Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

Cement CPJ 55

from

Lafarge Holcim Maroc

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB, EPD MENA
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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com	

1 Table of content

2 General information

2.1 Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): PCR 2019:14 Construction products version 1.2.5 *EN 16908:2017+A:2022*
PCR review was conducted by: The Technical Committee of the International EPD® System. Contact via info@environdec.com . PCR moderator Martin Erlandsson, IVL Swedish Environmental Research Institute, martin.erlandsson@ivl.se PCR review was conducted by: *CEN*
Life Cycle Assessment (LCA)
LCA accountability: *Lafarge Holcim Maroc*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: Barbara M Civit Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

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

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

2.2 Manufacturer information

Manufacturer	Lafarge Holcim Morocco
Address	LafargeHolcim Maroc Casablanca BD de la mecqua CASABLANCA Morocco
Contact details	ADIL.HAMIMAZ@Lafargeholcim.com
Website	lafargeholcim.com
Owner of the EPD	Lafarge Holcim Maroc
Description of the organisation	Cement producer company
Product-related or management system-related certifications	ISO 14001, ISO 9001, ISO 50001
Name and location of production site(s)	LafargeHolcim Settat B.P. 1474, Tamadrost, Settat SETTAT Morocco LafargeHolcim BOUSKOURA RS 109,à30Km au Sso de casablanca et à 17 km de bouskoura BP 80 CASABLANCA - BOUSKOURA Morocco

3 Product information

Product name	Cement CPJ 55
Product number / reference	
Place(s) of production	Settat plant /Bouskoura plant
CPC code	37440
Geographical scope	Marocco

3.1 Product description

Cement CPJ 55 in accordance with the standards as follows
NM 10.1.004-2019

3.2 Product application

The cement is used as raw material for the production of concrete and mortar to be used in construction of buildings or public works.

3.3 Technical specifications

The test methods are described in the standard “NM 10.1.005 : Liants hydrauliques : Technique des essais”.

RC2j	RC28J
23 MPa	50 MPa

initial setting time	
mini	max
190	

3.4 Additional technical information

Further information can be found at: www.lafargeholcim.com

3.5 Material content

Product Material	Weight, kg	Country Region of origin
clinker	650-940	Morocco
gypsum	0-50	Morocco
limestone + fly ashes+pozzolana+slag	60-350	Morocco
additives	<10	Morocco

3.6 Substances, reach - very high concern

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

4 Lca information

4.1 Life-cycle assessment information

Period for data	2021
Software used	This Environmental Product Declaration and the LCA were created with One Click LCA software
Upstream databases	The upstream databases are from ecoinvent 3.6 database.

4.2 Declared and functional unit

Declared unit	1 ton of cement CPJ 55
Mass per declared unit	1000 kg

4.3 Biogenic carbon content

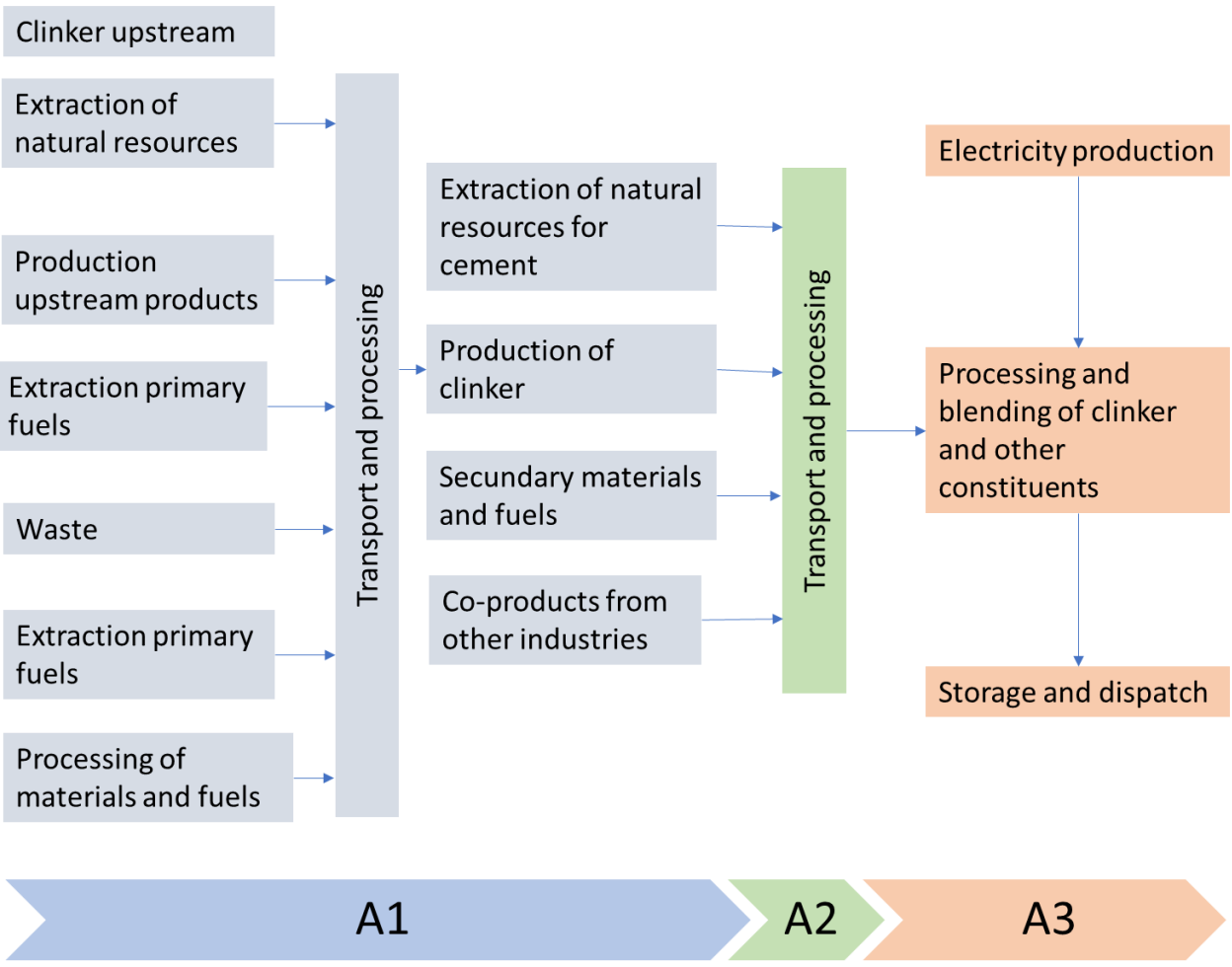
There is not biogenic carbon in this product

4.4 System boundaries

This EPD covers the cradle to gate scope with the following modules; A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing).

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
x	x	x	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Geographical scope.																		
MA	MA	MA	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational	Operational	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.



4.5 Cut-off criteria

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and the applied PCR. The study does not exclude any hazardous materials or substances.

This is a cradle to gate EPD. The product is exempted of declaring modules C1-C4 and D becausse it fullfils the 3 conditions stated in EN 15804. End of life scenarios can be found in EPD for concrete and mortar.

The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

4.6 Allocation, estimates and assumptions

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation.

In this study, as per EN 15804, allocation is conducted in the following order;

1. Allocation should be avoided.

2. Allocation should be based on physical properties (e.g. mass, volume) when the difference in revenue is small.

3. Allocation should be based on economic values.

In this study allocation is made by mass.

Allocation used in Ecoinvent 3.6 environmental data sources follows the methodology ‘allocation, cut-off by classification’. This methodology is in line with the requirements of the EN 15804 -standard.

4.7 Averages and variability

The values are a weighted average of the two production sites. The variabiity is less than 5%

4.8 Manufacturing and packaging (a1-a3)

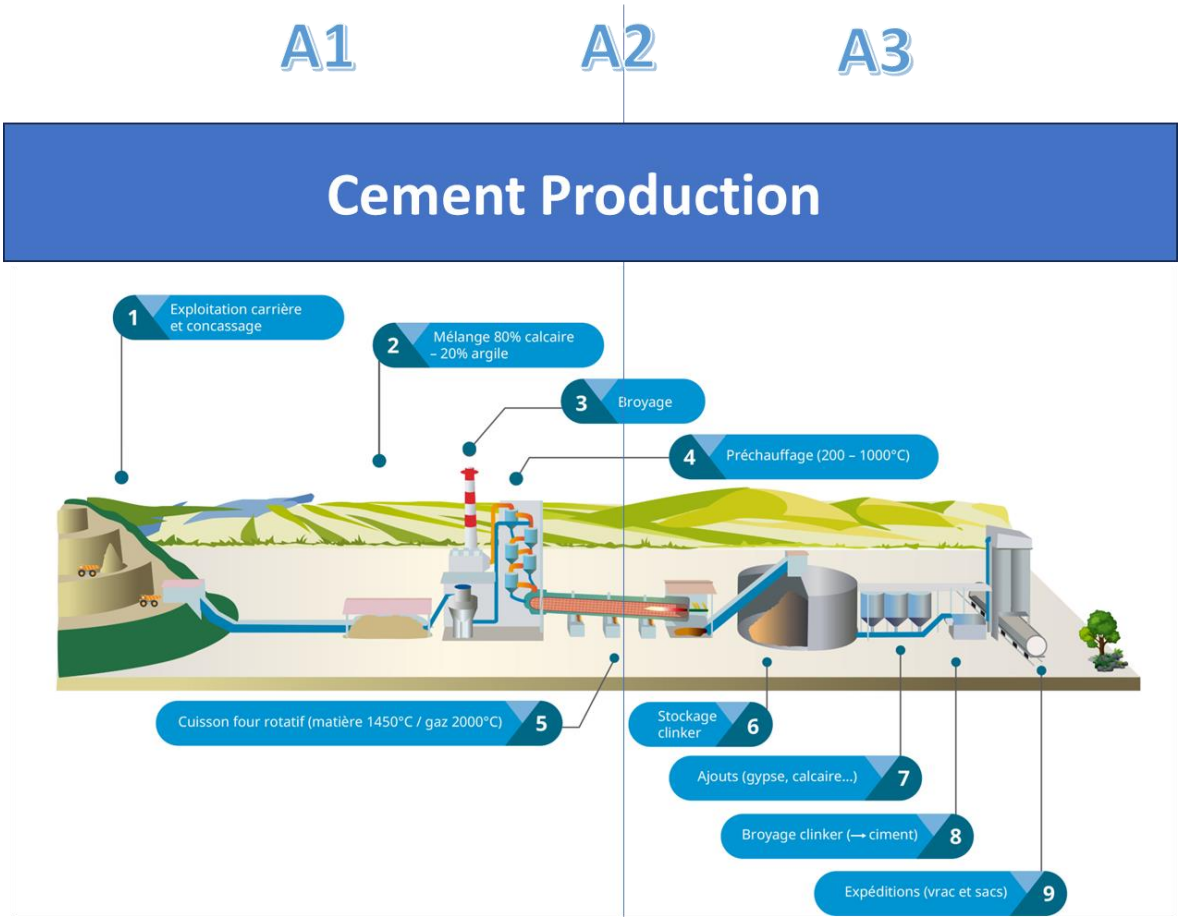
The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production.

In this stage, we consider as raw materials clinker, gypsum, limstone, fly ashes, slag and pouzzolana and additive. We do not consider packaging material as the dispatch is done by truck.

The electricity used is coming from the national network.

The water is used in a closed circuit and is allocated to clinker production.

Waste in the cement blending and crushing process are recirculated inside tha factory.



More information: You can find more information in: https://www.lafargeholcim.ma/fr/ciment

4.9 Transport and installation (a4-a5)

Modules not evaluated.

4.10 Product use and maintenance (b1-b7)

Modules not evaluated.

4.11 Product end of life (c1-c4, d)

Modules not evaluated.

5 Environmental Information

5.1 Potential environmental impact – mandatory indicators according to EN 15804

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3
GWP – total	kg CO_2e	6,85E2
GWP – fossil	kg CO_2e	6,85E2
GWP – biogenic	kg CO_2e	1,57E-2
GWP – LULUC	kg CO_2e	1,78E-1
Ozone depletion pot.	kg CFC_{-11}e	2,46E-5
Acidification potential	mol H^+e	1,76E0
EP-freshwater[3)]	kg Pe	7,53E-3
EP-marine	kg Ne	5,21E-1
EP-terrestrial	mol Ne	6,03E0
POCP ("smog")	kg NMVOCe	1,51E0
ADP-minerals & metals	kg Sbe	7,01E-2
ADP-fossil resources	MJ	2,88E3
Water use[2)]	m^3e depr.	6,41E1

1) GWP = Global Warming Potential; EP = Eutrophication potential; POCP = Photochemical ozone formation; ADP = Abiotic depletion potential. 2) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator. 3) Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO_4e.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3
Particulate matter	Incidence	1,51E-5
Ionizing radiation[5)]	kBq U235e	9,74E0
Ecotoxicity (freshwater)	CTUe	1,01E4
Human toxicity, cancer	CTUh	3,45E-7
Human tox. non-cancer	CTUh	1,44E-5
SQP	-	2,24E3

4) SQP = Land use related impacts/soil quality. 5) EN 15804+A2 disclaimer for Ionizing radiation, human health. 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.

USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3
Renew. PER as energy	MJ	2,65E2
Renew. PER as material	MJ	0E0
Total use of renew. PER	MJ	2,65E2
Non-re. PER as energy	MJ	2,88E3
Non-re. PER as material	MJ	MND
Total use of non-re. PER	MJ	2,88E3
Secondary materials	kg	MND

Renew. secondary fuels	MJ	MND
Non-ren. secondary fuels	MJ	MND
Use of net fresh water	m^3	2,68E0

6) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1-A3
Hazardous waste	kg	1,43E2
Non-hazardous waste	kg	3,39E2
Radioactive waste	kg	1,19E-2

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3
Components for re-use	kg	MND
Materials for recycling	kg	MND
Materials for energy rec	kg	MND
Exported energy	MJ	MND

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1-A3
GWP-GHG	kg CO_2e	6,85E2

8) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013) This indicator Is almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013

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5.2 Information on biogenic carbon content

There is no biogenic carbon in this cement.

6 Additional information

Prolonged physical contact with non-low chromate cements can cause allergic skin reactions. The limit of chromium VI content to be considered as low chromate content is 2mg/kg

More information about the efforts towards a sustainable development from Lafarge Holcim Maroc, can be find in: *https://www.lafargeholcim.ma/fr/developpement-durable.*

7 References

EN 16908:2017+A1:2022 Cement and building lime. Environmental product declaration. Product category rules complementary to EN 15804

ISO 14025:2010 Environmental labels and declarations – Type III environmental declarations. Principles and procedures.

ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.

Ecoinvent database v3.6 (2019) and One Click LCA database.

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

Int'l EPD System PCR 2019:14 Construction products version 1.2.5

Cement CLCA 45 APM (PMES) LCA background report.