

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804 + A1

Owner of the Declaration – Cellulose Insulation Ltd

Declaration number: EPDIE-20-24

ECO Platform EPD no: 1202

Issue date 12th May 2020

Valid to 12th May 2025

EPD Programme - EPD Ireland

Programme Operator - Irish Green Building Council

www.epdireland.org






Cellulose Fibre Insulation

Thermal insulation for use in pitched roofs,
walls and floor spaces in dwellings.

1. General information

PROGRAMME OPERATOR	OWNER OF DECLARATION
Irish Green Building Council, 19 Mountjoy Square, Dublin D01 E8P5	Cellulose Insulation Ltd, trading as Ecocel Marina Commercial Park, Centre Park Road, Cork (Ireland)
DECLARATION NUMBER	PRODUCTION SITE
EPDIE-20-24	Marina Commercial Park, Centre Park Road, Cork (Ireland)
ECO PLATFORM NO.	DECLARED UNIT
1202	One m ² of installed in-situ insulation, thickness 300mm with an R-value of 9.09 m ² K/W, at a density of 37 kg/m ³ . Reference service life of 50 years.
APPLICABLE PRODUCT CATEGORY RULES	DECLARED PRODUCT
EN 15804:2012+A1:2013, EPD Ireland PCR Part A EN 16783:2017 Thermal insulation products	Ecocel Cellulose Fibre Insulation manufactured from recycled paper
DATE OF ISSUE	SCOPE OF EPD
12.05.2020	Cradle-to-Gate, with options (modules A4 and A5)
DATE OF EXPIRY	LCA CONSULTANT OR PERSON RESPONSIBLE FOR LCA
12.05.2025	EcoReview, Kilkenny, Co. Kilkenny, Ireland, +353 87 258 9783 / +31 646 264 9327 info@ecoreview.ie / www.ecoreview.eu
TYPE OF EPD: SINGLE OR MULTI PRODUCT	LCA SOFTWARE AND DEVELOPER IF APPLICABLE
Single Product EPD	Ecochain LCA
PRODUCT CLASSIFICATION OR NACE CODE	NAME AND VERSION OF INVENTORY USED
NACE 2399	Ecoinvent version 3.4
COMPARABILITY	
Environmental Product Declarations from different programmes may not be directly comparable if not compliant with EN 15804:2012+A1:2013. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See clause 5.3 of EN 15804:2012+A1:2013	
The CEN Norm /EN 15804 serves as the core PCR	
Independent verification of the declaration according to ISO 14025	

Internally ☐ Externally ☒

SIGNATURE OF PROGRAMME OPERATOR	SIGNATURE VERIFIER
Pat Barry - CEO - Irish Green Building Council  	Chris Foster, EuGeos Limited 

2. Scope and Type of EPD

This is a Cradle to Grave EPD. The Modules that are declared are shown in the table below.

PRODUCT STAGE			CONSTRUCTION ON PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the 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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

X - Module declared.

MND - Module not declared.

3. Detailed product description

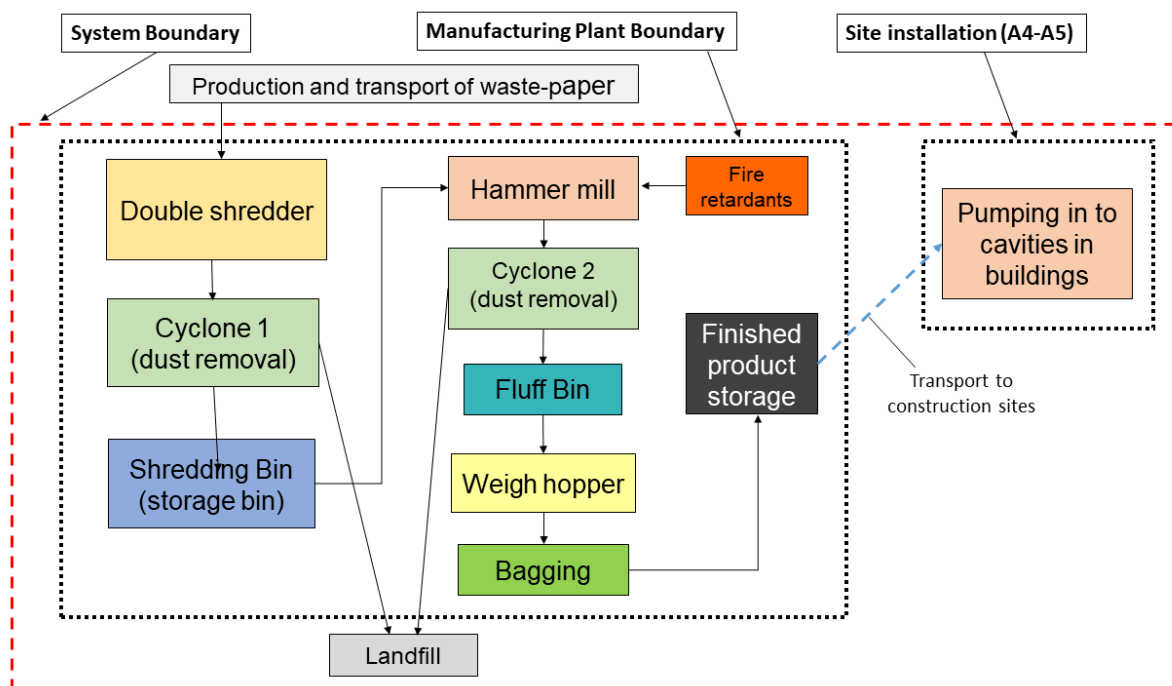
This EPD is carried out for Ecocel Cellulose Insulation. The constituent raw materials comprise recycled paper and fire retardant admixtures. The insulation is manufactured in accordance with BS 5803-3:1985 Thermal insulation for use in pitched roof spaces in dwellings.

3.1 Manufacturing Process Description

The Ecocel Cellulose Fibre Insulation is manufactured from a mixture of recycled waste paper and fire retardant additives. The waste paper is shredded, and dust removed as it passes through a first cyclone. The admixtures are then added and the mix is further pulverised in a hammer mill. It is then fed through multiple cyclones for further dust removal, and then put in to a bin where it is fed into a ram and bagger, where the finished material is compressed into plastic bags, 15kg per bag, for the market. Dust from the cyclones is sent to municipal landfill.

This EPD also covers the transport to site and installation of the insulation in place in the building. The insulation is blown into the cavities in the building, using an electrical pump.

The EPD phases are shown below:



4.1 LCA results - Ecocel Cellulose Fibre Insulation

Environmental impact per m²

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP	[kg CO ₂ -Eq.]	1.60E+00	1.28E-01	1.76E+00	3.49E+00	3.61E-01	8.86E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ODP	[kg CFC11-Eq.]	8.89E-08	2.28E-08	2.65E-07	3.77E-07	6.31E-08	2.98E-09	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
AP	[kg SO ₂ -Eq.]	1.17E-02	8.23E-04	1.15E-02	2.41E-02	8.95E-04	3.44E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
EP	[kg (PO ₄)-Eq.]	1.10E-03	1.17E-04	2.56E-03	3.77E-03	1.13E-04	3.12E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
POCP	[kg ethene-Eq.]	7.30E-04	6.74E-05	3.49E-04	1.15E-03	5.66E-05	1.39E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ADPE	[kg Sb-Eq.]	7.45E-03	1.29E-04	1.10E-02	1.86E-02	2.59E-03	6.00E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ADPF	[MJ]	1.97E+01	1.93E+00	2.43E+01	4.59E+01	5.63E+00	1.24E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources.

Note - MND - Module not declared N/A - Indicator not assessed.

4.2 LCA results - Ecocel Cellulose Fibre Insulation

Resource use per m²

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	[MJ]	8.83E+01	2.60E-02	4.85E-01	1.39E+00	6.93E-02	1.97E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
PERM	[MJ]	1.20E+02	0.00E+00	0.00E+00	1.20E+02	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
PERT	[MJ]	1.20E+02	2.60E-02	4.85E-01	1.21E+02	6.93E-02	1.97E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
PENRE	[MJ]	2.14E+01	2.06E+00	2.45E+01	4.80E+01	5.71E+00	1.26E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
PENRM	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
PENRT	[MJ]	2.14E+01	2.06E+00	2.45E+01	4.80E+01	5.71E+00	1.26E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
SM	[kg]	9.50E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
FW	[m ³]	3.84E-03	3.07E-04	1.25E-03	5.40E-03	3.46E-04	3.05E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

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 = Use of net fresh water; INA =

Indicator not assessed; MND = Module not declared.

SM, RSF and NRSF are not calculated by the EcoChain software.

4.3 LCA results - Ecocel Cellulose Fibre Insulation

Output flows and waste categories per m²

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	[kg]	7.20E-05	1.41E-05	1.64E-04	2.50E-04	3.91E-05	5.00E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
NHWD	[kg]	1.19E-01	7.87E-02	3.10E-01	5.08E-01	2.09E-01	4.93E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
RWD	[kg]	5.08E-05	1.29E-05	1.53E-04	2.17E-04	3.55E-05	4.67E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
MFR	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

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; EEE = Exported thermal energy.

CRU, MFR, MER, EEE, EET are not calculated by the EcoChain software.

5. LCA results - Additional Impact Indicators - EcoCel Cellulose Fibre Insulation

Environmental impact per m²

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Human toxicity potential	kg 1,4-DB-eq	6.30E-01	5.27E-02	9.87E-01	1.67E+00	1.36E-01	2.33E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Freshwater aquatic ecotoxicity potential	kg 1,4-DB-eq	3.11E-01	1.31E-03	1.17E-02	3.24E-01	4.26E-03	2.65E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Marine aquatic ecotoxicity potential	kg 1,4-DB-eq	6.89E+02	9.32E+00	2.76E+02	9.74E+02	7.73E+01	5.04E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Terrestrial ecotoxicity potential	kg 1,4-DB-eq	3.96E-03	1.83E-04	2.53E-03	6.67E-03	7.79E-04	5.57E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Note - MND - Module not declared /NA - Indicator not assessed.

6. Additional LCI Indicators

N/A

7. Calculation rules

Methodology and reproducibility

The process descriptions and quantities in this study are reproducible in accordance to the reference standards that have been used. The references of all sources, both primary and public sources and literature, have been documented in the LCA report. In addition, to facilitate the reproducibility of this EPD, a full set of data records has been generated which can be accessed via the LCA tool. This data portfolio contains a summary of all the data used in this LCA, and correspondingly, in the Ecocel LCA account.

Data quality

Data flows have been modeled as realistically as possible. Data quality assessment is based on the principle that the primary data used for processes occurring at the production site is selected in the first instance. Where this is not available, other reference data is selected from appropriate sources.

Data collection period

The dataset is representative for the production processes used in 2019.

8. Scenarios and additional technical information

A1. Raw materials supply

This module considers the extraction and processing of all raw materials and energy which occur upstream to the Ecocel manufacturing process, as well as waste processing up to the end-of waste state.

A2. Transport of raw materials to manufacturer

This includes the transport distance of the raw materials to the manufacturing facility via road, boat and/or train.

A3. Manufacturing

This module covers the manufacturing of Ecocel insulation and includes all processes linked to production such as shredding, mixing, milling and packaging.

Use of electricity, fuel and auxiliary materials in production is taken into account as well.

A4-A5. Transport and Installation

This module covers road transport of the insulation to construction site in Ireland, pumping of the insulation into cavities in the construction. Pumping is powered by on-site electricity.

References transport:

Road transport: transport, freight, lorry 7.5-16 metric ton, EURO6

Distance by road to site: 150 km

Capacity utilisation: 64%

References installation:

Installation energy per functional unit is calculated at 0.0133 kWh of Electricity mix low voltage Ireland

9. Mandatory additional information on release of dangerous substances to indoor air, soil and water

None of the substances contained in the product are listed in the “Candidate List of Substances of Very High Concern for authorisation”, or they do not exceed the threshold with the European Chemicals Agency.

10. Other optional additional environmental information

N/A.

11. References

EPD Ireland Product Category Rules: PART A Implementation and use of IS 15804:2012 and CEN TR 16970 in Ireland for the development of Environmental Product Declarations, 29.06.2018 - www.epdireland.org

I.S. EN 16783:2017 Thermal insulation products – Product category rules (PCR) for factory made and in-situ formed products for preparing environmental product declarations.

BS 5803-3:1985 Thermal insulation for use in pitched roof spaces in dwellings. Specification for cellulose fibre thermal insulation for application by blowing.