

# Environmental Product Declaration



In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

## ***Ecologic Thermal & Acoustical Insulation***

from

**ECI**



Programme: The International EPD® System, [www.environdec.com](http://www.environdec.com)

Programme operator: EPD International AB

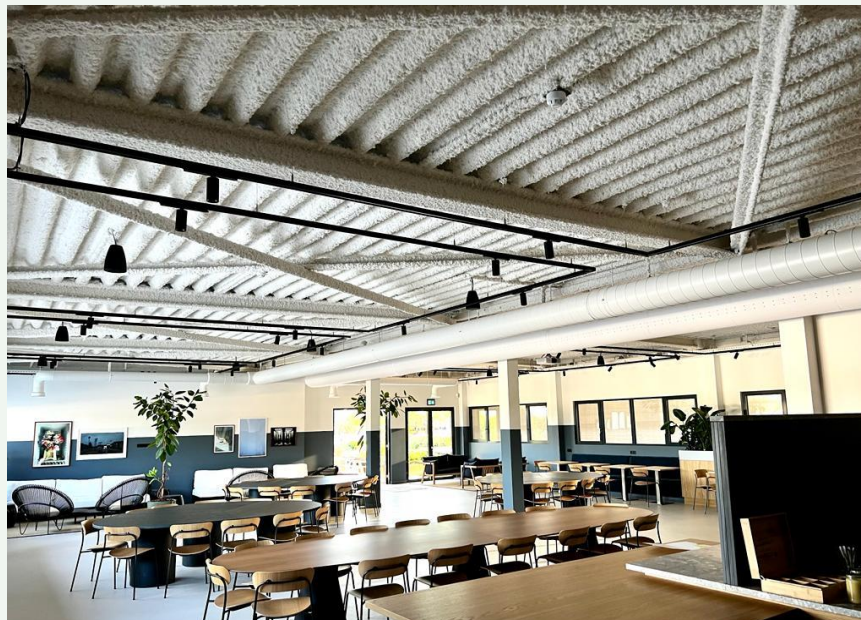
Local Operator: EPD Turkey

EPD registration number: S-P-08766

Publication date: 2023-08-01

Valid until: 2028-07-31

Scope: This EPD is based on 2022 production data for the thermal and acoustical insulation material made of recycled cellulose fibers and produced in the manufacturing plant of ECI located in Manisa. The geographical scope of the analysis is Türkiye. The system boundary covers the information modules A1-A5 and C1-C4 (cradle-to-gate).



## General information

### Programme information

<b>Programme:</b>	The International EPD <sup>®</sup> System
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
<b>Website:</b>	<a href="http://www.environdec.com">www.environdec.com</a>
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<b>Accountabilities for PCR, LCA and independent, third-party verification</b>
<b>Product Category Rules (PCR)</b>
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): <i>Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products (2019:14, version 1.2.5)</i>
PCR review was conducted by: <i>IVL Swedish Environmental Research Institute Secretariat of the International EPD<sup>®</sup> System</i>
<b>Life Cycle Assessment (LCA)</b>
LCA accountability: <i>Assoc.Prof.Dr. Fehmi Gorkem Uctug, CANSET INC. (<a href="http://www.can-set.com">www.can-set.com</a>)</i>
<b>Third-party verification</b>
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:  <input checked="" type="checkbox"/> EPD verification by individual verifier  Third-party verifier: <i>Dr. Javier Martin Echazarreta</i> <i>Instituto Nacional de tecnología Industrial   Argentina</i>  Approved by: The International EPD <sup>®</sup> System
Procedure for follow-up of data during EPD validity involves third party verifier:  <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

## Company information

Owner of the EPD: Mek İnşaat Sanayi ve Ticaret A.Ş.

Contact: Mr. Gürkan Kubilay

Description of the organisation: Incorporated company

Product-related or management system-related certifications: (ETA)The European technical assessment is an alternative for construction products not covered by a harmonised standard. CE marking.

Name and location of production site(s): Mek İnşaat Sanayi ve Ticaret A.Ş.

Akhisar Organize Sanayi Bölgesi 12. Cadde No.3 Akhisar / Manisa - TÜRKİYE

## Product information

Product name: ECI Ecologic Thermal & Acoustical Insulation

Product identification: ECISpray is a high-performance acoustical finish system consists of natural plant based fibers. It is sprayed with a special water based adhesive. It is used both for acoustical and thermal insulation purposes. It is available with standard colors and custom colors. Also have different textures/structures from smooth to coarse finishes.

Product description: The product is an acoustical spray system. It absorbs noise, which improves speech intelligibility and brings a natural feeling of well-being to a space as well as providing thermal insulation. It is applied directly on the substrate. It is used to insulate ceilings, walls, roofs, attics and mezzanine floors. The spray applied acoustical texture has been designed for a variety of project types. It provides high performance solution to acoustical and lighting design objectives in both new construction and renovation projects while providing thermal insulation for buildings such as public transportation areas, residential buildings, classrooms, restaurants, sports, auditoriums, nightclubs, car parks, offices, living rooms, kitchens, swimming pools, care homes, conference/meeting rooms.

UN CPC code: 54650

Other codes for product classification: NACE 2399

Geographical scope: Modules A1, A2, A4, C1, C2, C3, C4 were modelled with process-specific data with a global (GLO) geographical scope for the datasets. Modules A3 and A5 were modelled with the geographical scope being Türkiye (TR). The other modules were excluded from the analysis.



## LCA information

According to: General Programme Instructions for the International EPD<sup>®</sup> System 4.0

PCR: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products (2019:14, version 1.2.5)

Functional unit: 1 kg of product used in the building construction

Reference service life: 50 years

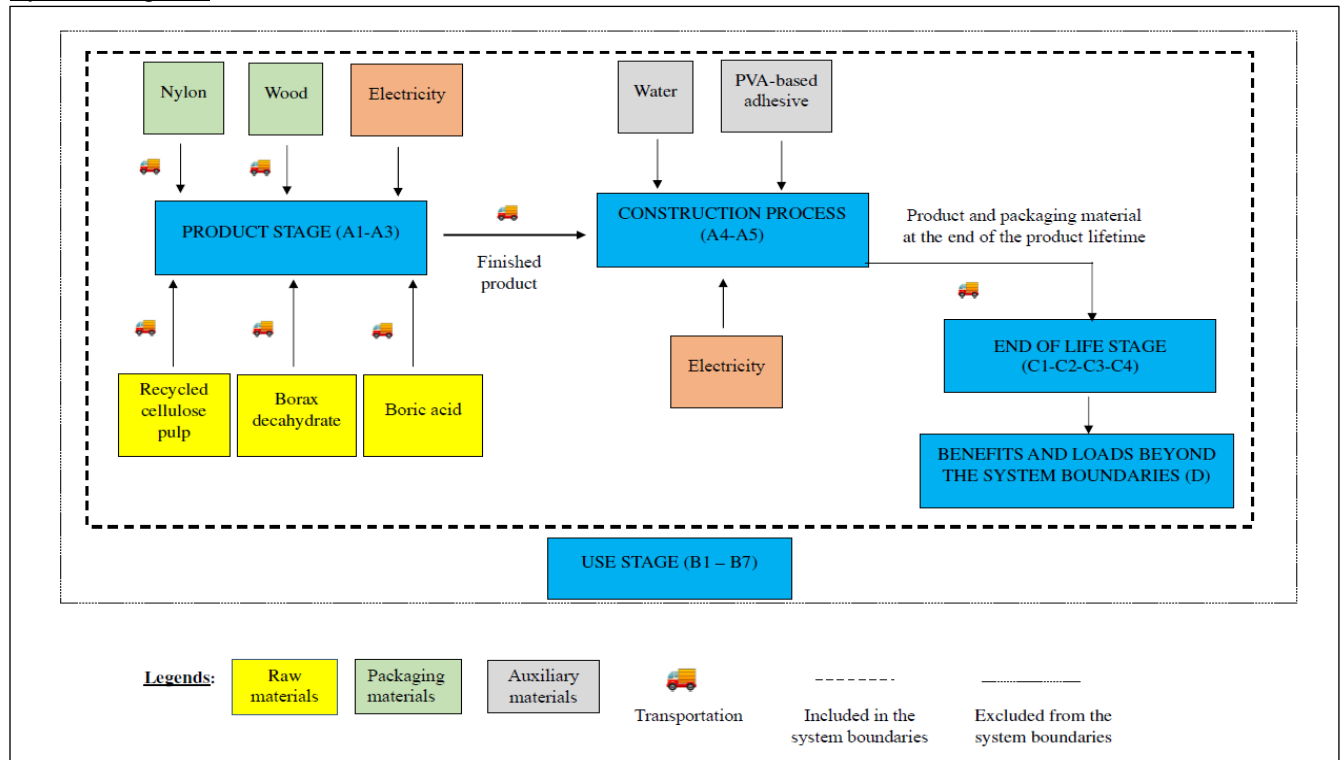
Time representativeness: The period of observation ran from January to December 2022.

Database(s) and LCA software used: Ecoinvent 3.5, GaBi

Description of system boundaries:

Construction service EPD: Cradle to gate with modules A1-A5 and modules C1-C4 and module D.

System diagram:



More information:

- All the data from the operating data acquisition for the Spray Applied Thermal Acoustical Insulation of MEK İNŞAAT SAN.TİC.A.Ş were taken into consideration. The entire life cycle model relies on specific data.
- All raw materials used for the formula and the determined production waste were taken into consideration in the assessment per functional unit according to the bill of material data. Energy consumption values per functional unit were calculated by considering the power rating of the relevant machinery and multiplying these data by the duration of operation. Energy required for the production of the product was calculated as 0.125 kWh of electricity for 1 kg of product while the amount of energy that the blower consumes for applying 1 kg of product was measured as 0.415 kWh.
- The following dataset from Ecoinvent 3.5 database was used to model the grid electricity in Türkiye: "TR: electricity, medium voltage".



- All the transportation processes (raw material to production site, final product to installation site, waste to waste management site) were assumed to be taking place by diesel-powered trucks.
- The period of observation ran from January to December 2022. All the data were obtained from the bill of materials (BoM) documents of the manufacturing company, meaning that primary and not generic data was used in the analysis.
- Allocation was not performed in this study as the analysis does not involve any multi-functionality. No by-products are created. The complete treatment of the waste from manufacturing lies within the system limits and does not require any declaration.



Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	TR	GLO	TR	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific data used	> 90%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	Not relevant					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Not relevant					-	-	-	-	-	-	-	-	-	-	-	-

X = included in LCA; ND = Module not declared; TR: Turkiye; GLO: global

Justification for the exclusion of certain stages:

- B1: No material or energy supply is associated with the use stage.  
 B2: No maintenance is required for the product.  
 B3: No repair is required for the product.  
 B4: No replacement is required for the product during its life time.  
 B5: Refurbishment is not applicable.  
 B6: There is no energy use associated with the operation stage.  
 B7: There is no water use associated with the operation stage.

Justification for the inclusion of certain stages with negligible impact contributions:

C1: This module has been modelled assuming that demolition of the product takes place with the whole demolition of the building/construction and that the energy used for the demolition of the product has minor significance and the environmental impact of this module is set to be zero.

D: Waste is assumed to be sent to landfill, thus the contribution of stage D is assumed to be zero.

## Content information (for 1 kg of product)

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Recycled Cellulose Pulp	0.850	100.0	44.0
Boric Acid	0.075	0.0	0.0
Borax Decahydrate	0.075	0.0	0.0
TOTAL	1.000	85.0	37.4
Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Nylon	0.009	0.9	0.00
Wood	0.040	4.0	0.04
TOTAL	0.049	4.9	0.04

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional
Boric Acid	233-139-2	10043-35-3	7.5



## Results of the environmental performance indicators

Functional unit: 1 kg of product used in the building construction

### Mandatory impact category indicators according to EN 15804

Results per functional unit																
Indicator	Unit	A1-A3	A4	A5	B 1	B 2	B 3	B 4	B 5	B 6	B 7	C 1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq.	7.777E-01	7.428E-05	1.880E+00	0	0	0	0	0	0	0	0	3.299E-04	2.128E-02	7.227E-02	0
GWP-biogenic	kg CO <sub>2</sub> eq.	-1.806E-01	4.970E-05	1.000E-03	0	0	0	0	0	0	0	0	0.000E+00	5.852E-02	2.000E-04	0
GWP- luluc	kg CO <sub>2</sub> eq.	1.479E-03	2.170E-08	2.924E-03	0	0	0	0	0	0	0	0	9.670E-08	3.570E-07	3.030E-05	0
GWP- total	kg CO <sub>2</sub> eq.	5.986E-01	1.240E-04	1.884E+00	0	0	0	0	0	0	0	0	3.300E-04	7.980E-02	7.250E-02	0
ODP	kg CFC 11 eq.	6.930E-08	1.810E-11	2.799E-07	0	0	0	0	0	0	0	0	8.130E-11	1.500E-10	2.620E-08	0
AP	mol H <sup>+</sup> eq.	6.188E-03	3.090E-07	9.940E-03	0	0	0	0	0	0	0	0	2.290E-06	1.080E-05	6.450E-04	0
EP-freshwater	kg P eq.	3.709E-01	5.980E-06	8.377E-01	0	0	0	0	0	0	0	0	2.660E-05	3.480E-04	2.300E-02	0
EP- marine	kg N eq.	1.246E+00	9.040E-05	1.679E+00	0	0	0	0	0	0	0	0	8.810E-03	5.880E-03	2.130E-01	0
EP-terrestrial	mol N eq.	1.209E-02	9.890E-07	1.804E-02	0	0	0	0	0	0	0	0	9.640E-06	5.460E-05	2.320E-03	0
POCP	kg NMVOC eq.	3.389E-03	3.010E-07	7.335E-03	0	0	0	0	0	0	0	0	2.640E-06	1.336E-05	6.720E-04	0
ADP- minerals&metals*	kg Sb eq.	7.430E-04	5.820E-09	7.541E-05	0	0	0	0	0	0	0	0	2.590E-08	1.520E-08	1.960E-06	0
ADP-fossil*	MJ	1.041E+01	1.130E-03	4.468E+01	0	0	0	0	0	0	0	0	5.050E-03	3.750E-03	1.810E+00	0
WDP*	m <sup>3</sup>	9.712E-03	1.280E-07	3.003E-02	0	0	0	0	0	0	0	0	5.700E-07	6.380E-06	5.360E-04	0
Acronyms	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 potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; 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 Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

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



## Additional mandatory and voluntary impact category indicators

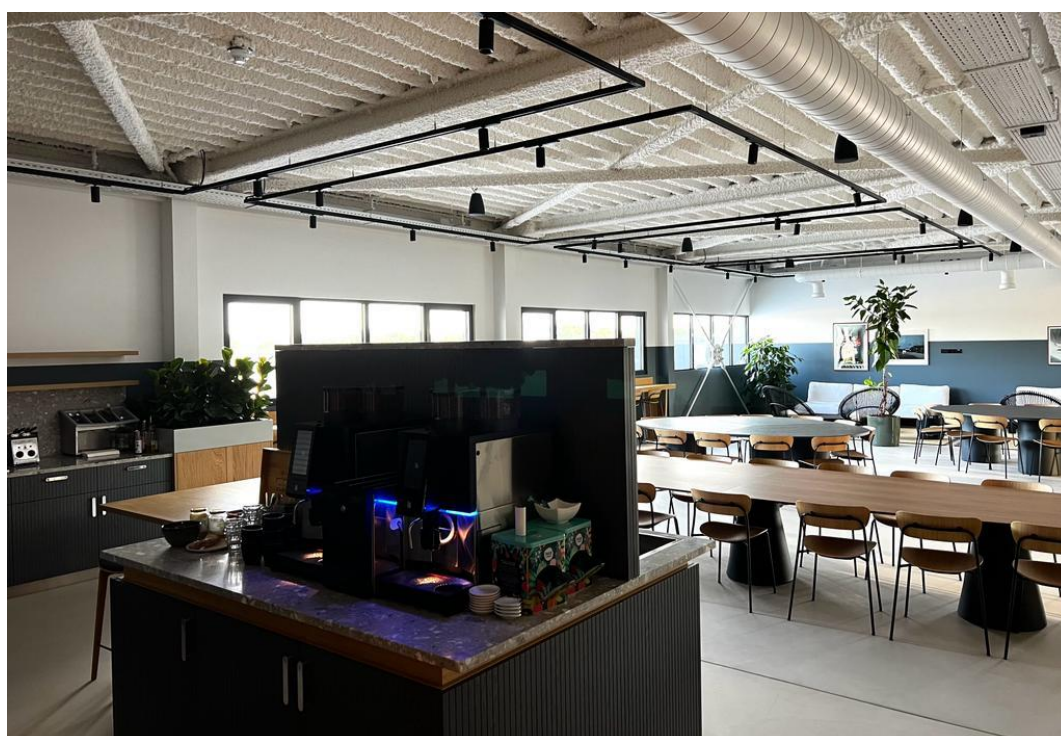
Functional unit: 1 kg of product used in the building construction

Results per functional																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG <sup>1</sup>	kg CO <sub>2</sub> eq.	7.792E-01	7.430E-05	1.883E+00	0	0	0	0	0	0	0	0	3.300E-04	2.128E-02	7.230E-002	0
Additional voluntary indicators e.g. the voluntary <b>indicators</b> from EN 15804 or the global indicators according to ISO 21930:2017																
PM	Disease incidence	2.005E+00	5.490E-05	3.426E+00	0	0	0	0	0	0	0	0	2.950E-04	8.060E-04	9.620E-02	0
IRP	kBq U235 eq.	5.369E-02	5.390E-06	1.614E-01	0	0	0	0	0	0	0	0	2.410E-05	3.750E-05	8.790E-03	0
ETP-fw	CTUe	1.037E+01	4.170E-04	1.499E+01	0	0	0	0	0	0	0	0	1.850E-03	2.701E-01	2.770E+01	0
HTP-c	CTUh	5.750E-08	2.260E-12	1.063E-07	0	0	0	0	0	0	0	0	1.010E-11	6.043E-10	2.430E-08	0
HTP-nc	CTUh	3.936E-07	1.720E-11	5.297E-07	0	0	0	0	0	0	0	0	7.730E-11	2.180E-09	1.280E-06	0
SQP	dimensionless	-1.971E+01	2.477E-03	3.376E+00	0	0	0	0	0	0	0	0	1.102E-02	1.614E-03	1.271E+01	0
Acronyms		PM = Potential incidence of disease due to Particulate Matter emissions; IRP = Potential Human exposure efficiency relative to U235; ETP-fw = Potential Comparative Toxic Unit for ecosystems; HTP-c = Potential Comparative Toxic Unit for humans – cancer effect; HTP-nc = Potential Comparative Toxic Unit for humans – non-cancer effect; SQP = Potential soil quality index														

<sup>1</sup> This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO<sub>2</sub> is set to zero.

## Classification of disclaimers to the declaration of core and additional environmental impact indicators

ILCD-classification	Indicator	disclaimer
ILCD-Type 1	Global warming potential (GWP)	none
	Depletion potential of the stratospheric ozone layer (ODP)	none
	Potential incidence of disease due to PM emissions (PM)	none
ILCD-Type 2	Acidification potential, Accumulated Exceedance (AP)	none
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	none
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	none
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	none
	Formation potential of tropospheric ozone (POCP)	none
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD-Type 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	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 disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.		
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 experienced with the indicator.		



## Resource use indicators

Functional unit: 1 kg of product used in the building construction

Results per functional																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1.938E+00	5.160E-06	7.443E-01	0	0	0	0	0	0	0	0	2.296E-05	1.536E-04	1.260E-02	0
PERM	MJ	2.907E+00	7.740E-06	1.116E+00	0	0	0	0	0	0	0	0	3.444E-05	2.304E-04	1.890E-02	0
PERT	MJ	4.846E+00	1.290E-05	1.861E+00	0	0	0	0	0	0	0	0	5.740E-05	3.840E-04	3.150E-02	0
PENRE	MJ	4.352E+00	4.560E-04	1.878E+01	0	0	0	0	0	0	0	0	2.048E-03	1.716E-03	7.440E-01	0
PENRM	MJ	6.529E+00	6.840E-04	2.817E+01	0	0	0	0	0	0	0	0	3.072E-03	2.574E-03	1.116E+00	0
PENRT	MJ	1.088E+01	1.140E-03	4.694E+01	0	0	0	0	0	0	0	0	5.120E-03	4.290E-03	1.860E+00	0
SM	kg	7.500E-01	0.000E+00	0.000E+00	0	0	0	0	0	0	0	0	0.000E+00	0.000E+00	0.000E+00	0
RSF	MJ	0.000E+00	0.000E+00	0.000E+00	0	0	0	0	0	0	0	0	0.000E+00	0.000E+00	0.000E+00	0
NRSF	MJ	0.000E+00	0.000E+00	0.000E+00	0	0	0	0	0	0	0	0	0.000E+00	0.000E+00	0.000E+00	0
FW	m³	1.043E-02	2.040E-07	4.636E-02	0	0	0	0	0	0	0	0	9.110E-07	-8.800E-06	1.920E-03	0
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

## Waste indicators

Functional unit: 1 kg of product used in the building construction

Results per functional																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	7.40E-05	0.00E+00	7.20E-09	0	0	0	0	0	0	0	0	0	2.40E-08	3.80E-09	0
Non-hazardous waste disposed	kg	7.30E-03	6.80E-06	4.90E-05	0	0	0	0	0	0	0	0	1.90E-06	3.10E-04	3.80E-03	0
Radioactive waste disposed	kg	5.80E-07	3.10E-07	6.60E-09	0	0	0	0	0	0	0	0	8.70E-08	4.50E-09	9.90E-08	0

## Output flow indicators

Results per functional																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	4.90E-02	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	1.14E+00	0	0

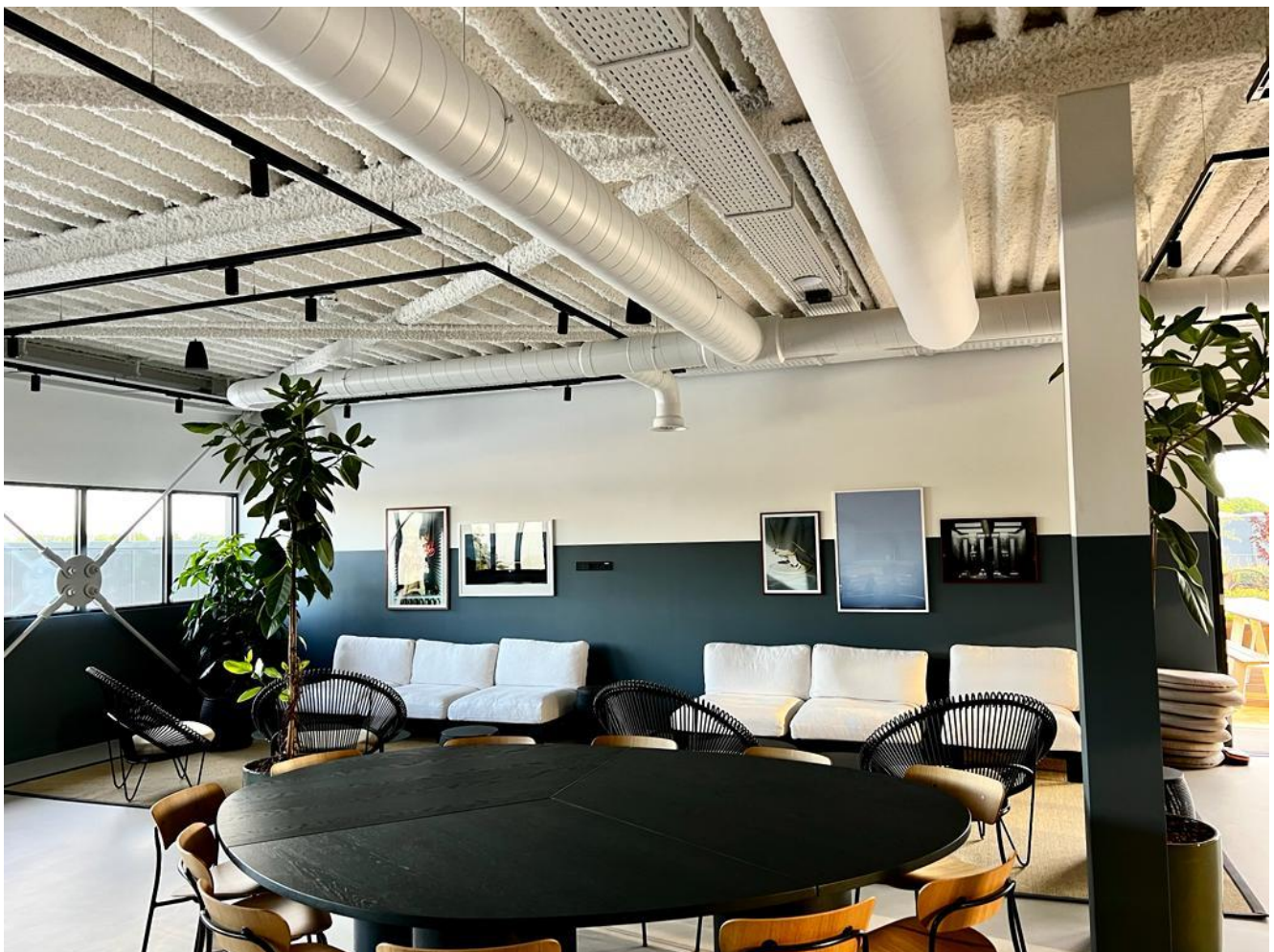


## Additional social and economic information

Reducing the environmental impacts, and most importantly its carbon footprint, is the core target of ECI's overall sustainability policy with the main of protecting our world and leaving a better environment for the future generations. We are also convinced that reducing our overall environmental footprint is essential to the long-term success of our business.

For these reasons, we use life cycle assessment methodology in order to first detect, and then reduce the environmental impacts associated with our products.

We believe that addressing sustainability challenges will allow our company to continue to not only grow but also contribute to the local community as well as international community in the future. Investing in sustainability should – in the end – ensure that these efforts go beyond established regulatory requirements and the net effect of our efforts will positively impact the environment in which we operate.



## References

General Programme Instructions for the International EPD<sup>®</sup> System 4.0

Product Category Rules (PCR) Date 2022-11-01 “Construction Products PCR 2019:14, version 1.2.5, valid until: 2024-12-20

EN ISO 14040 Environmental management - Life cycle assessment -- Principles and framework

EN ISO 14044 Environmental management - Life cycle assessment -- Requirements and guidelines

EN ISO 14025 Environmental labels and declarations -Type III environmental declarations -- Principles and procedures

EN 15804 Sustainability of construction works - environmental product declarations. Core rules for the product category of construction products

EPA, 2016. “Guidance on Data Quality Assessment for Life Cycle Inventory Data”, retrieved from: [https://cfpub.epa.gov/si/si\\_public\\_file\\_download.cfm?p\\_download\\_id=528687](https://cfpub.epa.gov/si/si_public_file_download.cfm?p_download_id=528687), date of access: 10.03.2023

<https://www.isqaper-is.eu/sqapp-the-soil-quality-app/building-sqapp/185-calculating-soil-quality-index>, date of access: 10.03.2023

[https://www.lifecyclecenter.se/wp-content/uploads/2.-LANCA\\_Rafael-Horn.pdf](https://www.lifecyclecenter.se/wp-content/uploads/2.-LANCA_Rafael-Horn.pdf), date of access: 11.03.2023



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