verification of the declaration and data, according to EN ISO 14025

- ☐ internal ☒ external

Third party verifier:



Nana Lin Rasmussen, Lin Consulting ApS



Martha Katrine Sørensen
EPD Danmark

System boundaries (MND = module not declared)

Product			Construction process		Use							End of life				Beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Re-use, recovery and 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

Product information

Product description

The main product components are shown in the table below.

Material	Hz Basic 001/Dual 009	Hz Basic 007/Dual 011
Weight % of declared product		
Recycled glass granulate	57.4%	41.4%
PU adhesive	2.7%	1.9%
Mineral wool	38.8%	55.9%
PVA adhesive	1.1%	0.8%
Water	<0.1%	<0.1%
Total	100%	100%

Product packaging:

The composition of the sales- and transport packaging of the product is shown in the table below.

Material	Hz Basic 001/Dual 009	Hz Basic 007/Dual 011
Weight % of declared product		
Disposable pallets	86.3%	85.6%
Stretch film	6.1%	6.8%
Corrugated cardboard	7.1%	6.8%
PE top film	0.5%	0.6%
Steel clips	0.1%	0.1%
Total	100%	100%

Representativity

The declared unit is 1 m² installed acoustic ceiling panel. Data covers production of Hz Basic 001/Dual 009 (9 mm glass granulate and 20 mm mineral wool) and Hz Basic 007/Dual 011 (9 mm glass granulate and 40 mm mineral wool) at Hz Acoustic ApS' factory in Frederikshavn, Denmark.

Primary data for the manufacturing has been collected for the production year 2025. The data covers the entire production site's consumption of energy, water and auxiliary materials, which is allocated to the product by physical allocation

Data for the underlying LCA is based on annual averages for the production year 2025.

Background data is based on Ecoinvent v3.12 (EN 15804 add-on), supplemented with supplier EPDs where relevant. The environmental impacts are calculated using characterisation factors in accordance with EN 15804+A2, based on EF 3.1.

The data used is less than 2 years old in accordance with EN15804:2012+A2:2019.

Hazardous substances

The products does not contain substances listed on the "Candidate List of Substances of Very High Concern for authorisation"

(<http://echa.europa.eu/candidate-list-table>)

Product(s) use

The products are used as acoustic ceiling and wall cladding in indoor buildings for public, private and commercial use. The panels contribute to sound absorption and aesthetic appearance. Hz Basic and Hz Dual are materially identical but are mounted differently: Hz Basic is glued directly onto the substrate; Hz Dual is fastened with chipboard screws and washers to battens or directly onto a solid substrate. In the images, the two variants may therefore appear visually different, as Hz Dual has pre-drilled screw holes prior to mounting. These holes are, however, closed with plugs of glass granulate, which are pushed in after the screws are inserted, after which the surface — like Hz Basic — can be plastered. For more details see: <https://hzas.dk/>

Essential characteristics

The acoustic panels consist of 9 mm glass granulate with either 20 mm mineral wool (Hz Basic 001/Dual 009, total thickness 29 mm) or 40 mm mineral wool (Hz Basic 007/Dual 011, total thickness 49 mm). The weight is 4.64 kg/m² (001/009) and 6.44 kg/m² (007/011). The panels have fire class A2-s1, d0 in accordance with EN 13501-1. Acoustic performance (sound absorption): Hz Basic 001/Dual 009 achieves

class D with Hz acoustic plaster 03 and class B with Hz acoustic plaster 09 or Hz Fine; Hz Basic 007/Dual 011 achieves class C with Hz acoustic plaster 03 and class B with Hz acoustic plaster 09 or Hz Fine (EN ISO 354 and EN ISO 11654).

Further technical specifications can be obtained on request from Hz Acoustic ApS or on Hz Acoustic's website:

<https://hzas.dk/>

Service life (RSL)

The reference service life for Hz Basic/Dual has been set at 60 years, based on AAU BUILD's lifetime table v. 2021. The product is a passive ceiling and wall panel for indoor use with no wearing parts.

Picture of product(s)

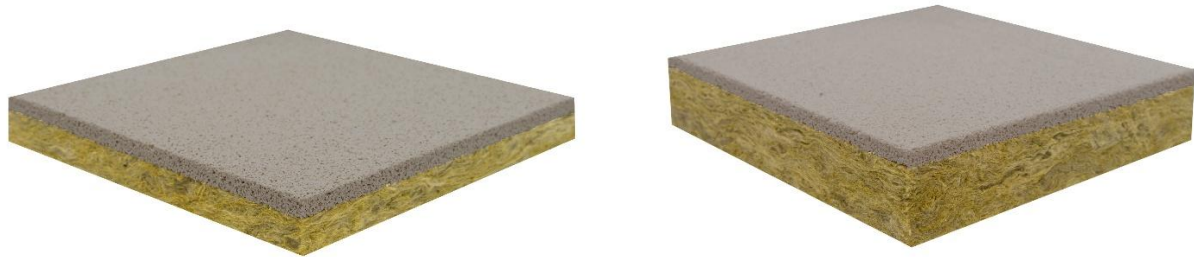


Figure 1 Hz Basic 001 (29 mm) & 009 (49 mm)



Figure 2 Hz Dual 007 (29 mm) & 011 (49 mm)

LCA background

Functional unit

LCI and LCIA results in this EPD relate to 1 m² acoustic panel. The density is listed in the table below along with a conversion factor to kg.

Name	Hz Basic 001/Dual 009	Hz Basic 007/Dual 011	Unit
Functional unit	1	1	m ²
Density	4.64	6.44	kg/ m ²
Conversion factor to 1 kg	0.22	0.16	-

PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804:2012+A2:2019, and cPCR-2019:14-c-PCR-014 Acoustical ceiling and wall solutions, version 1.0.0

Energy modelling principles

Foreground system:

The product is manufactured using a specific renewable energy source with a Guarantee of Origin (hydropower) in production.

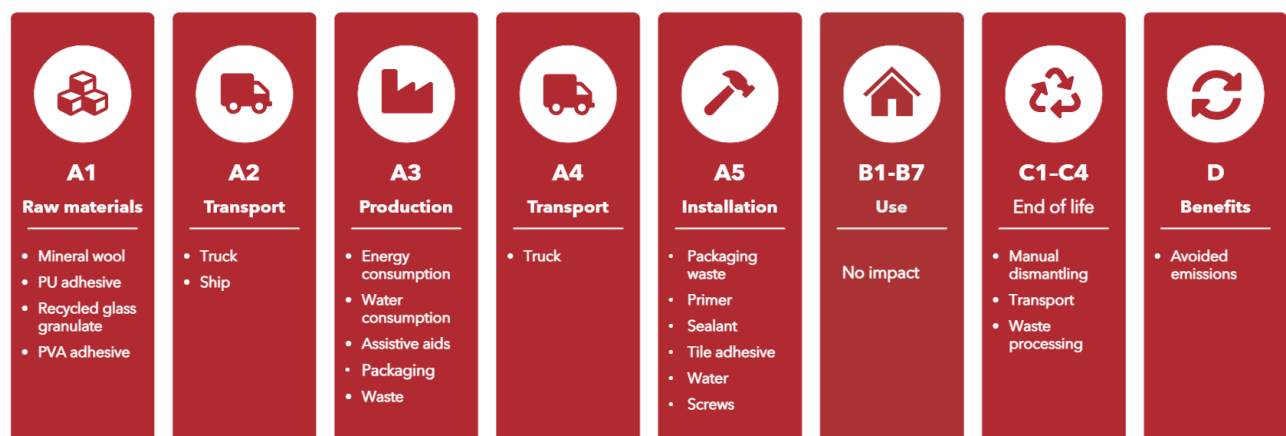
Information on energy mix in the foreground system:

Energy mix	EF	Unit
electricity production, hydro, run-of-river	0.0066	kg CO ₂ e/kWh

Background system:

Upstream processes are modelled using generic ecoinvent datasets (v3.12, EN 15804 add-on). Downstream processes are modelled using generic ecoinvent datasets for waste treatment and energy recovery, which displaces average Danish electricity mix and heat.

Flowdiagram



System boundary

The EPD is based on a cradle-to-grave LCA, in which all relevant and decisive processes are included.

The general rules for omission of inputs and outputs in the LCA follow the provisions of EN 15804:2012+A2:2019, 6.3.6, where the total omission of input flows per module must not exceed 5% of energy consumption and mass, and a maximum of 1% per unit process.

Product stage (A1-A3):

A1 – Raw material supply and production

A2 – Transport to manufacturing

A3 – Manufacturing

The product stage comprises the acquisition of all raw materials, products and energy, transport to the production site, packaging and waste processing up to the “end-of-waste” state or final disposal.

The LCA results are declared in aggregated form for the product stage, which means, that the sub-modules A1, A2 and A3 are declared as one module A1-A3.

Hz Basic/Dual consists of mineral wool (20 mm for 001/009, 40 mm for 007/011) with 9 mm recycled glass granulate on the top side, bonded with PVA adhesive. A1 comprises mineral wool of which 10% is recycled rewool, recycled glass granulates produced from 100% recycled glass (burden-free under the cut-off system model) and adhesive/binder. A2 covers transport of these raw materials to the production site in Frederikshavn. A3 covers the actual manufacturing at the factory: The glass granulate is cast in moulds with PU adhesive as the binder, after which the cast panels are cut to size, and the mineral wool is glued to the glass granulate side with PVA adhesive. For Hz Dual, holes for the mounting screws are additionally pre-drilled, and the corresponding glass granulate plugs are supplied with the product. A3 also covers energy and water consumption, auxiliary materials, and sales packaging, allocated to the product by physical allocation.

Construction process stage (A4-A5):

A4 covers transport of the finished panels from the production site to the construction site (average distance 375 km in Denmark). Two A5 scenarios are declared, corresponding to the two installation methods: Hz Basic (001/007) is glued directly to the prepared substrate with tile adhesive, following prior application of microdispersed acrylic primer, after which joints are filled with sealant. Hz Dual (009/011) is instead fastened with chipboard screws and washers to existing battens or directly to a solid substrate, after which joints are likewise filled with sealant.

Use stage (B1-B7):

Hz Basic/Dual are passive ceiling and wall panels with no energy or water consumption during the use stage. The B modules are not declared, as the products do not require periodic maintenance, repair or replacement, and their service life (60 years) exceeds the typical building reference service life.

End of life (C1-C4):

Deconstruction (C1) is carried out manually with no energy consumption. C2 covers transport of the dismantled material to waste treatment (50 km). The end-of-life treatment takes place in Denmark.

Scenario (i) – Recycling: The mineral wool is separated from the glass granulate panel, remelted and recycled as a secondary raw material in new mineral wool production (C3). The glass granulate panel, including adhesive, is landfilled as inert waste (C4).

Scenario (ii) – Landfill (worst case): The entire product is landfilled as inert waste (C4) without prior separation. No recycling in this scenario.

The two scenarios are included to show the range in environmental impact depending on the actual disposal, and scenario (ii) constitutes a conservative worst-case supplement to the more realistic recycling scenario (i).

Potential for reuse, recovery and recycling (D):

In scenario (i), the mineral wool substitutes virgin raw materials in new mineral wool production (basalt, cement, limestone, dolomite, bauxite, formaldehyde, urea and phenol), calculated according to the net flow principle

with 10% recycled material as input. The glass granulate panel is landfilled and provides no D credit. In scenario (ii), no recycling occurs, and module D is therefore 0 for both result sets.

LCA results

ENVIRONMENTAL IMPACTS PER 1 m2 Hz Basic 001/Hz Dual 009													
Parameter	Unit	A1-A3	A4	A5 (Basic)	A5 (Dual)	C1	C2	C3 (i)	C3 (ii)	C4 (i)	C4 (ii)	D (i)	D (ii)
GWP-total	[kg CO ₂ eq.]	6.99E+00	3.26E-01	1.33E+00	3.52E-01	0	4.73E-02	2.55E-02	0	1.78E-02	2.91E-02	-4.41E-01	0
GWP-fossil	[kg CO ₂ eq.]	7.25E+00	3.26E-01	1.05E+00	8.03E-02	0	4.73E-02	2.55E-02	0	1.78E-02	2.90E-02	-4.57E-01	0
GWP-biogenic	[kg CO ₂ eq.]	-2.76E-01	2.10E-04	2.69E-01	2.72E-01	0	2.63E-05	1.71E-05	0	5.79E-06	9.45E-06	1.58E-02	0
GWP-luluc	[kg CO ₂ eq.]	1.51E-02	1.10E-04	6.00E-04	1.50E-04	0	1.72E-05	3.05E-06	0	1.00E-05	1.64E-05	-3.40E-04	0
ODP	[kg CFC 11 eq.]	2.00E-07	7.38E-09	1.97E-08	6.23E-10	0	1.11E-09	5.42E-10	0	5.19E-10	8.48E-10	-1.97E-08	0
AP	[mol H ⁺ eq.]	4.06E-02	6.80E-04	8.83E-03	2.80E-04	0	1.10E-04	2.10E-04	0	1.20E-04	2.00E-04	-1.56E-03	0
EP-freshwater	[kg P eq.]	1.74E-03	2.30E-05	2.40E-04	2.89E-05	0	3.49E-06	2.19E-06	0	1.57E-06	2.56E-06	-1.00E-04	0
EP-marine	[kg N eq.]	7.76E-03	1.70E-04	7.80E-04	7.97E-05	0	3.09E-05	9.64E-05	0	4.85E-05	7.93E-05	-3.90E-04	0
EP-terrestrial	[mol N eq.]	8.81E-02	1.86E-03	1.11E-02	7.70E-04	0	3.30E-04	1.05E-03	0	5.30E-04	8.60E-04	-4.45E-03	0
POCP	[kg NMVOC eq.]	2.45E-02	1.14E-03	4.05E-03	2.20E-04	0	2.00E-04	3.20E-04	0	1.90E-04	3.10E-04	-1.61E-03	0
ADPm ¹	[kg Sb eq.]	5.25E-05	1.16E-06	8.64E-06	3.19E-07	0	1.42E-07	3.28E-08	0	2.71E-08	4.43E-08	-3.48E-06	0
ADPf ¹	[MJ]	9.95E+01	4.61E+00	1.49E+01	1.16E+00	0	7.13E-01	3.33E-01	0	4.34E-01	7.09E-01	-8.82E+00	0
WDP ¹	[m ³ world eq. deprived]	1.27E+01	2.43E-02	5.43E-01	3.40E-02	0	4.11E-03	1.42E-03	0	1.91E-02	3.12E-02	-2.45E-01	0
Caption	GWP-total = Global Warming Potential, total; GWP-fossil = Global Warming Potential, fossil fuels; GWP-biogenic = Global Warming Potential, biogenic; GWP-luluc = Global Warming Potential, land use and land use change; ODP = Depletion of the stratospheric ozone layer; AP = Acidification; EP-freshwater = Eutrophication potential, freshwater; EP-marine = Eutrophication potential, marine; EP-terrestrial = Eutrophication potential, terrestrial; POCP = Photochemical ozone creation potential; ADPm = Abiotic depletion potential, minerals and metals; ADPf = Abiotic depletion potential, fossil resources; WDP = Water (user) deprivation potential												
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.												

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 m2 Hz Basic 001/Hz Dual 009													
Parameter	Unit	A1-A3	A4	A5 (Basic)	A5 (Dual)	C1	C2	C3 (i)	C3 (ii)	C4 (i)	C4 (ii)	D (i)	D (ii)
PM	[Disease incidence]	3.84E-07	2.44E-08	5.88E-08	5.57E-09	0	4.69E-09	1.92E-08	0	2.87E-09	4.70E-09	-1.61E-08	0
IRP2	[kBq U235 eq.]	2.30E-01	5.33E-03	1.24E-01	1.26E-02	0	7.70E-04	5.70E-04	0	2.50E-04	4.10E-04	-3.52E-02	0
ETP-fw1	[CTUe]	8.01E+01	6.91E-01	6.85E+00	3.45E-01	0	9.60E-02	2.69E-02	0	5.42E-02	8.86E-02	-1.26E+00	0
HTP-c1	[CTUh]	3.38E-02	5.23E-11	2.34E-09	3.71E-11	0	7.55E-12	3.31E-12	0	3.11E-12	5.09E-12	-1.42E-10	0
HTP-nc1	[CTUh]	6.16E-08	2.82E-09	1.17E-07	1.35E-09	0	4.42E-10	7.08E-11	0	7.55E-11	1.23E-10	-4.32E-09	0
SQP1	-	4.39E+01	2.78E+00	8.39E+00	6.75E-01	0	7.21E-01	5.65E-02	0	8.57E-01	1.40E+00	-5.94E+00	0
Caption	PM = Particulate matter emissions; IRP = Ionising radiation - human health; ETP-fw = Ecotoxicity - freshwater; HTP-c = Human toxicity - cancer effects; HTP-nc = Human toxicity - non-cancer effects; SQP = Soil quality (Dimensionless) The figures are given in 'scientific' format, e.g. 1.95E+02. This figure can also be rewritten as: 1.95*10 ² or 195, while 1.12E-11 would be the same as 1.12*10 ⁻¹¹ or 0.0000000000112.												
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator. ² This impact category mainly covers the possible impact of low-dose ionising radiation on human health from the nuclear fuel chain. It does not take into account effects resulting from possible nuclear accidents, occupational exposure, or exposure due to disposal of radioactive waste in underground facilities. Potential ionising radiation from the ground, from radon and from some construction materials is also not measured by this indicator.												

RESOURCE USE PER Hz Basic 001/Dual 009													
Parameter	Unit	A1-A3	A4	A5 (Basic)	A5 (Dual)	C1	C2	C3 (i)	C3 (ii)	C4 (i)	C4 (ii)	D (i)	D (ii)
PERE	[MJ]	1.32E+01	7.65E-02	5.03E+00	3.40E+00	0	1.10E-02	8.78E-03	0	4.03E-03	6.59E-03	-1.39E+00	0
PERM	[MJ]	2.64E+00	3.50E-04	-2.56E+00	-2.56E+00	0	5.41E-05	4.37E-06	0	-7.16E-02	-7.16E-02	-1.64E-02	0
PERT	[MJ]	1.59E+01	7.69E-02	1.85E+00	2.22E-01	0	1.11E-02	8.79E-03	0	4.05E-03	6.61E-03	-1.40E+00	0
PENRE	[MJ]	8.84E+01	4.60E+00	1.51E+01	1.15E+00	0	7.12E-01	3.29E-01	0	1.15E+01	1.17E+01	-8.81E+00	0
PENRM	[MJ]	1.10E+01	7.30E-03	-9.11E-01	-9.07E-01	0	1.09E-03	4.12E-03	0	-1.01E+01	-1.01E+01	-5.27E-03	0
PENRT	[MJ]	9.95E+01	4.61E+00	1.52E+01	1.16E+00	0	7.14E-01	3.33E-01	0	4.34E-01	7.09E-01	-8.82E+00	0
SM	[kg]	7.13E-01	4.53E-03	1.18E-01	2.02E-01	0	6.50E-04	4.40E-04	0	1.90E-04	3.00E-04	-6.63E-02	0
RSF	[MJ]	5.70E-02	1.06E-03	1.45E-02	3.43E-03	0	1.40E-04	1.00E-04	0	3.26E-05	5.32E-05	-1.90E-02	0
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0
FW	[m3]	8.03E-02	5.50E-04	1.32E-01	9.10E-04	0	9.43E-05	2.73E-05	0	4.50E-04	7.30E-04	-5.63E-03	0
Caption	PERE = Use of renewable primary energy; 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; 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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water The figures are given in 'scientific' format, e.g. 1.95E+02. This figure can also be rewritten as: 1.95*10² or 195, while 1.12E-11 would be the same as 1.12*10⁻¹¹ or 0.0000000000112.												

WASTE CATEGORIES AND OUTPUT FLOWS PER Hz Basic 001/Dual 009													
Parameter	Unit	A1-A3	A4	A5 (Basic)	A5 (Dual)	C1	C2	C3 (i)	C3 (ii)	C4 (i)	C4 (ii)	D (i)	D (ii)
HWD	[kg]	1.57E+00	2.86E-02	1.86E-01	3.92E-02	0	4.03E-03	2.15E-03	0	1.41E-03	2.31E-03	-9.68E-02	0
NHWD	[kg]	1.32E+01	3.76E-01	4.08E+00	3.14E-01	0	8.37E-02	1.30E-02	0	2.85E+00	4.66E+00	-1.17E+00	0
RWD	[kg]	1.82E-04	1.29E-06	3.68E-05	1.97E-05	0	1.85E-07	1.45E-07	0	5.91E-08	9.66E-08	-8.36E-06	0
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0
MFR	[kg]	1.28E-01	4.17E-03	1.46E-02	1.46E-02	0	5.70E-04	1.80E+00	0	1.70E-04	2.70E-04	-3.45E-02	0
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0
EEE	[MJ]	2.94E-01	8.60E-04	5.85E-01	5.85E-01	0	1.10E-04	1.06E-03	0	2.64E-05	4.31E-05	-9.97E-03	0
EET	[MJ]	1.37E+00	1.09E-03	1.75E+00	1.75E+00	0	1.20E-04	1.24E-05	0	1.49E-05	2.43E-05	-3.68E-01	0
Caption	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy The figures are given in 'scientific' format, e.g. 1.95E+02. This figure can also be rewritten as: 1.95*10² or 195, while 1.12E-11 would be the same as 1.12*10⁻¹¹ or 0.0000000000112.												

BIOGENIC CARBON PER Hz Basic 001/Dual 009		
Parameter	Unit	At factory gate
Biogenic carbon content in the product	[kg C]	0.00
Biogenic carbon content in accompanying packaging	[kg C]	0.07
Note	1 kg of biogenic carbon is equivalent to 44/12 kg of CO ₂	

ENVIRONMENTAL IMPACTS PER 1 m2 Hz Basic 007/Hz Dual 011													
Parameter	Unit	A1-A3	A4	A5 (Basic)	A5 (Dual)	C1	C2	C3 (i)	C3 (ii)	C4 (i)	C4 (ii)	D (i)	D (ii)
GWP-total	[kg CO ₂ eq.]	9.46E+00	4.53E-01	1.51E+00	5.25E-01	0	6.57E-02	5.10E-02	0	1.78E-02	5.16E-02	-8.67E-01	0
GWP-fossil	[kg CO ₂ eq.]	9.89E+00	4.53E-01	1.06E+00	8.91E-02	0	6.56E-02	5.09E-02	0	1.78E-02	5.16E-02	-8.90E-01	0
GWP-biogenic	[kg CO ₂ eq.]	-4.43E-01	2.90E-04	4.33E-01	4.36E-01	0	3.65E-05	3.42E-05	0	5.79E-06	1.68E-05	2.36E-02	0
GWP-luluc	[kg CO ₂ eq.]	1.66E-02	1.50E-04	6.10E-04	1.60E-04	0	2.38E-05	6.11E-06	0	1.00E-05	2.91E-05	-6.00E-04	0
ODP	[kg CFC 11 eq.]	2.61E-07	1.02E-08	1.98E-08	7.25E-10	0	1.55E-09	1.08E-09	0	5.19E-10	1.51E-09	-3.85E-08	0
AP	[mol H ⁺ eq.]	6.31E-02	9.40E-04	8.87E-03	3.20E-04	0	1.50E-04	4.20E-04	0	1.20E-04	3.60E-04	-2.98E-03	0
EP-freshwater	[kg P eq.]	2.40E-03	3.19E-05	2.40E-04	3.32E-05	0	4.85E-06	4.37E-06	0	1.57E-06	4.55E-06	-1.90E-04	0
EP-marine	[kg N eq.]	1.05E-02	2.40E-04	8.00E-04	9.50E-05	0	4.29E-05	1.90E-04	0	4.85E-05	1.40E-04	-7.40E-04	0
EP-terrestrial	[mol N eq.]	1.31E-01	2.58E-03	1.12E-02	9.00E-04	0	4.60E-04	2.11E-03	0	5.30E-04	1.53E-03	-8.48E-03	0
POCP	[kg NMVOC eq.]	3.48E-02	1.58E-03	4.09E-03	2.60E-04	0	2.70E-04	6.40E-04	0	1.90E-04	5.50E-04	-3.11E-03	0
ADPm ¹	[kg Sb eq.]	6.92E-05	1.60E-06	8.69E-06	3.73E-07	0	1.98E-07	6.56E-08	0	2.71E-08	7.86E-08	-6.57E-06	0
ADPF ¹	[MJ]	1.30E+02	6.40E+00	1.50E+01	1.26E+00	0	9.90E-01	6.66E-01	0	4.34E-01	1.26E+00	-1.72E+01	0
WDP ¹	[m ³ world eq. deprived]	1.34E+01	3.37E-02	5.49E-01	3.97E-02	0	5.71E-03	2.84E-03	0	1.91E-02	5.54E-02	-4.72E-01	0
Caption	GWP-total = Global Warming Potential, total; GWP-fossil = Global Warming Potential, fossil fuels; GWP-biogenic = Global Warming Potential, biogenic; GWP-luluc = Global Warming Potential, land use and land use change; ODP = Depletion of the stratospheric ozone layer; AP = Acidification; EP-freshwater = Eutrophication potential, freshwater; EP-marine = Eutrophication potential, marine; EP-terrestrial = Eutrophication potential, terrestrial; POCP = Photochemical ozone creation potential; ADPm = Abiotic depletion potential, minerals and metals; ADPF = Abiotic depletion potential, fossil resources; WDP = Water (user) deprivation potential												
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.												

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 m2 Hz Basic 007/Hz Dual 011													
Parameter	Unit	A1-A3	A4	A5 (Basic)	A5 (Dual)	C1	C2	C3 (i)	C3 (ii)	C4 (i)	C4 (ii)	D (i)	D (ii)
PM	[Disease incidence]	5.68E-07	3.39E-08	5.92E-08	5.92E-09	0	6.51E-09	3.84E-08	0	2.87E-09	8.34E-09	-2.99E-08	0
IRP2	[kBq U235 eq.]	3.04E-01	7.40E-03	1.26E-01	1.45E-02	0	1.06E-03	1.13E-03	0	2.50E-04	7.30E-04	-6.43E-02	0
ETP-fw1	[CTUe]	9.32E+01	9.59E-01	6.89E+00	3.88E-01	0	1.33E-01	5.38E-02	0	5.42E-02	1.57E-01	-2.43E+00	0
HTP-c1	[CTUh]	5.43E-02	7.26E-11	2.34E-09	4.31E-11	0	1.05E-11	6.62E-12	0	3.11E-12	9.03E-12	-2.72E-10	0
HTP-nc1	[CTUh]	8.08E-08	3.91E-09	1.17E-07	1.63E-09	0	6.14E-10	1.42E-10	0	7.55E-11	2.19E-10	-8.06E-09	0
SQP1	-	5.65E+01	3.86E+00	8.42E+00	7.03E-01	0	1.00E+00	1.13E-01	0	8.57E-01	2.48E+00	-1.10E+01	0
Caption	PM = Particulate matter emissions; IRP = Ionising radiation - human health; ETP-fw = Ecotoxicity - freshwater; HTP-c = Human toxicity - cancer effects; HTP-nc = Human toxicity - non-cancer effects; SQP = Soil quality (Dimensionless) The figures are given in 'scientific' format, e.g. 1.95E+02. This figure can also be rewritten as: 1.95*10 ² or 195, while 1.12E-11 would be the same as 1.12*10 ⁻¹¹ or 0.0000000000112.												
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator. ² This impact category mainly covers the possible impact of low-dose ionising radiation on human health from the nuclear fuel chain. It does not take into account effects resulting from possible nuclear accidents, occupational exposure, or exposure due to disposal of radioactive waste in underground facilities. Potential ionising radiation from the ground, from radon and from some construction materials is also not measured by this indicator.												

RESOURCE USE PER Hz Basic 007/Dual 011													
Parameter	Unit	A1-A3	A4	A5 (Basic)	A5 (Dual)	C1	C2	C3 (i)	C3 (ii)	C4 (i)	C4 (ii)	D (i)	D (ii)
PERE	[MJ]	1.54E+01	1.06E-01	6.61E+00	4.98E+00	0	1.53E-02	1.76E-02	0	4.03E-03	1.17E-02	-2.34E+00	0
PERM	[MJ]	4.74E+00	4.90E-04	-4.74E+00	-4.74E+00	0	7.51E-05	8.74E-06	0	1.33E-05	3.87E-05	-2.59E-02	0
PERT	[MJ]	2.01E+01	1.07E-01	1.87E+00	2.44E-01	0	1.54E-02	1.76E-02	0	4.05E-03	1.17E-02	-2.36E+00	0
PENRE	[MJ]	1.18E+02	6.39E+00	1.52E+01	1.25E+00	0	9.89E-01	6.58E-01	0	1.22E+01	1.30E+01	-1.72E+01	0
PENRM	[MJ]	1.17E+01	1.01E-02	-1.35E-03	1.07E-02	0	1.51E-03	8.25E-03	0	-1.17E+01	-1.17E+01	-1.02E-02	0
PENRT	[MJ]	1.30E+02	6.40E+00	1.53E+01	1.26E+00	0	9.90E-01	6.66E-01	0	4.34E-01	1.26E+00	-1.72E+01	0
SM	[kg]	1.17E+00	6.28E-03	1.33E-01	2.17E-01	0	9.00E-04	8.70E-04	0	1.90E-04	5.40E-04	-1.23E-01	0
RSF	[MJ]	6.58E-02	1.47E-03	1.50E-02	4.00E-03	0	1.90E-04	2.10E-04	0	3.26E-05	9.45E-05	-3.30E-02	0
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0
FW	[m3]	9.50E-02	7.70E-04	1.32E-01	9.80E-04	0	1.30E-04	5.46E-05	0	4.50E-04	1.30E-03	-1.08E-02	0
Caption	PERE = Use of renewable primary energy; 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; 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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water The figures are given in 'scientific' format, e.g. 1.95E+02. This figure can also be rewritten as: 1.95*10² or 195, while 1.12E-11 would be the same as 1.12*10⁻¹¹ or 0.0000000000112.												

WASTE CATEGORIES AND OUTPUT FLOWS PER Hz Basic 007/Dual 011													
Parameter	Unit	A1-A3	A4	A5 (Basic)	A5 (Dual)	C1	C2	C3 (i)	C3 (ii)	C4 (i)	C4 (ii)	D (i)	D (ii)
HWD	[kg]	2.13E+00	3.97E-02	1.88E-01	4.18E-02	0	5.59E-03	4.31E-03	0	1.41E-03	4.10E-03	-1.83E-01	0
NHWD	[kg]	1.83E+01	5.22E-01	4.20E+00	4.41E-01	0	1.16E-01	2.60E-02	0	2.85E+00	8.28E+00	-2.21E+00	0
RWD	[kg]	2.06E-04	1.79E-06	3.73E-05	2.02E-05	0	2.57E-07	2.91E-07	0	5.91E-08	1.71E-07	-1.53E-05	0
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0
MFR	[kg]	1.53E-01	5.79E-03	2.66E-02	2.66E-02	0	7.90E-04	3.60E+00	0	1.70E-04	4.80E-04	-6.01E-02	0
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0
EEE	[MJ]	3.02E-01	1.20E-03	9.41E-01	9.41E-01	0	1.60E-04	2.12E-03	0	2.64E-05	7.65E-05	-1.75E-02	0
EET	[MJ]	1.37E+00	1.52E-03	2.82E+00	2.82E+00	0	1.70E-04	2.48E-05	0	1.49E-05	4.32E-05	-5.94E-01	0
Caption	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy The figures are given in 'scientific' format, e.g. 1.95E+02. This figure can also be rewritten as: 1.95*10² or 195, while 1.12E-11 would be the same as 1.12*10⁻¹¹ or 0.0000000000112.												

BIOGENIC CARBON PER Hz Basic 007/Dual 011		
Parameter	Unit	At factory gate
Biogenic carbon content in the product	[kg C]	0.00
Biogenic carbon content in accompanying packaging	[kg C]	0.12
Note	1 kg of biogenic carbon is equivalent to 44/12 kg of CO ₂	

Supplementary information

LCA interpretation

A1 (production of materials/components) is the dominant contributor across almost all environmental impact categories for both result sets, primarily driven by mineral wool production, which for Hz Basic 007/Dual 011 (40 mm mineral wool) accounts for a larger share than for Hz Basic 001/Dual 009 (20 mm mineral wool). PU adhesive/binder also contributes significantly, particularly to ODP, EP-marine, ADPm and resource use (energy carriers). A5 (installation) contributes noticeably to most categories for both installation methods, but Hz Basic (glued) generally has a greater impact than Hz Dual (screwed), due to the tile adhesive.

Technical information on underlying scenarios

Transport to the building site (A4)

Name	Hz Basic 001/Dual 009	Hz Basic 007/Dual 011	Unit
Fuel consumption and type (alternatively: type of transport)	Lorry 16-32 t, EURO 6	Lorry 16-32 t, EURO 6	-
Transport distance	375	375	km
Capacity utilisation (including empty return trips)	61	61	%
Gross density of transported product	160.00 (001/009)	131.43	kg/m ³
Capacity utilisation, volume factor	1	1	-

Installation in the building (A5)

Name	Hz Basic 001/Dual 009	Hz Basic 007/Dual 011	Unit
Auxiliary material for installation	1.91	0.33	kg
Operational water use	0.06	0.10	m ³
Other resources	0.00	0.00	kg
Energy type and consumption (e.g. electricity consumption incl. grid-mix type)	Omitted (below cut-off)	Omitted (below cut-off)	kWh
Waste materials	0.17	0.28	kg
Output materials related to waste processing at the site	0.17	0.28	kg
Direct emissions to air, soil and water	0.00	0.00	kg

Reference service life

Name		Unit
Reference Service Life - RSL	60	Years
Declared product properties (at gate) etc.	Passive ceiling and wall panels for indoor use; no wearing parts	
Instructions for use (if provided by the manufacturer)	Installed in a dry indoor environment; protected against permanent moisture	
Assumed quality of installation work, according to the manufacturer's instructions	Professional installation according to the manufacturer's guidelines	
Outdoor environment (outdoor use) - e.g. weather resistance, wind, pollution, UV, etc.	Yes, although with risk of UV exposure, requires plaster C	
Indoor environment (indoor use), e.g. temperature, humidity, etc.	Indoor use; temperature 18-25°C; relative humidity <70%	
Conditions of use - e.g. mechanical exposure, frequency of use, etc.	Static ceiling installation; can be used with conventional and diffuse ventilation	
Maintenance (frequency, type, quality, replacement of parts)	No periodic maintenance required	

End of life/Disposal (C1-C4)

Name	Hz Basic 001/Dual 009	Hz Basic 007/Dual 011	Unit
Sorted construction waste	4.64	6.44	kg
Mixed construction waste	0.00	0.00	kg
For reuse	0.00	0.00	kg
For recycling	1.80	3.60	kg
For energy recovery	0.00	0.00	kg
For landfill	2.84 (scenario i) / 4.64 (scenario ii)	2.84 (scenario i) / 6.44 (scenario ii)	kg
Assumptions for development of scenarios	Scenario (i): Mineral wool is recycled into new mineral wool production, while the glass granulate panel is landfilled as inert waste. Scenario (ii): The entire product is landfilled as inert waste, with no recycling.	Scenario (i): Mineral wool is recycled into new mineral wool production, while the glass granulate panel is landfilled as inert waste. Scenario (ii): The entire product is landfilled as inert waste, with no recycling.	-

Recycling, recovery and/or reuse potential (D)

Name	Hz Basic 001/Dual 009	Hz Basic 007/Dual 011	Unit
Displaced material (from recycling)	1.80 (scenario i) / 0.00 (scenario ii)	3.60 (scenario i) / 0.00 (scenario ii)	kg
Energy recovery from waste incineration	0.00	0.00	MJ

Assessment of data quality

The data quality has been assessed in accordance with Table E.1 in Annex E of EN 15804+A2 as well as EN 15941:2024. Overall assessment: Technology: Good, Geography: Good, Time: Very Good. A few waste-treatment processes have been assessed as Fair on technological representativeness, as proxy datasets ({RoW}/{GLO}) have been used where Danish or product-specific datasets are not available. Since waste treatment accounts for the majority of the impacts in C3/C4, these datasets contribute more than 30% to the core indicators in precisely these modules — including, among others, landfilling of glass granulate panels (C4) and recycling of gypsum waste (C3). The proxies are assessed to be accurate and conservative for Danish conditions, and the limited contribution of C3/C4 to the overall life cycle means that the uncertainty does not materially change the conclusions.

Indoor air

The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.1.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.2.

References

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General Programme Instructions

General Programme Instructions, version 3.0, spring 2025
www.epddanmark.dk

Technical Rules and Guidelines

Technical Rules and Guidelines, version 1.0, spring 2025
www.epddanmark.dk

EN 15804

DS/EN 15804 + A2:2019 - "Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products"

EN 15804

DS/EN 15804:2012+A2/AC:2021 - Corrigendum to DS/EN 15804 + A2:2019

cPCR-014

cPCR-014 Acoustical ceiling and wall solutions, version 1.0.0

EN 15942

DS/EN 15942:2011 - "Sustainability of construction works - Environmental product declarations - Communication format business-to-business (B2B)"

ISO 14025

DS/EN ISO 14025:2010 - "Environmental labels and declarations - Type III environmental declarations - Principles and procedures"

ISO 14040

DS/EN ISO 14040:2008 - "Environmental management - Life cycle assessment - Principles and framework"

ISO 14044

DS/EN ISO 14044:2008 - "Environmental management - Life cycle assessment - Requirements and guidelines"