



**Environmental
Product
Declaration**

According to ISO14025+EN15804 A2 (+indicators A1)

This declaration is for:
Calumex® XT-20

Provided by:
Caltra Nederland B.V.



MRPI® registration
1.1.00754.2025

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Stichting MRPI®
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www.mrpi.nl

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COMPANY INFORMATION

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MRPI® REGISTRATION

1.1.00754.2025

DATE OF THIS ISSUE

12-12-2024

EXPIRY DATE

12-12-2029

SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by Gert-Jan Vroege, Eco-Intelligence. The LCA study has been done by Max Molhuizen, SGS Search. The certificate is based on an LCA-dossier according to ISO14025+EN15804 A2 (+indicators A1). It is verified according to the 'MRPI®-EPD verification protocol November 2020.v4.0'. EPDs of construction products may not be comparable if they do not comply with EN15804+A2. Declaration of SVHC that are listed on the 'Candidate list of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

PROGRAM OPERATOR

Stichting MRPI®
Kingsfordweg 151
1043 GR
Amsterdam

PRODUCT

Calumex® XT-20

DECLARED UNIT / FUNCTIONAL UNIT

1000 Weight per piece (kg)

DESCRIPTION OF PRODUCT

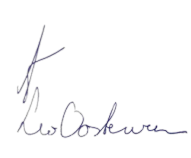

Calumex® XT-20 is an advanced amorphous calcium aluminate (ACA)-based accelerator designed for precision control of setting times and enhanced early strength development in cementitious systems. Ideal for repair mortars, specialty concretes, and grouts, it provides extended workability while maintaining rapid strength gain.

VISUAL PRODUCT



MORE INFORMATION

https://caltra.com

<p>Ing. L. L. Oosterveen MSc. MBA Managing Director MRPI</p>	<p>DEMONSTRATION OF VERIFICATION</p>
	<p>CEN standard EN15804 serves as the core PCR [1]</p>
	<p>Independent verification of the declaration an data according to ISO14025+EN15804 A2 (+indicators A1) internal: external: X</p>
	<p>Third party verifier: Gert-Jan Vroege, Eco-Intelligence</p> 
<p>[1] PCR = Product Category Rules</p>	





DETAILED PRODUCT DESCRIPTION (PART 1)

Production

Calumex® XT-20 supports sustainable construction practices by optimizing material efficiency and reducing waste. Its production process tend to require lower energy consumption than traditional accelerators, this way Calumex® C.S.A. is actively reducing their energy consumption during manufacturing. Calumex® XT-20 strives to achieve a lower environmental footprint by combining these factors in the production phase.

DETAILED PRODUCT DESCRIPTION (PART 2)

Application

Calumex® XT-20 is an advanced amorphous calcium aluminate (ACA)-based accelerator designed for control of setting times and early strength development in cementitious systems. Suitable for repair mortars, specialty concretes, and grouts, it provides extended workability while maintaining rapid strength gain. These factors makes Calumex® XT-20 suitable for demanding construction applications requiring both speed and consistency. The ACA-based formulation of Calumex® XT-20 promotes controlled ettringite formation during hydration, which improves dimensional stability and minimizes shrinkage. Its properties ensure consistent performance across various environmental conditions, supporting reliable results even in low-temperature applications. This accelerator reduces the risk of cracking while enhancing the durability and longevity of the final product.

Calumex® XT-20 strives to reduce its environmental impact by minimizing the energy needed in the production where possible and by using materials with lower environmental footprints where it is technical possible and there is enough demand. Its unique properties align with the growing need for innovative, sustainable construction materials that maintain exceptional performance and reliability.

Component (> 1%)	%
Binder	1-60%
ACA	1-60%

SCOPE AND TYPE

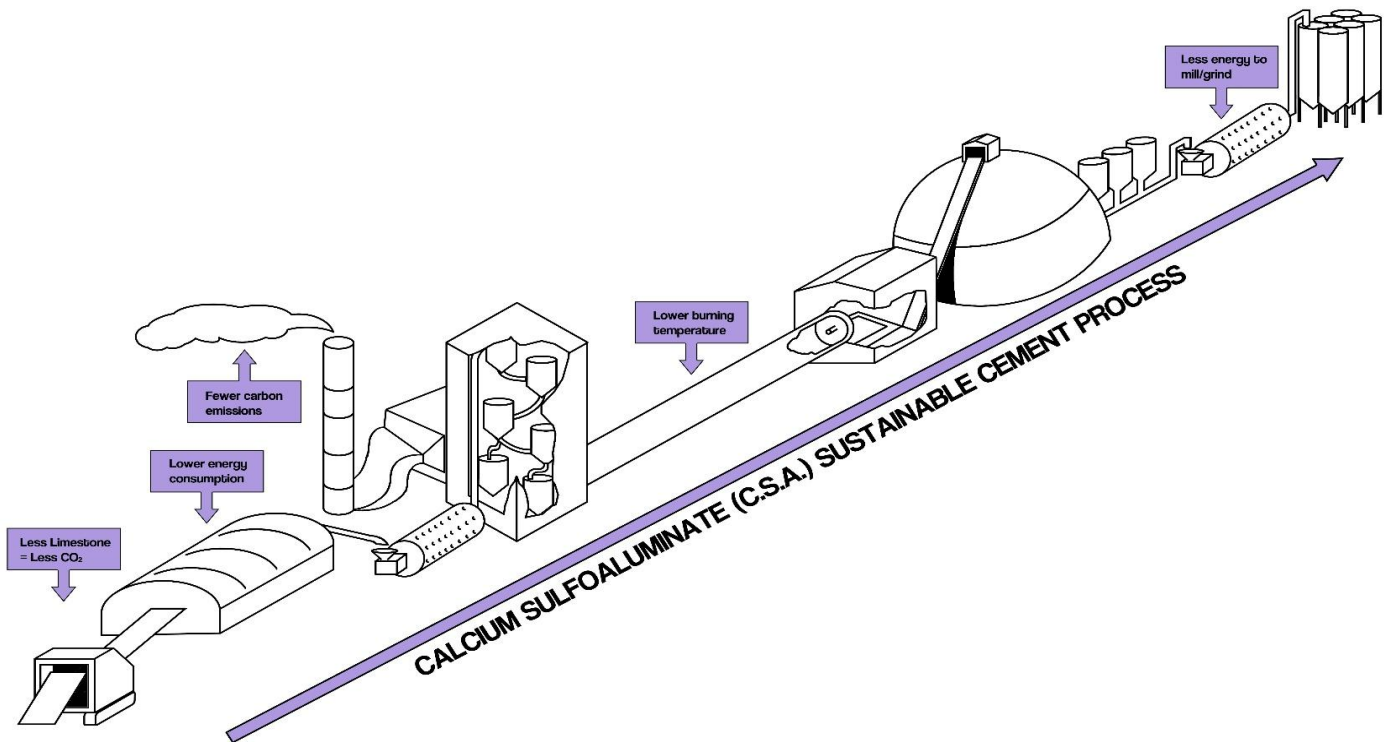
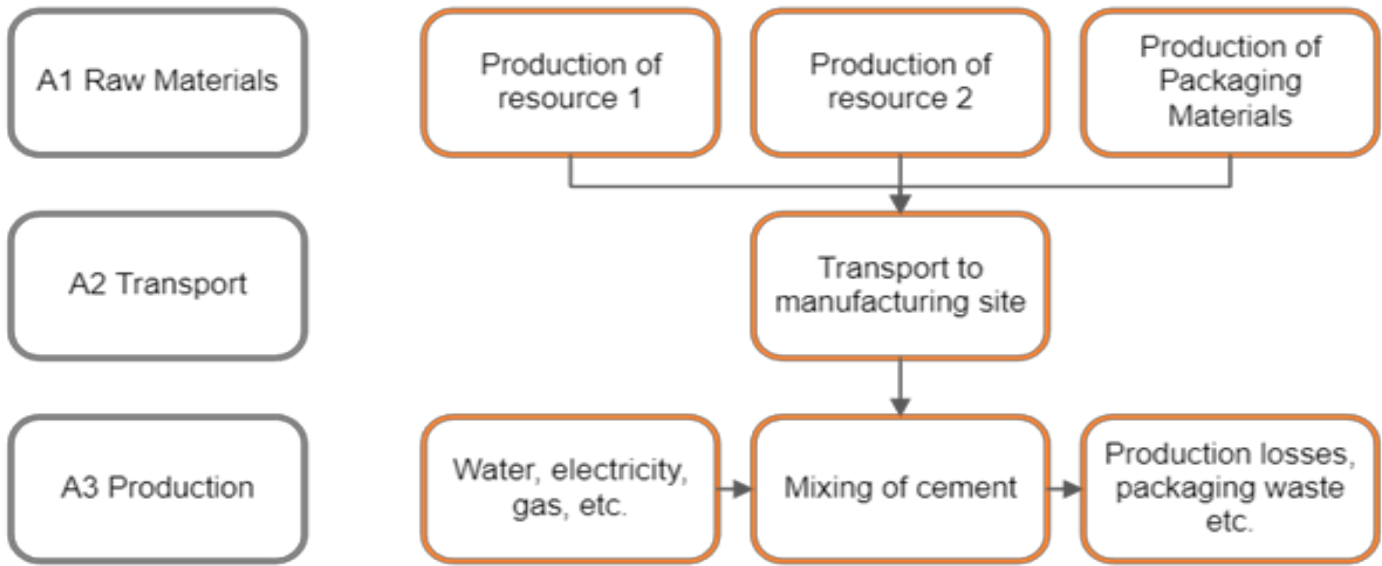
This EPD is a specific EPD made for Calumex® XT-20 produced in facility Mijdrecht, The Netherlands. The material input are from suppliers across the globe. The data collection is done in production year 2023. The results are calculated with SimaPro 9.5.0.0, using the databases ecoinvent 3.6 and the NMD process database 3.9 (cut-off method system model).

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USER STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport gate to 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	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

X = Modules Assessed

ND = Not Declared





REPRESENTATIVENESS

This EPD is representative for Calumex® XT-20, which is produced by Caltra Nederland B.V. at one (1) production site located in Mijdrecht, the Netherlands.

ENVIRONMENTAL IMPACT per functional unit or declared unit (indicators A1)

Eenheid		A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADPE	kg Sb eq.	2,35E-03	1,57E-03	2,33E-04	4,15E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADPF	MJ	3,32E+03	1,71E+03	3,05E+02	5,34E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP	kg CO2 eq.	4,40E+02	1,22E+02	1,56E+01	5,78E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ODP	kg CFC11 eq.	4,42E-05	2,09E-05	1,15E-06	6,62E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
POCP	kg ethene eq.	1,24E-01	1,21E-01	1,18E-02	2,57E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AP	kg SO2 eq.	9,52E-01	1,75E+00	6,82E-02	2,77E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP	kg (PO4) 3- eq.	1,29E-01	1,92E-01	7,84E-03	3,29E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Toxicity indicators and ECI (Dutch market)

HTP	kg DCB eq.	6,31E+01	6,48E+01	4,32E+00	1,32E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FAETP	kg DCB eq.	1,90E+00	1,34E+00	1,03E-01	3,34E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAETP	kg DCB eq.	7,02E+03	5,73E+03	3,92E+02	1,31E+04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETP	kg DCB eq.	2,12E+00	2,01E-01	3,93E-02	2,36E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ECI	euro	3,40E+01	2,17E+01	1,60E+00	5,73E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADPF	kg Sn eq.	1,60E+00	8,22E-01	1,47E-01	2,57E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- ADPE = Abiotic Depletion Potential for non-fossil resources
- ADPF = Abiotic Depletion Potential for fossil resources
- GWP = Global Warming Potential
- ODP = Depletion potential of the stratospheric ozone layer
- POCP = Formation potential of tropospheric ozone photochemical oxidants
- AP = Acidification Potential of land and water
- EP = Eutrophication Potential
- HTP = Human Toxicity Potential
- FAETP = Fresh water aquatic ecotoxicity potential
- MAETP = Marine aquatic ecotoxicity potential
- TETP = Terrestrial ecotoxicity potential
- ECI = Environmental Cost Indicator
- ADPF = Abiotic Depletion Potential for fossil resources

ENVIRONMENTAL IMPACT per functional unit or declared unit (core indicators A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq	4,52E+02	1,23E+02	1,58E+01	5,91E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-fossil	kg CO2 eq	4,44E+02	1,23E+02	1,59E+01	5,83E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-biogenic	kg CO2 eq	8,02E+00	2,92E-03	-1,06E-01	7,92E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-luluc	kg CO2 eq	2,04E-01	7,37E-02	1,10E-02	2,88E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ODP	kg CFC11 eq	4,19E-05	2,63E-05	1,20E-06	6,94E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AP	mol H+ eq.	1,18E+00	2,18E+00	8,34E-02	3,44E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-fresh water	kg PO4 eq.	8,92E-03	7,90E-04	4,44E-04	1,02E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-marine	kg N eq.	2,16E-01	5,07E-01	1,65E-02	7,39E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-terrestrial	mol N eq.	2,63E+00	5,65E+00	1,86E-01	8,47E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
POCP	kg NMVOC eq.	7,69E-01	1,54E+00	6,37E-02	2,37E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADP-minerals & metals	kg Sb eq.	2,35E-03	1,57E-03	2,33E-04	4,15E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADP-fossil	MJ, net calorific value	5,33E+03	1,72E+03	3,19E+02	7,37E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WDP	m3 world eq. Deprived	3,88E+01	4,54E+00	7,06E+00	5,04E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- GWP-total = Global Warming Potential total
- GWP-fossil = Global Warming Potential fossil fuels
- GWP-biogenic = Global Warming Potential biogenictotal
- GWP-luluc = Global Warming Potential land use and land use change
- ODP = Depletion potential of the stratospheric ozone layer
- AP = Acidification Potential, Accumulated Exceedence
- 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 Exceedence
- POCP = Formation potential of tropospheric ozone photochemical oxidants
- ADP-minerals & metals = Abiotic Depletion Potential for non-fossil resources [1]
- ADP-fossil = Abiotic Depletion for fossil resources potential [1]
- WDP = Water (user) deprivation potential, deprivation-weighted water consumption [1]

Disclaimer [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 experience with the indicator.

ENVIRONMENTAL IMPACT per functional unit or declared unit (additional indicators A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Disease incidence	9,15E-06	7,10E-06	5,70E-07	1,68E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
IRP	kBq U235 eq.	6,89E+01	7,36E+00	1,17E+00	7,74E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETP-fw	CTUe	7,62E+03	1,30E+03	2,58E+02	9,17E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HTP-c	CTUh	8,42E-08	6,10E-08	5,32E-09	1,51E-07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HTP-nc	CTUh	3,95E-06	1,27E-06	1,81E-07	5,40E-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SQP	-	1,55E+03	1,11E+03	7,64E+01	2,74E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- PM = Potential incidence of disease due to PM emissions
- IRP = Potential Human exposure efficiency relative to U235 [1]
- ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]
- HTP-c = Potential Comparative Toxic Unit for humans [2]
- HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]
- SQP = Potential soil quality index [2]

Disclaimer [1]:

- 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.

Disclaimer [2]:

- 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 experience with the indicator.

OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit (A1 en A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	3,95E-03	2,95E-03	5,62E-04	7,46E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NHWD	kg	5,40E+01	7,76E+01	1,42E+01	1,46E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RWD	kg	4,75E-02	1,17E-02	9,46E-04	6,02E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MFR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EEE	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETE	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- HWD = Hazardous Waste Disposed
- NHWD = Non Hazardous Waste Disposed
- RWD = Radioactive Waste Disposed
- CRU = Components for reuse
- MFR = Materials for recycling
- MER = Materials for energy recovery
- EEE = Exported Electrical Energy
- ETE = Exported Thermal Energy

RESOURCE USE per functional unit or declared unit (A1 and A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	2,05E+03	1,67E+01	6,81E+01	2,14E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PERT	MJ	2,05E+03	1,67E+01	6,81E+01	2,14E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRE	MJ	5,55E+03	1,83E+03	3,40E+02	7,71E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRT	MJ	5,55E+03	1,83E+03	3,40E+02	7,71E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NSRF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FW	m3	7,00E+00	1,55E-01	2,44E-01	7,40E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- PERE = Use of renewable energy excluding renewable primary energy resources
- PERM = Use of renewable energy resources used as raw materials
- PERT = Total use of renewable primary energy resources
- PENRE = Use of non-renewable primary energy resources excluding non-renewable 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
- NSRF = Use of non-renewable secondary fuels
- FW = Use of net fresh water

BIOGENIC CARBON CONTENT per functional unit or declared unit (A1 and A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
BBCpr	kg C	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BCCpa	kg C	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- BCCpr = Biogenic carbon content in product
- BCCpa = Biogenic carbon content in packaging



CALCULATION RULES (PART 1)

Declared unit

The declared unit for the life cycle assessment is 1000 kg of Calumex® XT-20.

Data collection

Input- and output data has been provided by Caltra of the production year 2023 for the following inventory categories:

- Materials (raw materials and auxiliary materials);
- Energy (electricity and heat);
- Emissions to air, water and soil;
- Treatment and disposal of production wastes.

Data quality

Data was validated by SGS at the process level. This means that not only the mass balance was verified, but that in the case of major deviations from the average (for all type of in- and output) the suppliers were asked for further explanation.

Allocations

Allocation of environmental interventions can apply to multi-input, multi-output, recycling and reuse processes. No allocation of multi output processes is applied in this study. For other allocations, the provisions from the EN 15804 are followed.

Cut-off criteria

This LCA contains all relevant data. The following processes are not included in this LCA:

- Assumed is that the maintenance and use of auxiliary equipment have a negligible contribution to the total (<1%). Because of this, these processes are not taken in account in this LCA, except such processes that are included in the Ecoinvent background data.
- Assumed is that the capital goods and infrastructure processes have a negligible contribution. These processes are not taken in account in this LCA, except such processes that are included in the Ecoinvent background data.

There is no reason to believe that relevant in- or outputs are excluded from this study.

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION (PART 1)

Calumex® XT-20 is an Amorphous Calcium Aluminate (C12A7) additive to Ordinary Portlandcement, used to accelerate setting times, compensate shrinkage and increase both early and late strength development. Calumex® XT-20 provides roughly 4 times the working time of Calumex® SC-A based formulations, without the addition of retarders. The specialized chemistry of Calumex® XT-20, as well as Calumex® SC-A, allows the formulation of ultra-fast setting times and extremely high early strengths at early stages of hydration. Furthermore, through the high formation of ettringite crystals, drying is accelerated and shrinkage and permeability are reduced. As is the case with Calumex® SC-A, the basis of Calumex® XT-20 is an amorphous clinker, making it a lot more reactive than crystalline alternatives. This means the required dosage in end formulations can be a lot lower. Between 5-20% of the binder weight should be replaced by Calumex® XT-20, depending on the desired effect.

Additional information

In order to adjust setting times, combine Calumex® XT-20 with Delta-20 set retarder. Delta-20 is specifically formulated for application in ACA based systems. It will provide an extended workability, with minimal sacrifice of strength development. Both Calumex® SC-A and Calumex® XT-20 are white in color and suitable to be mixed with White OPC.

Chemical Analysis and physical composition	
SiO ₂	≤ 6 %
Al ₂ O ₃	19 - 23 %
Fe ₂ O ₃	≤ 0,5 %
CaO	40 - 45 %
SO ₃	≤ 30 %
TiO ₂	≤ 1 %
MgO	≤ 1 %
Appearance	White powder
Blaine	~ 6000 cm ² /g
Bulk density	~ 2,9 - 3,1 g/cm ³



SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION (PART 2)

Technical data

In the table below, the compressive strength of the products is presented. The Vicat-time (min) from the beginning >7:00 to end <11:00 is tested.

	Temperature (°C)	Tim (min)	Compressive strength - 1 (avg)	Compressive strength - 2 (avg)	Compressive strength - 3 (avg)
Compressive strength development (MPa)	> 50	≤ 45:00	10 (± 4)	36 (± 4)	50 (± 5)

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION (PART 3)

Product stage (A1-A3)

This stage consists of the extraction of raw materials, energy which occurs upstream to the manufacturing process, transportation of raw materials, processing of the raw materials into the final product with all processes and energy required for production as well as packaging materials.

Data collection was performed by Caltra in cooperation with their suppliers. The manufacturer compiled mass and energy balances based on average production in year 2023. The production facility in Mijdrecht uses renewable electricity from photovoltaic panels (own production) in their production process.

DECLARATION OF SVHC

No substances of very high concern are present in concentrations greater than 0,1% by weight in the product.

REFERENCES

NMD Bepalingsmethode Milieuprestatie Bouwwerken 1.1, NMD March 2022.

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

ISO, 2006. "Environmental management. Life cycle assessment - Principles and framework". ISO 14040:2006.

ISO, 2006. "Environmental management. Life cycle assessment – Requirements and Guidelines". ISO 14044:2006.

ISO, 2000. "Environmental labels and declarations – Type III environmental declarations", ISO/TR 14025:2000.

