ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN15804+A2

CEM II/A-L 52,5 N bulk

Owner of the declaration:
Breedon Cement Ireland Ltd

Product:
CEM II/A-L 52,5 N bulk

Declared unit:
1 tonne

This declaration is based on Product Category Rules:
EN 15804:2012+A2:2019, EPD Ireland PCR Part A, Version 2.1, 2022
EN 16908:2022 Cement and building lime

Program operator:
EPD Ireland

Declaration number:
EPDIE-26-327

Issue date:
12.02.2026

Valid to:
11.02.2031

General information

Product

CEM II/A-L 52,5 N bulk

Owner of the declaration:

Breedon Cement Ireland Ltd
Contact person: Brian Reynolds
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Program operator:

EPD Ireland
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Phone: +353 (01) 6815862
web: https://www.igbc.ie/epd-home/

Manufacturer:

Breedon Cement Ireland Ltd

Declaration number:

EPDIE-26-327

Place of production:

Breedon Cement Ireland Ltd
Killaskillen
Kinnegad, Co. Westmeath, Ireland

This declaration is based on Product Category Rules:

EN 15804:2012+A2:2019, EPD Ireland PCR Part A, Version 2.1, 2022
EN 16908:2022 Cement and building lime

Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. The EPD Program operator shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Type of EPD

Specific product EPD

Issue date:

12.02.2026

Declared unit:

1 tonne CEM II/A-L 52,5 N bulk

Valid to:

11.02.2031

Scope of the EPD:

A1-A3

Year of study:

Functional unit:

1 tonne of CEM II/A-L 52,5 N bulk cement

Comparability:

Environmental Product Declarations from different programmes may not be directly comparable if not compliant with EN 15804:2012+A2:2019. 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+A2:2019

LCA consultant or person responsible for LCA: .
EcoReview, Peter Seymour

Verification:

Independent verification of the declaration and data, according to ISO14025:2010

Approved:

SIGNATURE OF PROGRAMME OPERATOR

Third party verifier:
Marcel Gómez Ferrer, Marcel Gómez Consultoria Ambiental

Pat Barry, CEO - Irish Green Building Council

Product

Product description:

Cement is a hydraulic binder which means it hardens and sets to yield mortar when mixed with sand and water or concrete when mixed with aggregates, sand and water.

The main material components of the cement are clinker, limestone and gypsum. Clinker is produced by combining naturally occurring minerals, primarily limestone, shale and clays in the cement kiln at very high material temperatures of up to 1500 degC, where the required calcium silicate and aluminate clinker minerals are formed, namely Alite (C3S), Belite (C2S) and tri-calcium aluminate (C3A). Clinker production at Breedon Ireland is achieved by co-processing coal, (which represents less than 20% of the system thermal energy requirement) with renewable alternative fuels, primarily Solid Recovered Fuel derived from the non-recyclable paper, plastic fragments known as SRF, carefully prepared by domestic waste sector. Co-processing enables both the thermal energy value to be recovered replacing fossil fuel use and the mineral components to be fully recycled, replacing virgin raw materials.

Clinker, limestone and gypsum, the latter acting at a setting control material for the final product, are ground to a very fine powder known as cement. Minor components of FDPC (Flue dust Portland cement), grinding aid materials and chromate reducing agents are also added to further optimise performance requirements.

Product specification:

The cement is manufactured at the Breedon Cement Ireland Limited manufacturing facility at Kinnegad, Co. Westmeath, Ireland in accordance with I.S. EN 197-1:2011,Compositions, specifications and conformity criteria for common cements.

Technical data:

The technical data for CEM II/A-L 52,5 N bulk cement is given the table below.

28-day strength (N/mm2)	Specific density (kg/m3)	Specific surface (m2/kg)	Initial setting time (min)	Soundness (mm)
55.0 - 61.0	3,000 - 3,200	360 - 430	100 - 120	0.0 - 4.0

Market/Geographical Area:

Republic of Ireland and United Kingdom.

Reference service life, product

Not applicable for EN 197-1 cements.

Reference service life, building or construction works

LCA: Calculation rules

Declared unit:

1 tonne CEM II/A-L 52,5 N bulk

kg per Declared unit 1000

Cut-off criteria:

All relevant inputs and outputs - like emissions, energy and materials - have been taken into account in this LCA, and in accordance with EN15804+A2:2019. The study covers at least 95% of the materials and energy per module and at least 99% of the total use of materials and energy of each unit process. Long term emissions have been excluded from the study.

Allocation:

The measurement of environmental impacts in this EPD uses the LCIA methodologies recommended for PEF 3.1. In this EPD, the waste processes are allocated in the relevant module. In the case of the use of secondary materials or energy recovered from secondary fuels, the system boundary between the system under study and the previous system (providing the secondary materials) is set where outputs of the previous system, e.g. materials, products, building elements or energy, reach the end-of-waste state. The modularity and the polluter payer principles have been followed.

Data quality:

Time Representativeness
In this LCA the data relating to the manufacturing of the clinker and the cements, and the data relating to the background processes for environmental impacts are less than 2 years old. The production year of this LCA is 2024, and the Ecoinvent version 3.11 (November 2024) database is used. These are less than 2 years apart.

Time Representativeness is considered to be Very good.

Geographical Representativeness
The processes and material references used in this LCA to represent the production of the clinker and cements are geographically representative, insofar as the production location of the clinker and cements, and the raw materials supplied, lie within the regions for which the relevant Ecoinvent (version 3.11) environmental records have been selected, such as Europe, and Rest of World (for outside of Europe).

Geographical Representativeness is considered to be Very good.

Technical Representativeness
Processes and energies used in the process have been modelled based on data provided by Breedon Cement and are based directly on the production data supplied by Breedon Cement in relation to raw materials, processes, emissions and wastes generated. The main impacts from the manufacture of clinker (CO_2 and other emissions to air of a variety of chemical substances) in the clinker manufacturing process are taken directly from the ETS AER-Installation Report, published by the Irish Environmental Protection Agency. Impact datasets for other materials such as gypsum, shale, bags and grinding media have used datasets from Ecoinvent version 3.11, and thus the technical representativeness of the data on the raw materials is robust.

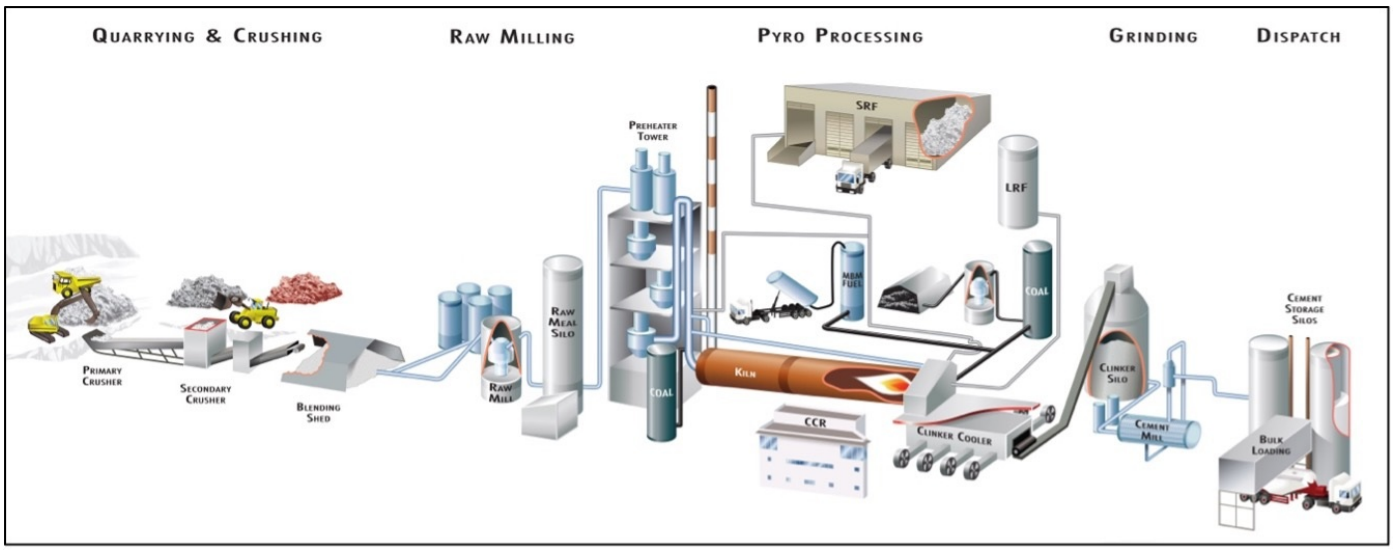
Technical Representativeness is considered to be Very good.

Scope and type of EPD (X = Module declared; ND = Module not declared)

Product stage			Construction installation stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	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	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

System boundary:

This EPD covers the Product Stage modules: A1, A2 and A3. This is termed 'cradle to gate'.



Additional technical information:

Electricity modelling
This LCA assumes that the reference for electricity used is 100% renewable. The CO2 intensity of the electricity is 0.038 kg CO2 eq per kWh.

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact			
Indicator		Unit	A1-A3
	GWP-total	kg CO_2 -eq	5.26E+02
	GWP-fossil	kg CO_2 -eq	5.27E+02
	GWP-biogenic	kg CO_2 -eq	-1.93E-01
	GWP-luluc	kg CO_2 -eq	3.08E-02
	ODP	kg CFC11 -eq	4.50E-07
	AP	mol H+ -eq	9.96E-01
	EP-FreshWater	kg P -eq	7.93E-03
	EP-Marine	kg N -eq	2.51E-01
	EP-Terrestial	mol N -eq	2.90E+00
	POCP	kg NMVOC -eq	7.36E-01
	ADP-minerals&metals[1]	kg Sb-eq	5.79E-04
	ADP-fossil[1]	MJ	8.56E+02
	WDP[1]	m^3	6.76E+00

GWP-total = Global 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 = 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

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

1. 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

Remarks on environmental impacts

The indicated GWP-total value of 526.4 kg CO2-eq/tonne (net value) does not include the greenhouse gas emissions from the combustion of secondary fuels at clinker production. The gross GWP-total (including the emissions from the combustion of secondary fuels at clinker production) is 641.3 kg CO2 eq.

The biogenic CO2 emission from the combustion of secondary fuels at clinker production for the CEM I cement is 118.1 kg CO2-eq per tonne.

Additional environmental impact indicators			
Indicator		Unit	A1-A3
	PM	Disease incidence	5.63E-06
	IRP[2]	kgBq U235 -eq	3.59E-01
	ETP-fw[1]	CTUe	2.37E+02
	HTP-c[1]	CTUh	1.59E-08
	HTP-nc[1]	CTUh	5.95E-07
	SQP[1]	dimensionless	3.59E+02

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 = Potential Soil Quality Index (dimensionless)

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

1. 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
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			
Indicator		Unit	A1-A3
	PERE	MJ	4.24E+02
	PERM	MJ	0.00E+00
	PERT	MJ	4.24E+02
	PENRE	MJ	9.04E+02
	PENRM	MJ	0.00E+00
	PENRT	MJ	9.04E+02
	SM	kg	0.00E+00
	RSF	MJ	0.00E+00
	NRSF	MJ	0.00E+00
	FW	m^3	1.82E-01

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 materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

End of life - Waste

Indicator		Unit	A1-A3
	HWD	kg	2.43E-03
	NHWD	kg	1.29E+01
	RWD	kg	1.76E-04

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

End of life - Output flow

Indicator		Unit	A1-A3
	CRU	kg	0.00E+00
	MFR	kg	0.00E+00
	MER	kg	0.00E+00
	EEE	MJ	0.00E+00
	EET	MJ	0.00E+00

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in accompanying packaging	kg C	0.00E+00

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2

Additional requirements

Dangerous substances

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.

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

Bibliography

[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 EN 15804:2012+A2:2019: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products EN 15804:2012+A2:2019.

[5] Ecochain 4.3.1, 2025, web: http://app.Ecochain.com.

[6] Product Category Rules: Part A, Implementation and use of EN 15804:2012+A2:2019 and CEN TR 16970:2016 in Ireland for the development of Environmental Product Declarations; Version 2.1, issue date: 05.03.2022, published by the EPD Ireland Programme operator (Irish Green Building Council).

[7] IS-EN-16908 Cement and building lime. Environmental product declarations. Product Category Rules complementary to EN 15804:2012+A2:2019.

[8] https://eplca.jrc.ec.europa.eu/LCDN/developerEF.html

[9] ETS AER-Installation Report AER, Breedon Cement Ireland Limited, Reporting Year 2024.

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