



ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804 + A1
Owner of the Declaration – McGrath's Limestone
(Cong) Ltd

Declaration number: EPDIE-20-25
Issue date 30th November 2020
Valid to 30th November 2025

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






Cemfloor Binder

Cemfloor Binder for use in floor screeds

1. General information

PROGRAMME OPERATOR	OWNER OF DECLARATION
Irish Green Building Council, 19 Mountjoy Square, Dublin D01 E8P5	McGrath's Limestone (Cong) Ltd, Cong, Co. Mayo, Ireland
DECLARATION NUMBER	PRODUCTION SITE
EPDIE-20-25	Cregaree, Cong, Co. Mayo, Ireland
ECO PLATFORM EPD	DECLARED UNIT
Yes	1 tonne of dry binder
APPLICABLE PRODUCT CATEGORY RULES	DECLARED PRODUCT
EN 15804:2012+A1:2013, EPD Ireland PCR Part A	Cemfloor binder
DATE OF ISSUE	SCOPE OF EPD
30.11.2020	Cradle to Gate (A1 - A3)
DATE OF EXPIRY	LCA CONSULTANT OR PERSON RESPONSIBLE FOR LCA
30.11.2025	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 version 3.4
PRODUCT CLASSIFICATION OR NACE CODE	NAME AND VERSION OF INVENTORY USED
Binder for use in floor screeds	Ecoinvent version 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+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  	Jane Anderson - ConstructionLCA Ltd 

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.

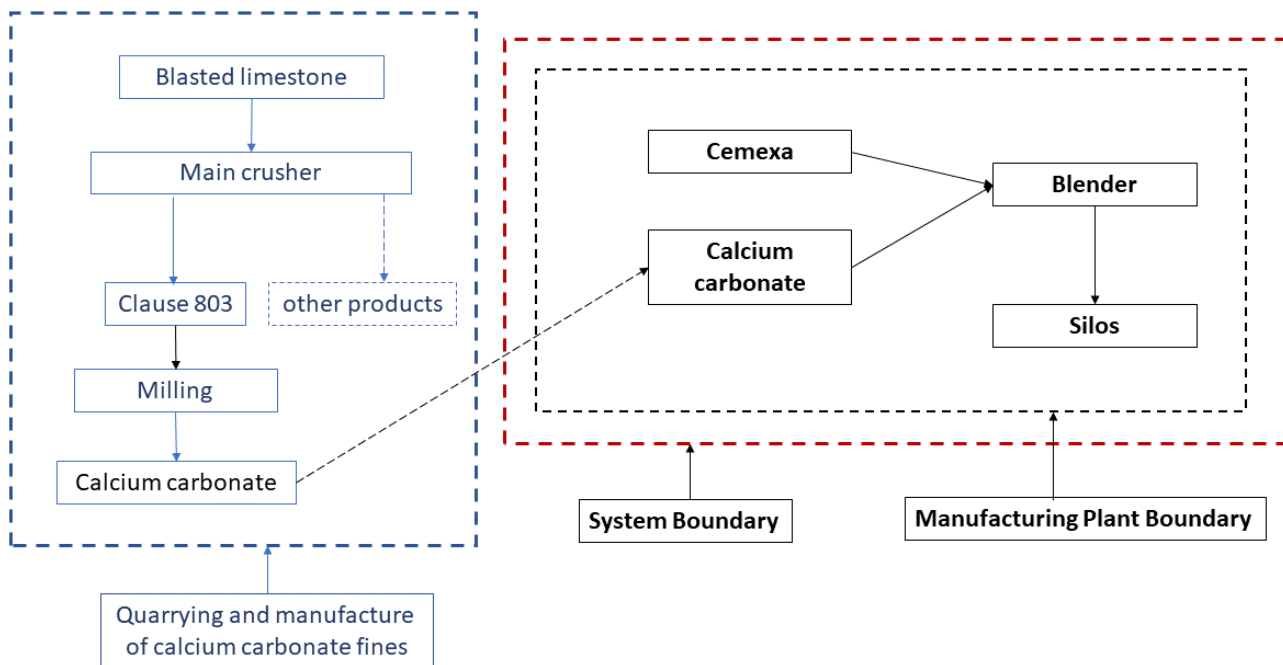
3. Detailed product description

This EPD is carried out for Cemfloor binder. The constituent raw materials comprise finely ground calcium carbonate and a proprietary binder, Cemexa. The two materials are blended to make the Cemfloor binder. The Cemfloor binder is manufactured in accordance with EN 12620:2013, Aggregates for concrete.

3.1 Manufacturing Process Description

These two powders are blended in a blender, and the resulting blend is stored in bulk silos on site for dispatch by bulk tanker to the customers. The calcium carbonate originates at the Cong production site in an upstream blasting, crushing and milling process.

The manufacturing process phases are shown below:



4.1 LCA results - Cemfloor Binder

Environmental impact per 1 tonne of Cemfloor binder

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+02	1.09E+01	3.16E-01	1.61E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ODP	[kg CFC11-Eq.]	8.32E-06	1.93E-06	1.64E-08	1.03E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
AP	[kg SO ² -Eq.]	3.47E-01	8.46E-02	6.03E-04	4.32E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
EP	[kg (PO ₄) -Eq.]	5.05E-02	8.80E-03	7.86E-05	5.94E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
POCP	[kg ethene-Eq.]	6.08E-02	6.43E-03	3.57E-05	6.73E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ADPE	[kg Sb-Eq.]	2.46E-02	1.95E-02	2.96E-05	4.41E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ADPF	[MJ]	1.96E+03	1.64E+02	5.42E+00	2.13E+03	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.

4.2 LCA results - Cemfloor Binder

Resource use per 1 tonne of Cemfloor binder

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	[MJ]	9.13E+01	2.33E+00	7.30E-01	9.44E+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]	9.13E+01	2.33E+00	7.30E-01	9.44E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
PENRE	[MJ]	2.16E+03	1.75E+02	5.37E+00	2.34E+03	MND	MND	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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
PENRT	[MJ]	2.16E+03	1.75E+02	5.37E+00	2.34E+03	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	[m ³]	8.67E-01	2.35E-02	1.19E-03	8.91E-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.

4.3 LCA results - Cemfloor Binder

Output flows and waste categories per 1 tonne of Cemfloor binder

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
HWD	[kg]	1.86E-03	3.65E-04	3.05E-05	2.26E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
NHWD	[kg]	4.63E+00	6.02E+00	1.00E-02	1.07E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
RWD	[kg]	6.28E-03	1.10E-03	2.99E-05	7.41E-03	MND	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	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	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	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	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	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 - Cemfloor Binder

Environmental impact per 1 tonne of Cemfloor binder

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	3.03E+01	4.84E+00	4.82E-02	3.52E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	
Freshwater aquatic ecotoxicity potential	kg 1,4-DB-eq	4.66E-01	1.13E-01	5.78E-04	5.80E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Marine aquatic ecotoxicity potential	kg 1,4-DB-eq	3.30E+03	1.11E+03	5.69E+00	4.41E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Terrestrial ecotoxicity potential	kg 1,4-DB-eq	1.39E-01	1.67E-02	2.05E-03	1.58E-01	MND	MND	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 with 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 Ecochain LCA tool. This data portfolio contains a summary of all the data used in this LCA, and correspondingly, in the Cemfloor LCA account.

Data quality

Data flows have been modelled 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

All relevant resources and materials in production module A1 have been included in this study. This module considers the extraction and processing of all raw materials and energy which occur upstream to the Cemfloor manufacturing process, as well as waste processing up to the end-of waste state.

The data on products, by-products and waste in this report were obtained from the energy, resources and materials supplied by McGrath's Limestone as those being used at the production site. Primary production data from the year 2019 has been used. Ecoinvent 3.5 database had been used.

A2. Transport of raw materials to manufacturer

All relevant transport of materials to the Cemfloor, Cong, production plant has been included in this study. This includes the transport distance of the raw materials to the manufacturing facility via road, boat and/or train.

A3. Manufacturing

The production processes are modelled using specific values from primary data collection at the production site. All relevant production processes in module A3 are included in this assessment. All processes in the production of Cemfloor binder use electricity. No co-products are produced in the manufacture of the Cemfloor binder.

The Cemfloor production installation site does not have any dangerous waste streams. All other substances and emissions that are released during the production process are included in this assessment.

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

It is not determined as to how the Cemfloor binder is to be processed at the end of life (after 50 years). The Cemfloor binder is combined with water, sand and admixtures and poured on-site to make a self-levelling floor screed. Therefore this module is not considered in this LCA study. As new and improved systems for the recycling of building products are developed over time, these can be determined and then applied to in a future LCA study.

11. References

- [1] ISO 14040: Environmental management – Life cycle assessment – Principles and Framework’, International Organization for Standardization, ISO14040:2006.
- [2] ISO 14044: Environmental management – Life cycle assessment – Requirements and guidelines’, International Organization for Standardization, ISO14044:2006.
- [3] ISO 14025: Environmental labels and declarations – Type III environmental declarations – Principles and procedures’, International Organization for Standardization, ISO14025:2006.
- [4] I.S. EN 15804: Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products’, I.S. 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, Irish Green Building Council, July 2018.
- [6] Ecochain Tool, v 3.4, web: <http://app.ecochain.com>.
- [7] I.S. EN126202:2013 Aggregates for concrete.
- [8] CML - Department of Industrial Ecology, CML-IA Characterisation Factors, Dated August 2016, Leiden University, Leiden, Netherlands Available at: <https://www.universiteitleiden.nl/en/research/research-output/science/cml-ia-characterisation-factors>
- [9] Ministerie van Verkeer en Waterstaat, 8 maart 2004, Toxiciteit heeft z'n prijs, Schaduwprizen voor (eco-) toxiciteit en uitputting van abiotische grondstoffen binnen DuboCalc.