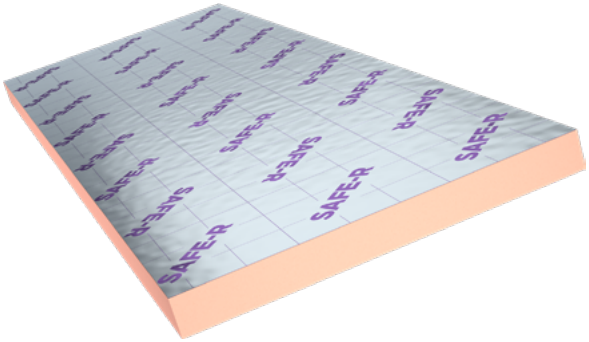


ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804 + A1

Owner of the Declaration – Unilin Insulation Ireland Limited

Declaration number: EPDIE-21-42
Issue date 6th April 2021
Valid to 6th April 2026

Unilin Insulation Ireland Ltd

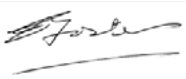
Safe-R

EPD Programme - EPD Ireland
Programme Operator - Irish Green Building Council
www.epdireland.org

1. General information

PROGRAMME OPERATOR	OWNER OF DECLARATION
Irish Green Building Council, 19 Mountjoy Square, Dublin D01 E8P5	Unilin Insulation Ireland Ltd Kells Road, Navan, Co. Mearh, Ireland C15 NP79 T +353 (0) 46 906 6000; info.ui@unilin.com www.unilininsulation.ie
DECLARATION NUMBER	**PRODUCTION SITE**
EPDIE-21-42	Unilin Insulation UK Ltd Park Road, Holmewood, Chesterfield, Derbyshire, S42 5UY www.unilininsulation.co.uk
ECO PLATFORM EPD	**DECLARED UNIT**
Yes	1m² 100mm Safe-R, R-value 5.0 m²K/W
APPLICABLE PRODUCT CATEGORY RULES	**DECLARED PRODUCT**
EN 15804:2012+A1:2013, EPD Ireland PCR Part A. 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	Safe-R 100mm
DATE OF ISSUE	**SCOPE OF EPD**
06.04.2021 Reissue: 09.01.2023 - Changes: owner name and logo from Xtratherm to Unilin Insulation Ireland Limited and products' name due to rebranding	Cradle to gate (A1-A3)
DATE OF EXPIRY	**LCA CONSULTANT OR PERSON RESPONSIBLE FOR LCA**
06.04.2026	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
PRODUCT CLASSIFICATION OR NACE CODE	**NAME AND VERSION OF INVENTORY USED**
Thermal insulation products	Ecoinvent v 3.5
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+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  IGBC IRISH GREEN BUILDING COUNCIL	Chris Foster - EuGeos SRL 

2. Scope and Type of EPD

This is a Cradle to Gate 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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

X - Module declared.

MND - Module not declared.

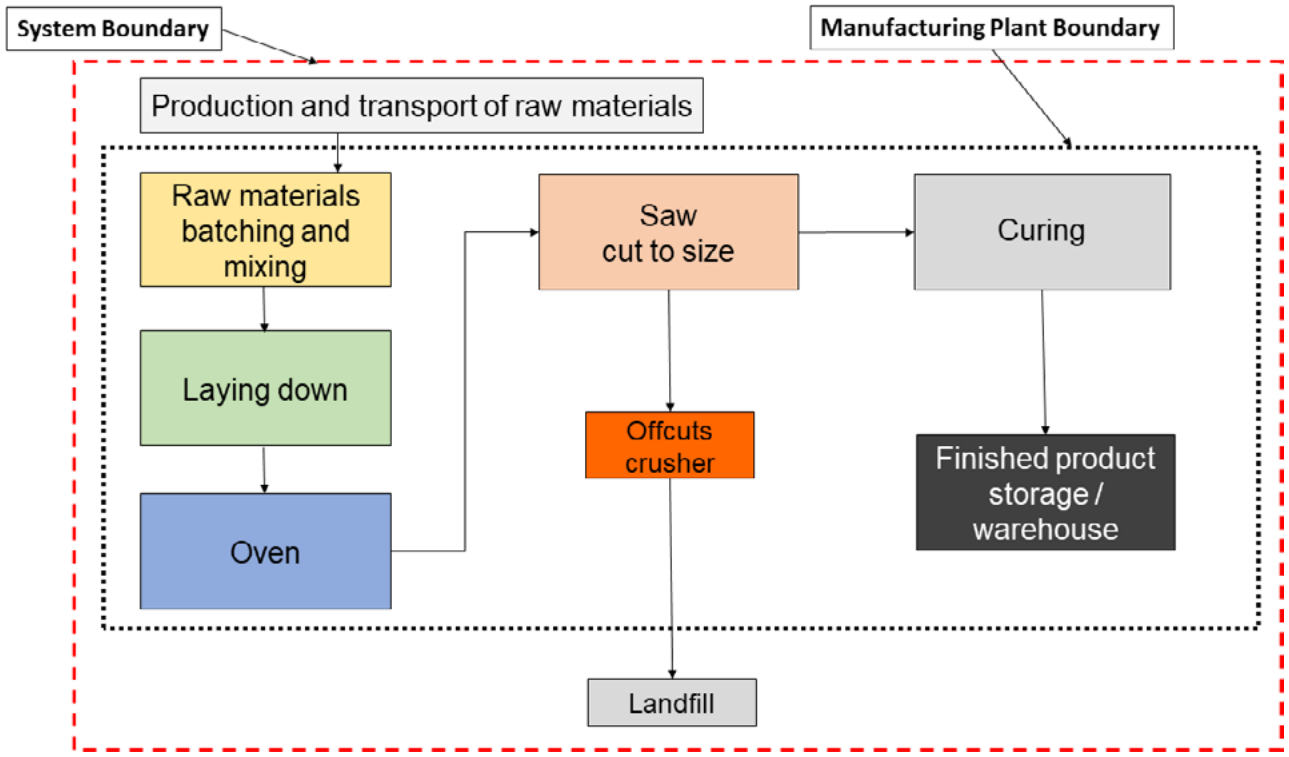
3. Detailed product description

This EPD is carried out for the phenolic insulation board Safe-R of thickness 100mm. The raw resin material is mixed with various catalysts & additives including the blowing agent and placed between two layers of facing elements. The insulation products are manufactured in accordance with I.S. EN 13166:2012+A2:2016 Thermal insulation products for buildings. Factory made phenolic foam (PF) products. Specification. These insulation products are used in cavity walls, steel and timber-frame walls, soffit and floors insulation applications.

3.1 Manufacturing Process

The bulk raw chemicals are mixed with various catalysts and additives before being metered onto a moving conveyor. The chemical mix then starts to rise, due to the effects of the blowing agent, to produce the foam. The foam continues to rise until it contacts the top layer of facer material as it enters the oven, where it is then cured under heat to produce the rigid, thermoset foam board. The board exits the lamination oven and then reaches a cross-cut saw which cuts the board into shorter mother boards. Each mother board then is transported to a separate area to cure. Finished boards are stored in the warehouse before despatch to customers. Off-cuts from the cutting and trimming are compressed on-site and sent to landfill.

The manufacturing process flowchart is shown below:



4. LCA results - 1m² 100mm Safe-R, R-value 5.0 m²K/W

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.]	1.49E+01	1.68E-01	4.43E-01	1.55E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ODP	[kg CFC11-Eq.]	9.54E-07	3.08E-08	2.27E-08	1.01E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
AP	[kg SO_2-Eq.]	6.28E-02	5.60E-04	9.37E-04	6.43E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
EP	[kg (PO4) -Eq.]	1.28E-02	7.72E-05	2.43E-04	1.31E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
POCP	[kg ethene-Eq.]	2.82E-02	8.76E-05	8.26E-03	3.65E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ADPE	[kg Sb-Eq.]	7.80E-05	4.88E-07	5.85E-07	7.91E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ADPF	[MJ]	4.22E+02	2.56E+00	5.51E+00	4.31E+02	MND	MND	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 INA - Indicator not assessed.

4. LCA results - 1m² 100mm Safe-R, R-value 5.0 m²K/W

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]	2.18E+01	2.90E-02	8.43E-01	2.27E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
PERM	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
PERT	[MJ]	2.18E+01	2.90E-02	8.43E-01	2.27E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
PENRE	[MJ]	2.97E+02	2.74E+00	6.68E+00	3.07E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
PENRM	[MJ]	1.17E+02	0.00E+00	0.00E+00	1.17E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
PENRT	[MJ]	4.15E+02	2.74E+00	6.68E+00	4.24E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
SM	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	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	MND	MND	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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
FW	[m³]	1.89E-01	4.24E-04	1.48E-03	1.91E-01	MND	MND	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. LCA results - 1m² 100mm Safe-R, R-value 5.0 m²K/W

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]	3.06E-04	1.64E-06	8.79E-06	3.17E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
NHWD	[kg]	1.19E+00	1.18E-01	2.38E-01	1.55E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
RWD	[kg]	3.89E-04	1.74E-05	2.54E-05	4.32E-04	MND	MND	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	MND	MND	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	MND	MND	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	MND	MND	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	MND	MND	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	MND	MND	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; EET = Exported thermal energy.

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

5. LCA results - Additional Impact Indicators - 1m² 100mm Safe-R, R-value 5.0 m²K/W

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	3.90E+01	6.49E-02	5.80E-02	3.92E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Freshwater aquatic ecotoxicity potential	kg 1,4-DB-eq	1.97E+00	1.74E-03	2.59E-03	1.98E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Marine aquatic ecotoxicity potential	kg 1,4-DB-eq	3.89E+02	6.72E+00	9.73E+00	4.05E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Terrestrial ecotoxicity potential	kg 1,4-DB-eq	1.85E-02	2.26E-04	2.24E-03	2.10E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Note - MND - Module not declared INA - 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 LCA, a full set of data records has been generated which can be accessed via the EcoChain tool. This data portfolio contains a summary of all the data used in this LCA, and correspondingly, in the Unilin Insulation Ireland Ltd Ecochain 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 Safe-R 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 Safe-R and includes all processes linked to production such as, mixing, packing and internal transportation. Use of electricity, fuels and auxiliary materials used during production is taken into account as well.

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 limit for registration with the European Chemicals Agency.

10. Other optional additional environmental information

N/A

11. References

1. ISO 14040 Environmental management - Life cycle assessment – Principles and Framework', International Organization for Standardization, ISO 14040:2006.
2. ISO 14044 Environmental management - Life cycle assessment - Requirements and guidelines', International Organization for Standardization, ISO 14044:2006
3. ISO 14025 Environmental labels and declarations -- Type III environmental declarations -- Principles and procedures', International Organization for Standardization, ISO 14025:2006.
4. I.S. EN 15804:2012+A1:2013 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products', EN 15804:2012+A1:2013.
5. Product Category Rules: Part A. Implementation and use of I.S. EN 15804:2012 and CEN TR 16970:2016 in Ireland, EPD Ireland, IGBC
6. 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.
7. Ecochain, 2017, web: http://app.ecochain.com.
8. I.S. EN 13165:2008, Thermal insulation products for buildings. Factory made rigid polyurethane foam (PUR) products. Specification.
9. CML - Department of Industrial Ecology, CML-IA Characterisation Factors, August 2016, Leiden University, Leiden, Netherlands: https://www.universiteitleiden.nl/en/research/research-output/science/cml-ia-characterisation-factors.