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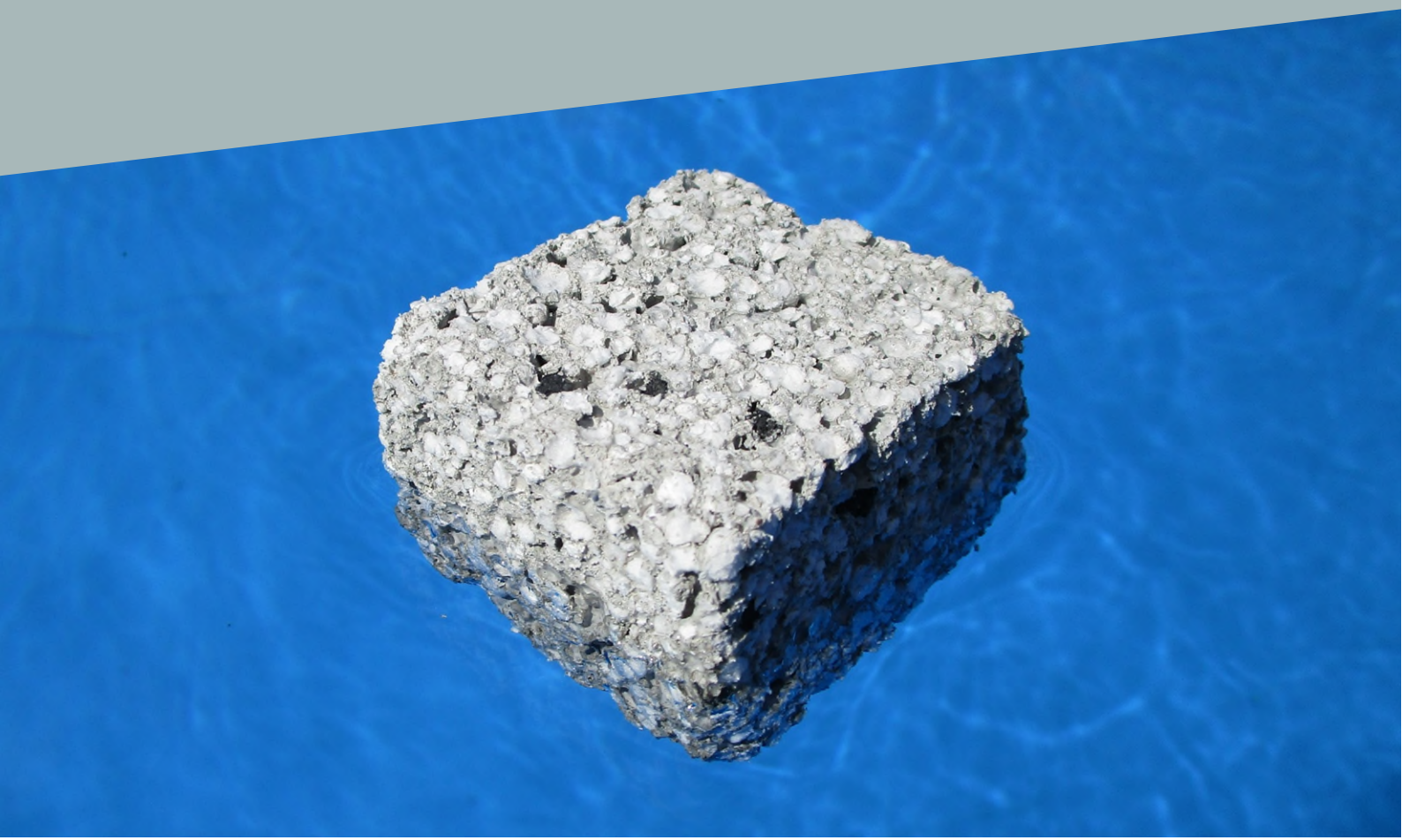
ECO PLATFORM EPD VERIFIED

Owner: Galaxe Recycling A/S
No.: MD-22018-EN
Issued: 27-06-2022
Valid to: 27-06-2027

3rd PARTY **VERIFIED**

EPD

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



Owner of declaration
Galaxe Recycling A/S
Omfartsvejen 16
4300 Holbæk, Denmark
CVR: 40985646

Programme
EPD Danmark
www.epddanmark.dk

☐ Industry EPD
☒ Product EPD

Declared product(s)
Thermozell TZ 400 and Thermozell TZ 600

Production site
Holbæk, Denmark

Product(s) use
The product is a type of light weight concrete that can be used for flooring, underflooring, roofing, parking decks but may also be used in other applications.

Declared/ functional unit
1 m^3 of liquid Thermozell

Year of data
2021

EPD version
1.0

Issued: 27-06-2022
Valid to: 27-06-2027

Basis of calculation
This EPD is developed in accordance with the European standard EN 15804+A2.

Comparability
EPDs of construction products may not be comparable if they do not comply with the requirements in 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:

Charlotte Merlin, FORCE Technology

Martha Katrine Sørensen
EPD Danmark

Life cycle stages and modules (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	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

Product information

Product description

The main product components for the wet and dry product are shown in the table below.

Table 1: Wet product composition.

Material	Weight-% of wet product (Thermozell 400)	Weight-% of wet product (Thermozell 600)
Treated EPS	6	4
Cement	63	60
Water	31	36

Table 2: Dry product composition.

Material	Weight-% of dry product (Thermozell 400)	Weight-% of dry product (Thermozell 600)
Treated EPS	7	5
Cement	72	75
Water	21	20

Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of Thermozell TZ 400 and Thermozell TZ 600 on the production site located in Holbæk, Denmark. Product specific data are based on average values collected in the period 2021. Background data are based on GaBi 2021 professional database and Ecoinvent v3.8. The data are less than 10 years old. Generally, the used background datasets are of high quality, and the majority of the datasets are only a couple of years old.

Hazardous substances

Thermozell TZ 400 and Thermozell TZ 600 does not contain substances listed in the ”Candidate List of Substances of Very High Concern for authorisation” above a concentration of 0.1% w/w.

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

Essential characteristics

Thermozell is a type of 'light concrete' where gravel is replaced by recycled and surface-treated flamingo balls.

The technology is thoroughly tested and excels at a wide range of points. In addition to having the strength of the concrete, Thermozell is, among other things, significantly lighter, soundproofing and totally unbrandable.

Fire resistance: In accordance with EN 1716 and EN 13823, class A2 -s1,d0.

Further technical information can be obtained by contacting the manufacturer or on the manufacturer’s website:

www.thermozell.dk

Reference Service Life (RSL)

Not applicable

Picture of product(s)

LCA background

Declared unit

The LCI and LCIA results in this EPD relates to 1 m3 wet Thermozell TZ 400 and Thermozell TZ 600.

Name	Thermozell TZ 400	Thermozell TZ 600	Unit
Declared unit	1	1	Cubic meter (m^3)
Density of liquid product	395 to 445	615 to 700	kg/m^3
Density of dry product	350 ±10%	500 -10%/+20%	kg/m^3
Conversion factor to 1 kg of liquid product	2.53E-03 to 2.25E-03	1.63E-03 to 1.43E-03	m^3/kg

*The variation in density depends on the water content and density of incoming EPS.

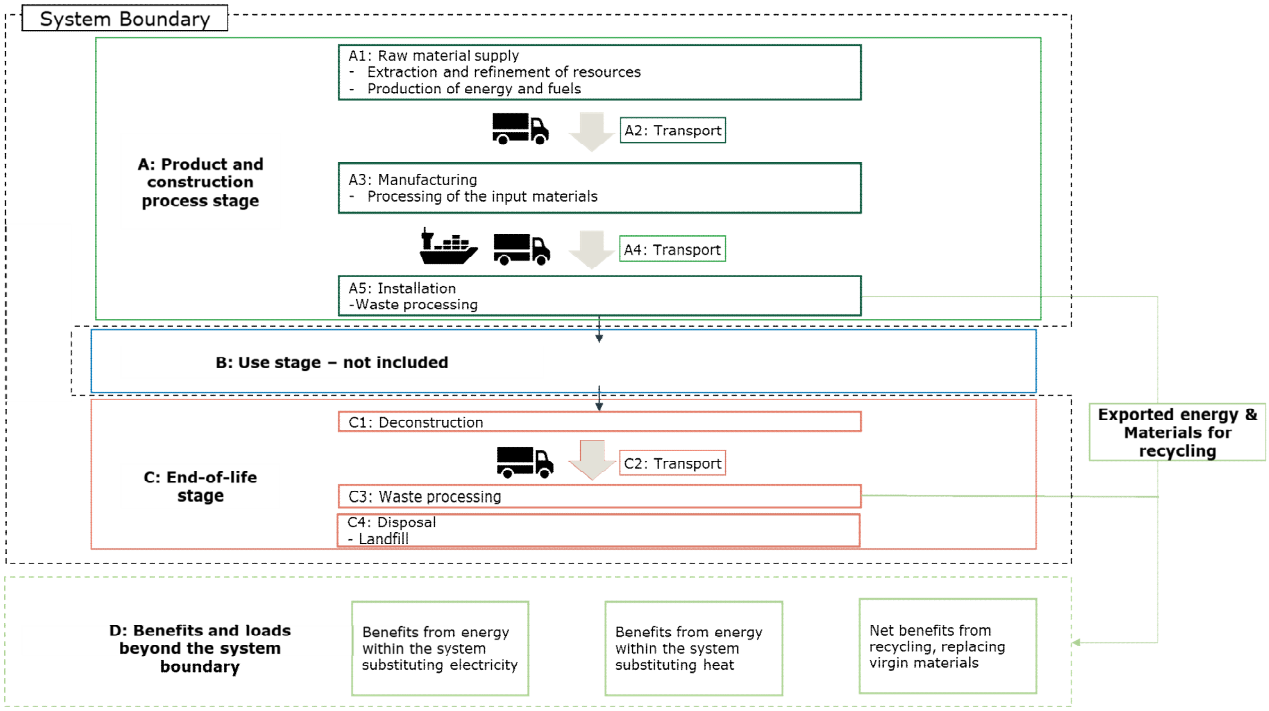
Functional unit

Not applicable.

PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804:2012+A2:2019.

Flowdiagram



System boundary

This EPD is based on a "Cradle-to-gate with options, modules C1-C4 and D" LCA, in which 100 weight-% has been accounted for.

The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804, 6.3.5, where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes.

Product stage (A1-A3) includes:

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. Module A1 comprises impacts from extraction and processing of raw materials including cement and materials needed to treat the EPS. 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.

Production includes the production of the treated EPS by grinding recycled EPS and coating the EPS with a mineral mixture and water to get the treated EPS. The cement is produced at another site by another company, and is included in module A1 and is transported directly to the building site for mixing. The cement used in Thermozell TZ 400 and TZ 600 is "Basis Aalborg Cement (CEM II/A-LL 52,5 N(LA))".

Construction process stage (A4-A5) includes:

The construction stage includes transport of cement and treated EPS to the building site. At the site Thermozell is made by mixing water, cement and the treated EPS. The assumed building site is in Copenhagen and the assumed market is Denmark.

End of Life (C1-C4) includes:

Deconstruction comprises the deconstruction of the installed Thermozell product. Deconstruction of Thermozell is assumed to be done by an excavator. The recycling rate of concrete in Denmark is above 90%, and a conservative collection rate of 90% was therefore assumed for the Thermozell products.

Module C2 comprises the impacts from transportation of the deconstructed product to the waste processing (recycling site) for the material that is collected and is transported to landfill for the product that is not collected.

Module C3 includes the crushing of collected Thermozell into smaller pieces, this is assumed to be done by a concrete crusher.

Material that is not collected for waste processing is assumed to go to landfill.

Re-use, recovery and recycling potential (D) includes:

Module D includes reuse, recovery and/or recycling potential, expressed as net impact and benefits. Heat and electricity generated during the lifecycle from combustion of packaging as well as Thermozell for recycling is assumed to replace energy and materials outside the system boundaries. The energy generated is assumed to be recovered and available to replace heat and electricity that would have been produced from other sources.

Material replacement outside the system boundaries is presented where Thermozell is assumed to replace gravel. This scenario is conservative and representative of current recycling conditions for concrete.

Excluded processes

The general rules for exclusion of inputs and outputs in the LCA follows the rules of in EN 15804+A2, section 6.3.6, where the cut-off criterion is 1% of renewable and non-renewable primary energy usage and 1% of the total mass input of that unit process. The total of neglected input flows per module shall be maximum of 5% of energy usage and mass.

The following exclusions have been made based on the but-off criteria:

- Production and waste management of packaging materials used for incoming raw materials.
- Production of infrastructure, capital goods, travelling by personnel and research and development.
- Packaging incineration for the extra material that compensates for Thermozell waste in module A5.
- Waste received together with incoming EPS (tape etc.) in A3, which is assessed to be 1% of the total mass.

LCA results

Thermozell TZ 400

ENVIRONMENTAL IMPACTS PER [1 cubic meter (m3) Thermozell TZ 400]									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	[kg CO_2 eq.]	1,92E+02	1,46E+00	3,75E+00	2,28E-01	2,67E+00	5,68E-01	5,17E-01	-1,55E+00
GWP-fossil	[kg CO_2 eq.]	1,91E+02	1,44E+00	3,74E+00	2,26E-01	2,62E+00	5,64E-01	5,31E-01	-1,56E+00
GWP-biogenic	[kg CO_2 eq.]	2,08E-01	1,03E-02	2,42E-03	0,00E+00	2,81E-02	0,00E+00	-1,54E-02	9,98E-03
GWP-luluc	[kg CO_2 eq.]	4,67E-02	7,41E-03	5,36E-03	1,78E-03	2,16E-02	4,44E-03	1,56E-03	-3,51E-03
ODP	[kg CFC 11 eq.]	3,79E-07	2,35E-16	1,45E-09	4,30E-17	5,21E-16	1,07E-16	2,06E-15	-1,73E-14
AP	[mol H^+ eq.]	3,68E-01	1,74E-02	4,32E-03	1,09E-03	8,52E-03	2,32E-03	3,78E-03	-5,27E-03
EP-freshwater	[kg P eq.]	8,65E-04	2,81E-06	6,65E-06	6,47E-07	7,85E-06	1,61E-06	8,92E-07	-4,80E-06
EP-marine	[kg N eq.]	1,21E-01	6,81E-03	1,78E-03	5,12E-04	3,90E-03	1,09E-03	9,82E-04	-2,08E-03
EP-terrestrial	[mol N eq.]	1,33E+00	7,48E-02	2,02E-02	5,66E-03	4,35E-02	1,22E-02	1,08E-02	-2,26E-02
POCP	[kg NMVOC eq.]	3,62E-01	1,74E-02	5,15E-03	1,43E-03	7,68E-03	3,17E-03	2,98E-03	-5,88E-03
ADPm[1]	[kg Sb eq.]	3,23E-05	9,66E-08	1,83E-07	1,93E-08	2,34E-07	4,81E-08	5,01E-08	-2,84E-07
ADPf[1]	[MJ]	9,39E+02	1,87E+01	1,24E+01	2,90E+00	3,52E+01	7,23E+00	7,05E+00	-2,33E+01
WDP[1]	[m^3]	8,94E+00	9,23E-03	5,65E+00	2,02E-03	2,45E-02	5,04E-03	5,70E-02	-9,02E-02
Caption	GWP-total = Globale 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 = Ozone Depletion; AP = Acidifcation; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water use								
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 experienced with the indicator.								

ADDITIONAL ENVIRONMENTAL IMPACTS PER [1 cubic meter (m3) Thermozell TZ 400]									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	[Disease incidence]	4,56E-06	3,25E-07	6,79E-08	1,24E-08	4,92E-08	4,33E-08	4,70E-08	-2,19E-07
IRP[2]	[kBq U235 eq.]	8,62E+01	4,26E-03	3,34E-01	7,72E-04	9,37E-03	1,93E-03	7,79E-03	-1,41E-01
ETP-fw[1]	[CTUe]	4,55E+02	1,37E+01	8,37E+00	2,15E+00	2,61E+01	5,38E+00	4,02E+00	-6,75E+00
HTP-c[1]	[CTUh]	4,53E-08	2,70E-10	7,34E-10	4,35E-11	5,28E-10	4,77E-10	5,92E-10	-5,94E-10
HTP-nc[1]	[CTUh]	2,65E-06	1,48E-08	1,98E-08	2,61E-09	3,09E-08	7,28E-09	6,54E-08	-4,31E-08
SQP[1]	-	9,77E+01	4,16E+00	3,37E+00	9,97E-01	1,21E+01	2,49E+00	1,42E+00	-9,26E+00
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)								
Disclaimers	[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 experienced with the indicator.								
	[2] 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 disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.								

RESOURCE USE PER [1 cubic meter (m3) Thermozell TZ 400]									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	[MJ]	1,18E+02	7,16E-01	1,02E+00	1,67E-01	2,02E+00	4,16E-01	9,50E-01	-1,08E+01
PERM	[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
PERT	[MJ]	1,18E+02	7,16E-01	1,02E+00	1,67E-01	2,02E+00	4,16E-01	9,50E-01	-1,08E+01
PENRE	[MJ]	9,07E+02	1,87E+01	1,29E+01	2,91E+00	3,53E+01	7,26E+00	7,05E+00	-2,33E+01
PENRM	[MJ]	8,47E+02	0,00E+00	2,69E+00	0,00E+00	0,00E+00	-7,33E+02	0,00E+00	0,00E+00
PENRT	[MJ]	1,75E+03	1,87E+01	1,56E+01	2,91E+00	3,53E+01	-7,25E+02	7,05E+00	-2,33E+01
SM	[kg]	2,00E+01	0,00E+00	7,63E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	[MJ]	0	0	0	0	0	0	0	0
NRSF	[MJ]	0	0	0	0	0	0	0	0
FW	[m^3]	2,72E-01	8,31E-04	1,32E-01	1,91E-04	2,32E-03	4,77E-04	1,74E-03	-6,08E-03
Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources 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 excluding non renewable primary 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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water								

WASTE CATEGORIES AND OUTPUT FLOWS PER [1 cubic meter (m3) Thermozell TZ 400]									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	[kg]	7,47E-08	6,89E-10	8,07E-10	1,53E-10	1,86E-09	3,83E-10	7,49E-10	-6,14E-08
NHWD	[kg]	1,14E+00	2,56E-03	5,07E-02	4,57E-04	5,54E-03	1,14E-03	3,52E+01	-8,45E-01
RWD	[kg]	3,62E-02	2,93E-05	1,74E-04	5,28E-06	6,40E-05	1,32E-05	7,40E-05	-2,65E-02
CRU	[kg]	0	0	0	0	0	0	0	0
MFR	[kg]	0,00E+00	0,00E+00	1,20E+00	0,00E+00	0,00E+00	3,15E+02	0,00E+00	0,00E+00
MER	[kg]	0	0	0	0	0	0	0	0
EEE	[MJ]	0,00E+00	0,00E+00	5,01E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	[MJ]	0,00E+00	0,00E+00	8,91E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
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; EE = Exported energy								

BIOGENIC CARBON CONTENT PER [1 cubic meter (m3) Thermozell TZ 400]		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in product	[kg C]	0
Biogenic carbon content in accompanying packaging	[kg C]	0
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2	

Thermozell TZ 600

ENVIRONMENTAL IMPACTS PER [1 cubic meter (m3) Thermozell TZ 600]									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	[kg CO_2 eq.]	2,84E+02	1,93E+00	4,23E+00	3,26E-01	3,81E+00	5,68E-01	7,39E-01	-1,84E+00
GWP-fossil	[kg CO_2 eq.]	2,84E+02	1,90E+00	4,22E+00	3,24E-01	3,74E+00	5,64E-01	7,59E-01	-1,85E+00
GWP-biogenic	[kg CO_2 eq.]	2,99E-01	1,27E-02	4,03E-03	0,00E+00	4,02E-02	0,00E+00	-2,21E-02	1,52E-02
GWP-luluc	[kg CO_2 eq.]	6,72E-02	8,95E-03	5,57E-03	2,54E-03	3,09E-02	4,44E-03	2,23E-03	-4,72E-03
ODP	[kg CFC 11 eq.]	3,79E-07	3,00E-16	1,58E-09	6,14E-17	7,45E-16	1,07E-16	2,95E-15	-2,00E-14
AP	[mol H^+ eq.]	5,40E-01	2,51E-02	5,23E-03	1,56E-03	1,22E-02	2,32E-03	5,41E-03	-7,26E-03
EP-freshwater	[kg P eq.]	8,91E-04	3,43E-06	8,25E-06	9,24E-07	1,12E-05	1,61E-06	1,27E-06	-6,01E-06
EP-marine	[kg N eq.]	1,80E-01	9,74E-03	2,09E-03	7,31E-04	5,57E-03	1,09E-03	1,40E-03	-2,87E-03
EP-terrestrial	[mol N eq.]	1,96E+00	1,07E-01	2,36E-02	8,09E-03	6,22E-02	1,22E-02	1,54E-02	-3,13E-02
POCP	[kg NMVOC eq.]	5,32E-01	2,52E-02	6,04E-03	2,05E-03	1,10E-02	3,17E-03	4,25E-03	-8,16E-03
ADPm[1]	[kg Sb eq.]	3,49E-05	1,21E-07	2,08E-07	2,76E-08	3,35E-07	4,81E-08	7,17E-08	-3,35E-07
ADPf[1]	[MJ]	1,31E+03	2,45E+01	1,46E+01	4,14E+00	5,03E+01	7,23E+00	1,01E+01	-2,76E+01
WDP[1]	[m^3]	1,08E+01	1,14E-02	9,99E+00	2,89E-03	3,50E-02	5,04E-03	8,15E-02	-1,17E-01
Caption	GWP-total = Globale 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 = Ozone Depletion; AP = Acidifcation; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water use								
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 experienced with the indicator.								

ADDITIONAL ENVIRONMENTAL IMPACTS PER [1 cubic meter (m3) Thermozell TZ 600]									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	[Disease incidence]	6,72E-06	4,82E-07	7,92E-08	1,77E-08	7,03E-08	4,33E-08	6,72E-08	-3,16E-07
IRP[2]	[kBq U235 eq.]	8,91E+01	5,45E-03	3,78E-01	1,10E-03	1,34E-02	1,93E-03	1,11E-02	-1,87E-01
ETP-fw[1]	[CTUe]	6,42E+02	1,80E+01	9,63E+00	3,08E+00	3,73E+01	5,38E+00	5,74E+00	-9,15E+00
HTP-c[1]	[CTUh]	5,62E-08	3,52E-10	8,06E-10	6,22E-11	7,54E-10	4,77E-10	8,47E-10	-7,71E-10
HTP-nc[1]	[CTUh]	3,95E-06	1,91E-08	2,70E-08	3,73E-09	4,42E-08	7,28E-09	9,34E-08	-6,12E-08
SQP[1]	-	1,41E+02	5,03E+00	3,66E+00	1,42E+00	1,73E+01	2,49E+00	2,03E+00	-1,04E+01
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)								
Disclaimers	[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 experienced with the indicator.								
	[2] 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 disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.								

RESOURCE USE PER [1 cubic meter (m3) Thermozell TZ 600]									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	[MJ]	1,75E+02	8,72E-01	1,32E+00	2,38E-01	2,89E+00	4,16E-01	1,36E+00	-1,19E+01
PERM	[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
PERT	[MJ]	1,75E+02	8,72E-01	1,32E+00	2,38E-01	2,89E+00	4,16E-01	1,36E+00	-1,19E+01
PENRE	[MJ]	1,28E+03	2,45E+01	1,54E+01	4,16E+00	5,05E+01	7,26E+00	1,01E+01	-2,76E+01
PENRM	[MJ]	8,47E+02	0,00E+00	2,69E+00	0,00E+00	0,00E+00	-7,33E+02	0,00E+00	0,00E+00
PENRT	[MJ]	2,13E+03	2,45E+01	1,81E+01	4,16E+00	5,05E+01	-7,25E+02	1,01E+01	-2,76E+01
SM	[kg]	2,00E+01	0,00E+00	8,34E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	[MJ]	0	0	0	0	0	0	0	0
NRSF	[MJ]	0	0	0	0	0	0	0	0
FW	[m^3]	3,48E-01	1,01E-03	2,33E-01	2,73E-04	3,31E-03	4,77E-04	2,49E-03	-7,27E-03
Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources 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 excluding non renewable primary 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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water								

WASTE CATEGORIES AND OUTPUT FLOWS PER [1 cubic meter (m3) Thermozell TZ 600]									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	[kg]	1,11E-07	8,47E-10	1,01E-09	2,19E-10	2,66E-09	3,83E-10	1,07E-09	-9,34E-08
NHWD	[kg]	1,71E+00	3,29E-03	8,20E-02	6,52E-04	7,92E-03	1,14E-03	5,03E+01	-1,36E+00
RWD	[kg]	5,40E-02	3,75E-05	2,66E-04	7,54E-06	9,15E-05	1,32E-05	1,06E-04	-4,26E-02
CRU	[kg]	0	0	0	0	0	0	0	0
MFR	[kg]	0,00E+00	0,00E+00	1,88E+00	0,00E+00	0,00E+00	4,50E+02	0,00E+00	0,00E+00
MER	[kg]	0	0	0	0	0	0	0	0
EEE	[MJ]	0,00E+00	0,00E+00	5,01E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	[MJ]	0,00E+00	0,00E+00	8,91E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
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; EE = Exported energy								

BIOGENIC CARBON CONTENT PER [1 cubic meter (m3) Thermozell TZ 600]		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in product	[kg C]	0
Biogenic carbon content in accompanying packaging	[kg C]	0
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2	

Additional information

Technical information on scenarios

Figures are presented separately for Thermozell TZ 400 and Thermozell TZ 600 when numbers differ between the products.

Transport to the building site (A4) – EPS aggregate

Scenario information	Value	Unit
Fuel type	EU Diesel, 6.35 wt.% bio components	-
Vehicle type	Truck, Euro 5	-
Transport distance	55	km
Capacity utilization (including empty runs)	10	%

Transport to the building site (A4) - Cement

Scenario information	Value, Truck	Value, Ship	Unit
Fuel type	EU Diesel, 6.35 wt.% bio components	Heavy fuel oil, 1.0 wt.% S	-
Vehicle type	Truck, Euro 5	Container ship	-
Transport distance	20	260	km
Capacity utilization (including empty runs)	61	70	%

Installation of the product in the building (A5)

Scenario information	Thermozell 400	Thermozell 600	Unit
Ancillary materials (Extra material to compensate for Thermozell waste)	1.32	2.06	kg
Water use (part of product recipe)	125	225	kg
Energy type and consumption (Diesel for pump)	0.2	0.2	l
Waste materials (Thermozell waste at construction site)	1.32	1.90	kg
Waste materials (plastic waste)	0.75	0.75	kg
Output materials	350	500	kg

End of life (C1-C4)

Scenario information	Thermozell 400	Thermozell 600	Unit
Collected separately	351.32	502.06	kg
For recycling	316.19	451.85	kg
For final disposal	35.13	50.21	kg

Re-use, recovery and recycling potential (D)

Scenario information	Thermozell 400	Thermozell 600	Unit
Replacing fill material (gravel)	316.19	451.85	kg
Replacing heat (Danish natural gas)	8.91	8.91	MJ
Replacing electricity (Danish grid mix)	5.01	5.01	MJ

Indoor air

The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available.

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