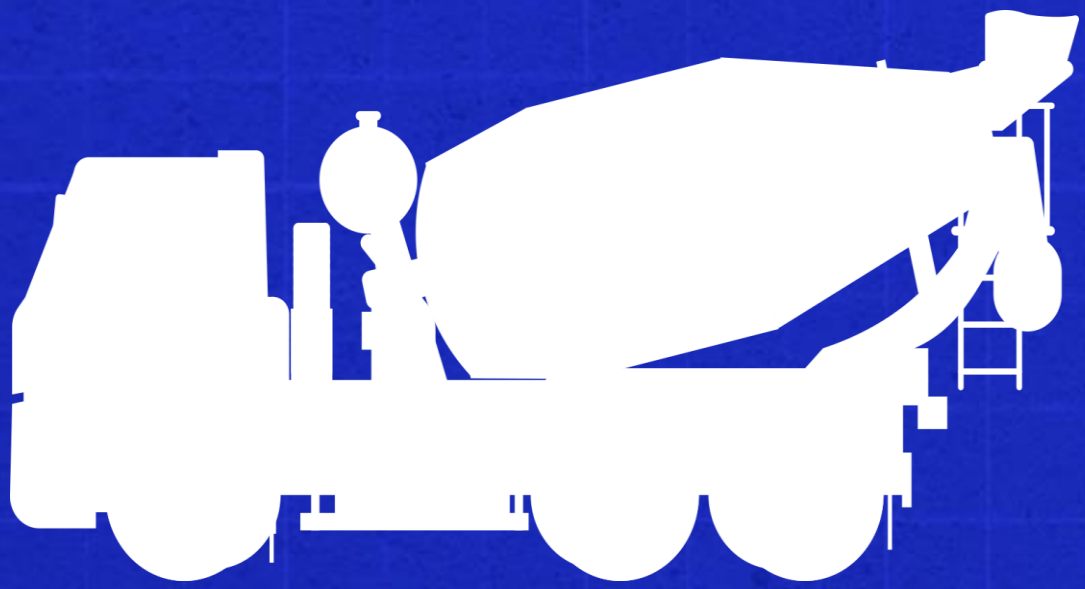
CEMEX

ENVIRONMENTAL PRODUCT DECLARATION



Environmental Product Declaration for ready mix concrete products produced by CEMEX México at their MX-PD0678 URUAPAN facility in Michoacán, México.

FUTURE IN ACTION

ADMINISTRATIVE INFORMATION

International Certified Environmental Product Declaration

Declared Product:	This Environmental Product Declaration (EPD) covers ready mix concrete products produced by CEMEX Concretos S.A. de C.V. Declared unit: 1 m3 of concrete
Declaration Owner:	CEMEX Concretos S.A. de C.V./ CEMEX S.A.B. de C.V. 444 av. Constitución Pte, Col. Centro Monterrey, Nuevo León. www.cemexmexico.com Arturo Gaytan Covarrubias. arturo.gaytanc@cemex.com Maria Paulette Chambers Rubio mariapaulette.chambers@cemex.com
Program Operator:	Labeling Sustainability Address, 11670 W Sunset Blvd. Los Angeles, CA www.labelingsustainability.com
Product Category Rule:	Core PCR: ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services SubPCR: NSF International (March 2020). Product Category Rule (PCR) for Environmental Product Declarations (EPD) PCR for Concrete, v2.1 Sub PCR Program Operator: NSF International Sub-category PCR review was conducted by: Thomas P. Gloria, Ph. D. of Industrial Ecology Consultants: 35 Bracebridge, Rd., Newton, MA 02459-1728, t.gloria@industrial-ecology.com. Dr. Michael Overcash of Environmental Clarity: 2908 Chipmunk Lane, Raleigh, NC 27607-3117, mrovercash@earthlink.net. Mr. Bill Stough of Sustainable Research Group: PO Box 1684, Grand Rapids, MI 49501-1684, bstough@sustainableresearchgroup.com. Mr. Jack Geilbig, EcoForm: 2624 Abelia Way, Suite 611, Knoxville, TN 37931, jgeilbig@ecoform.com.
Independent LCA Reviewer and EPD Verifier:	This EPD was independently verified in accordance with ISO 14025 and ISO 21930. The life cycle assessment was independently reviewed in accordance ISO 14044 and the referenced PCR. Independent verification of the declaration, according to ISO 14025:2006 External Third Party Verifier Geoffrey Guest, Certified 3rd Party Verifier under the International EPD Program (www.environdec.com), CSA Group (www.csaregistries.ca)
Date of Issue:	30 August 2024
Period of Validity:	5 years; valid until 30 August 2029
EPD Number:	163adb6e-a273-4ª44-a2d3-5f8ce3df0739

TABLE OF CONTENTS

COMPANY DESCRIPTION

CEMEX Concretos S.A. de C.V./ CEMEX S.A.B. de C.V. (CEMEX) is a global building materials company dedicated to building a better future through sustainable products and solutions. CEMEX is committed to achieving carbon neutrality through constant innovation and industry leadership in research and development. CEMEX is at the front of the circular economy within the construction value chain and promotes innovative processes with the use of advanced technologies to increase the use of waste as raw materials and alternative fuels in its operations. CEMEX provides cement, ready-mix concrete, aggregates, and urban solutions in fast-growing markets around the world, powered by a multinational workforce focused on delivering superior customer experience, using digital technologies.

STUDY GOAL

The intended application of this life cycle assessment (LCA) is to comply with the procedures for creating a Type III environmental product declaration (EPD) and publish the EPD for public review on the website, http://labelingsustainability.com/ . This level of study is in accordance with EPD Product Category Rule (PCR) for Ready Mix Concrete published by NSF International (2019) and is a sub-PCR of International Standards Organization (ISO) 21930:2017 Sustainability in buildings and civil works - Core rules for EPDs of construction products and services; International Standards Organization (ISO) 14025:2006 Environmental labels and declarations, Type III environmental declarations-Principles and procedures; ISO 14044:2006 Environmental management, Life cycle assessment- Requirements and guidelines; and ISO 14040:2006 Environmental management, Life cycle assessment-Principles and framework. It is also aligned to the Guidelines for Providing Product Sustainability Information from United Nations Environmental Program. The performance of this study and its subsequent publishing is in alignment with the business-to-business (B2B) communication requirements for the environmental assessment of building products. The study does not intend to support comparative assertions and is intended to be disclosed to the public.

This project report was commissioned to offer customers information to help them make informed product decisions; improve the environmental performance of CEMEX Concretos S.A. de C.V. / CEMEX S.A.B. de C.V. by continuously measuring, controlling and reducing the environmental impacts of their products; help project facilitators working on Leadership in Energy and Environmental Design (LEED) projects achieve their credit goal among other certification rating systems; and to strengthen CEMEX's license to operate in the community. The intended audience for this LCA report is CEMEX Concretos S.A. de C.V.'s employees, their suppliers, project specifiers of their products, architects, and engineers. The EPD report is also available for policy makers, government officials interested in sustainability, academic professors, and LCA professionals. This LCA report does not include product comparisons from other facilities.

DESCRIPTION OF PRODUCT AND SCOPE

This EPD reports on 81 concrete mixes manufactured at the CEMEX MX-PD0678 URUAPAN concrete facility at Camino A Mapeco 50, Mapeco, Charapan, Michoacán, México.

This LCA assumes the impacts from products manufactured in accordance with the standards outlined in this report. This LCA is a cradle-to-gate study, and therefore, stages extending beyond the plant gate are not included in this LCA. Transportation from the plant to the jobsite, Module A4, was hand

calculated using the proportion of diesel allotted to that stage from primary CEMEX records and diesel the emissions factor. Excluded stages include on-site construction processes and components; building (infrastructure) use and maintenance; and "end-of-life" effects.

READY MIX CONCRETE DESIGN SUMMARY

The following tables provide a list of the ready-mix concrete products considered in this EPD along with key performance parameters.

Mix Designs: 0 to 15 MPa

Table 1: **Declared products with Mix designs: 0 to 15MPa considered in this environmental product declaration**

Mix#	Unique name/ID	Short description	Product type	Compressive strength MPa	Day compressive strength	H2O to cement ratio	Level of vertua lower carbon
1	Convencional - 100 - 28 días	9.81 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	9.81	28	1.23	Plus
2	Convencional - 150 - 28 días	14.71 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	14.71	28	1.06	Clásico
3	Hidratium - 150 - 28 días	14.71 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	14.71	28	0.99	Clásico
4	Ligero - 150 - 28 días	14.71 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	14.71	28	0.50	Clásico
5	Mortero - 150 - 28 días	14.71 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	14.71	28	0.86	Clásico
6	Mortero estabilizado - 150 - 28 días	14.71 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	14.71	28	0.85	Clásico
7	Relleno fluido - 100 - 28 días	9.81 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	9.81	28	0.79	Clásico

8	Relleno fluido - 25 - 3 días	2.45 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	2.45	3	0.83	Clásico
9	Trabajabilidad extendida - 100 - 28 días, trab ext 3 horas	9.81 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	9.81	28	1.18	Clásico
10	Trabajabilidad extendida - 150 - 28 días, trab ext 3 horas	14.71 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	14.71	28	1.03	Clásico
11	Trabajabilidad extendida - 150 - 28 días, trab ext 4 horas	14.71 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	14.71	28	0.98	Clásico
12	Trabajabilidad extendida - 25 - 3 días, trab ext 3 horas	2.45 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	2.45	3	0.72	Plus
13	Vertua Menor Carbono - 150 - 28 días	14.71 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	14.71	28	1.12	Plus
14	Vertua Menor Carbono - 150 - 28 días, trab ext 3 horas	14.71 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	14.71	28	1.02	Clásico
15	Vertua Materiales Reciclados - 025 - 28 días	2.45 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	2.45	28	0.72	Plus

Mix Designs: 15 to 20 MPa

Table 2 **Declared products with Mix designs: 15 to 20MPa considered in this environmental product declaration**

Mix#	Unique name/ID	Short description	Product type	Compressive strength MPa	Day compressive strength	H2O to cement ratio	Level of vertua lower carbon
16	Acelerado - 200 - 3 días,	19.61 MPa 3d strength	Ready Mix Concrete	19.61	3	0.65	Plus

	trab ext 3 horas	Ready Mix Concrete					
17	Convencional - 200 - 28 días	19.61 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	19.61	28	0.92	Clásico
18	Convencional - 200 - 7 días	19.61 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	19.61	7	0.76	Clásico
19	Impercem - 200 - 28 días	19.61 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	19.61	28	0.91	Clásico
20	Lanzado - 200 - 28 días	19.61 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	19.61	28	0.69	Plus
21	Materiales Reciclados Llanta - 200 - 28 días	19.61 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	19.61	28	0.89	Clásico
22	Materiales Reciclados Pet - 200 - 28 días	19.61 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	19.61	28	0.89	Clásico
23	Materiales Reciclados Plástico de difícil reciclado - 200 - 28 días	19.61 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	19.61	28	0.89	Clásico
24	Reducrack - 200 - 14 días	19.61 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	19.61	14	0.82	Clásico
25	Reducrack - 200 - 28 días, trab ext 3 horas	19.61 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	19.61	28	0.97	Plus
26	Trabajabilidad extendida - 200 - 28 días, trab ext 3 horas	19.61 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	19.61	28	0.90	Clásico

27	Trabajabilidad extendida - 200 - 7 días, trab ext 3 horas	19.61 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	19.61	7	0.76	Clásico
28	Vertua Menor Carbono - 200 - 28 días	19.61 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	19.61	28	0.97	Plus
29	Vertua Menor Carbono - 200 - 28 días, trab ext 3 horas	19.61 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	19.61	28	0.89	Clásico

Mix Designs: 21 to 25 MPa

Table 3: **Declared products with Mix designs: 21 to 25MPa considered in this environmental product declaration**

Mix#	Unique name/ID	Short description	Product type	Compressive Strength MPa	Day compressive strength	H2O to cement ratio	Level of vertua lower carbon
30	Acelerado - 250 - 3 días	24.52 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	24.52	3	0.59	Clásico
31	Acelerado - 250 - 3 días, trab ext 3 horas	24.52 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	24.52	3	0.59	Clásico
32	Acelerado - 250 - 7 días, trab ext 3 horas	24.52 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	24.52	7	0.65	Clásico
33	Antibacteriano - 250 - 28 días	24.52 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.52	28	0.79	Clásico
34	Antihongo antialga - 250 - 28 días	24.52 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.52	28	0.79	Clásico
35	Antitermita - 250 - 28 días	24.52 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.52	28	0.79	Clásico

36	Aparentia - 250 - 28 días	24.52 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.52	28	0.51	Plus
37	Autocompactable - 250 - 28 días	24.52 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.52	28	0.56	
38	Convencional - 250 - 14 días	24.52 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	24.52	14	0.76	Clásico
39	Convencional - 250 - 28 días	24.52 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.52	28	0.82	Clásico
40	Convencional - 250 - 7 días	24.52 Mpa 7d strength Ready Mix Concrete	Ready Mix Concrete	24.52	7	0.69	Plus
41	Duramax - 250 - 28 días	24.52 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.52	28	0.50	
42	Duramax Autosellante - 250 - 28 días	24.52 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.52	28	0.50	Clásico
43	Estructural - 250 - 7 días	24.52 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	24.52	7	0.67	Plus
44	Hidratium - 250 - 28 días	24.52 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.52	28	0.75	Clásico
45	Hidratium - 250 - 3 días	24.52 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	24.52	3	0.57	Clásico
46	Pavicrete - MR 38 - 28 días	24.58 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.58	28	0.66	Plus

47	Pavicrete - MR 38 - 28 días, trab ext 3 horas	24.58 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.58	28	0.64	Clásico
48	Pervia - MR 36 - 28 días	22.06 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	22.06	28	0.29	Clásico
49	Reducrack - 250 - 28 días	24.52 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.52	28	0.75	Clásico
50	Reducrack Sin malla - 250 - 28 días	24.52 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.52	28	0.80	Clásico
51	Revenimiento total - 250 - 28 días	24.52 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.52	28	0.78	Clásico
52	Trabajabilidad extendida - 250 - 14 días, trab ext 3 horas	24.52 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	24.52	14	0.76	Clásico
53	Trabajabilidad extendida - 250 - 28 días, trab ext 3 horas	24.52 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.52	28	0.78	Clásico
54	Trabajabilidad extendida - 250 - 7 días, trab ext 3 horas	24.52 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	24.52	7	0.69	Clásico
55	Vertua Menor Carbono - 250 - 14 días	24.52 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	24.52	14	0.76	Clásico
56	Vertua Menor Carbono - 250 - 28 días	24.52 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.52	28	0.88	Plus
57	Vertua Menor Carbono - 250 -	24.52 MPa 28d strength	Ready Mix Concrete	24.52	28	0.85	Plus

	28 días, trab ext 3 horas	Ready Mix Concrete					
58	Vertua Menor Carbono - 250 - 7 días	24.52 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	24.52	7	0.72	Plus

Mix Designs: 26 to 30 MPa

Table 4: **Declared products with Mix designs: 26 to 30MPa considered in this environmental product declaration**

Mix#	Unique name/ID	Short description	Product type	Compressive strength MPa	Day compressive strength	H2O to cement ratio	Level of vertua lower carbon
59	Acelerado - 300 - 3 días	29.42 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	29.42	3	0.55	Clásico
60	Convencional - 300 - 28 días	29.42 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	29.42	28	0.73	
61	Pesado - 300 - 28 días	29.42 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	29.42	28	0.49	Clásico
62	Trabajabilidad extendida - 300 - 28 días, trab ext 3 horas	29.42 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	29.42	28	0.72	Clásico
63	Vertua Menor Carbono - 300 - 28 días	29.42 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	29.42	28	0.71	Clásico
64	Vertua Menor Carbono- 300 - 28 días, trab ext 3 horas	29.42 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	29.42	28	0.70	Clásico

Mix Designs: 31 to 35 MPa

Table 5: **Declared products with Mix designs: 31 to 35MPa considered in this environmental product declaration**

Mix#	Unique name/ID	Short description	Product type	Compressive strength MPa	Day compressive strength	H2O to cement ratio	Level of vertua lower carbon
65	Acelerado - 350 - 3 días, trab ext 3 horas	34.32 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	34.32	3	0.48	Clásico
66	Acelerado - MR 42 - 7 días, trab ext 3 horas	30.03 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	30.03	7	0.52	Clásico
67	Acelerado - MR 45 - 3 días	34.48 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	34.48	3	0.45	Clásico
68	Antideslave - 350 - 28 días	34.32 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	34.32	28	0.46	Clásico
69	Baja contracción - MR 42 - 28 días	30.03 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	30.03	28	0.55	Clásico
70	Contracción compensada - MR 42 - 28 días	30.03 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	30.03	28	0.56	Clásico
71	Grout premezclado - 350 - 28 días	34.32 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	34.32	28	0.42	Clásico
72	Pavicrete - MR 42 - 14 días	30.03 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	30.03	14	0.58	Clásico
73	Pavicrete - MR 42 - 28 días	30.03 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	30.03	28	0.63	Plus

74	Pavicrete - MR 42 - 28 días, trab ext 3 horas	30.03 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	30.03	28	0.60	Clásico
75	Pavicrete - MR 42 - 7 días	30.03 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	30.03	7	0.53	Clásico
76	Pavicrete - MR 45 - 28 días	34.48 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	34.48	28	0.59	Clásico
77	Pavicrete - MR 45 - 28 días, trab ext 3 horas	34.48 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	34.48	28	0.57	Clásico
78	Pavicrete - MR 45 - 3 días	34.48 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	34.48	3	0.45	Clásico
79	Trabajabilidad extendida - MR 42 - 28 días, trab ext 3 horas	30.03 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	30.03	28	0.61	Clásico
80	Trabajabilidad extendida - MR 45 - 28 días, trab ext 3 horas	34.48 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	34.48	28	0.58	Clásico

Mix Designs: 36 to 40 MPa

Table 6: **Declared products with Mix designs: 36 to 40MPa considered in this environmental product declaration**

Mix#	Unique name/ID	Short description	Product type	Compressive strength MPa	Day compressive strength	H2O to cement ratio	Level of vertua lower carbon
81	Alta Resistencia - MR 48 - 28 días	39.23 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	39.23	28	0.55	Clásico

READY MIX CONCRETE DESIGN COMPOSITION

The following figures provide mass breakdown (kg per functional unit) of the material composition of each ready mix concrete design considered. Please note that the presented breakdown has been randomly altered by +/-10% and is therefore only an approximation; this manipulation is to ensure confidentiality.

Table 7: **Ready mix concrete composition.**

Product Components	Product Components
Cement	Proprietary
Aggregates	30–60.00
Others	0.01-5.00
Total	100.00

SYSTEM BOUNDARIES

The following figure depicts the cradle-to-gate system boundary considered in this study.

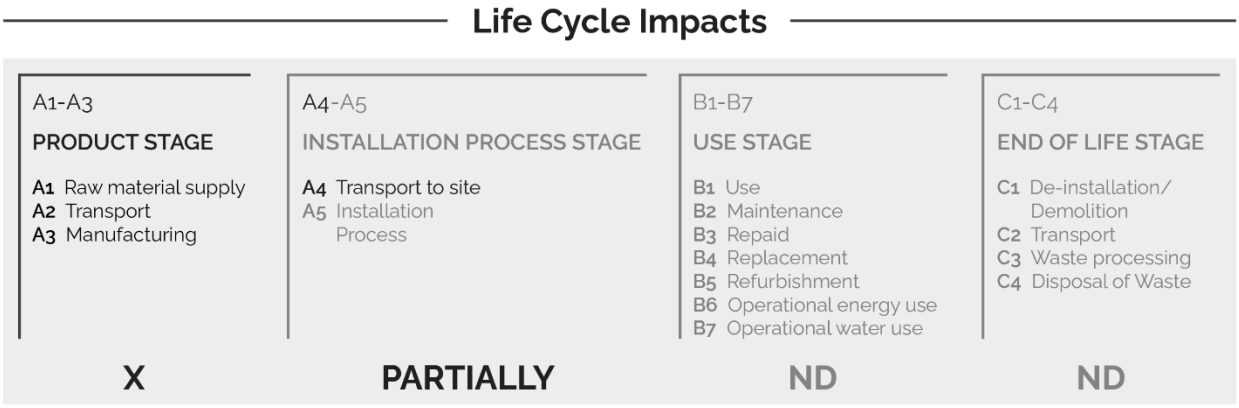


Figure 1: **General life cycle phases for consideration in a construction works system**

This is a Cradle-to-gate life cycle assessment and the following life cycle stages are included in the study:

- A1: Raw material supply (upstream processes) - Extraction, handling, and processing of the materials used in manufacturing the declared products in this LCA.
- A2: Transportation - Transportation of A1 materials from the supplier to the "gate" of the manufacturing facility (i.e., A3).
- A3: Manufacturing (core processes)- The energy and other utility inputs used to store, move, and manufacture the declared products and to operate the facility.
- A4: Concrete mixing and delivery to the job site

According to the PCR, the following figure illustrates the general activities and input requirements for producing ready mix concrete products and is not necessarily exhaustive.

System Boundary

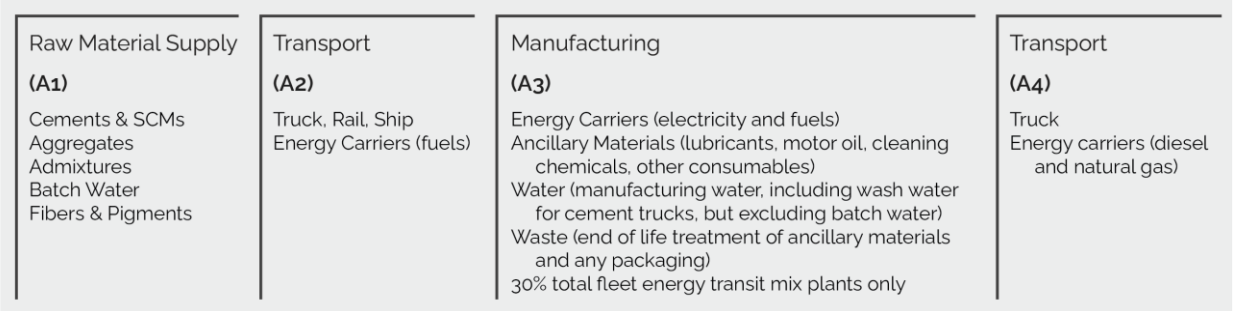


Figure 2: **General system inputs considered in the product system and categorized by modules in scope**

In addition, as according to the relevant PCR, the following requirements are excluded from this study:

- Production, manufacture and construction of A3 building/capital goods and infrastructure;
- Production and manufacture of steel production equipment, steel delivery vehicles, earth-moving equipment, and laboratory equipment;
- Personnel-related activities (travel, furniture, office supplies);
- Energy use related to company management and sales activities.

For this LCA the manufacturing plant, owned and operated by CEMEX is located at their MX-PD0678 Uruapan facility in México. All operating data is formulated using the actual data from CEMEX.'s plant at the above location, including water, energy consumption and waste generation. All inputs for this system boundary are calculated for the plant.

This life cycle inventory was organized in a spreadsheet and was then input into an RStudio environment where pre-calculated LCIA results for relevant products/activities stemming from the ecoinvent v3.10 database and a local EPD database in combination with primary data from CEMEX were utilized. Explanations of the contribution of each data source to this study are outlined in the section 'Data Sources and Quality'. Further LCI details for each declared product are provided in the sections 'Detailed LCI tables' and 'Transport tables' of the detailed LCA report. A parameter uncertainty analysis was also performed where key statistical results (e.g., min/mean/max etc.) are provided in the detailed LCA report.

CUT-OFF CRITERIA

ISO 14044:2006 and the focus PCR requires the LCA model to contain a minimum of 95% of the total inflows (mass and energy) to the upstream and core modules be included in this study. The cut-off criteria were applied to all other processes unless otherwise noted above as follows. A 1% cut-off is considered for all renewable and non-renewable primary energy consumption and the total mass of inputs within a unit process where the total of the neglected inputs does not exceed 5%.

DATA SOURCES AND DATA QUALITY ASSESSMENT

Raw material transport: A combination of actual mode/distance combinations were assumed for key bulk materials whereas ecoinvent default multi-modal market mix distances were assumed for other inputs where no original data could be provided.

Electricity: Electricity consumption values are for Cemex in calendar year 2023. These values were direct reported from Cemex records. The unit process "market for electricity, medium voltage/electricity, medium voltage/MX/kWh" was used to represent the Mexico grid electricity used by the concrete plant. 92%is the wind energy.

Process/space heating: No fuel is used for space heating at this plant.

Fuel required for machinery: Machinery-related fuel requirements were determined from direct CEMEX information for the reference year 2023.

Waste generation: Not applicable

Recovered energy: There was no recovered energy on-site.

Recycled/reused material/components: The amount of returned concrete is based on CEMEX primary data for the reference year, 2023.

Module A1 material losses: Due to lack of data, default loss factors were assumed.

Direct A3 emissions accounting: Direct emissions are modeled using fuel and technology appropriate ecoinvent activities. See LCI input tables for details.

Waste transport requirements: Transportation distances are using estimated values. The waste hauler cannot guarantee the exact distances traveled due to the variation of route and actual location of disposal. Most waste disposal sites are near the plant therefore the 25 km distance is a representative estimate.

Product transport requirements: Truck-related fuel requirements were determined from direct CEMEX information for the reference year 2023. The PCR states that 30% of the truck's fuel is used to mix the material and should be allocated to A3. CEMEX operations conducted several tests on their equipment to find the actual amount of fuel used for mixing the materials. The "worst scenario" produced a fuel consumption of 16.9934% of the total fuel used for mixing the material. The truck used 15.3 liters of diesel per 60 minutes at the highest mixing speed, 14 RPMs. In those 60 minutes, the mixing used 2.6 liters of fuel. As a result, 16.99% of the total fuel consumption has been used instead of the 30% as described in the PCR for concrete.

The following tables depict a list of assumed life cycle inventory utilized in the LCA modeling to generate the impact results across the life cycle modules in scope. An assessment of the quality of each LCI activities utilized from various sources is also provided.

Table 8: **LCI inputs assumed for module A1 (i.e., raw material supply)** ***Data Quality Assessment Key Fair=1, Good=2, Very Good =3.***

Input	LCI.activity	Data.source	Geo	Year	Technology	Time	Geography	Reliability	Completeness
Micro silica	silica sand production/silica sand/RoW/kg; Note: modifications made (see ecoinvent activity changes table)	ecoinvent v3.10 in 2024	Chihuahua	2024	2	3	1	3	3
Basalt Gravel	basalt quarry operation/basalt/RoW/kg; Note: modifications made (see ecoinvent activity changes table)	ecoinvent v3.10 in 2024	Michoacán	2024	2	3	1	3	3
Water	tap water production, conventional treatment/tap water/RoW/kg	ecoinvent v3.10 in 2024	Michoacán	2024	2	3	1	3	3
Marble Sand	limestone quarry operation/limestone, unprocessed/RoW/kg; Note: modifications made (see ecoinvent activity changes table)	ecoinvent v3.10 in 2024	Querétaro	2024	NA	3	NA	3	3
Additives	chemical production, organic/chemical, organic/GLO/kg	ecoinvent v3.10 in 2024	Edo. Mex.	2024	2	3	1	3	3
Hidratium	chemical production, inorganic/chemical, inorganic/GLO/kg	ecoinvent v3.10 in 2024	Hidalgo	2024	2	3	1	3	3
Polystyrene perlite	polystyrene production, general purpose/polystyrene, general purpose/RoW/kg	ecoinvent v3.10 in 2024	Michoacán	2024	2	3	1	3	3
Cement	Gris CPC40RS	Progam Operator: Labeling Sustainability - EPD ID: ce509726-abc4-4437-b8ba-c99421e76fbd	Hidalgo	01 February 2023	3	3	3	3	3
Cement	Gris CPC40RS	Progam Operator: Labeling	Hidalgo	07 June 2023	3	3	3	3	3

		Sustainability - EPD ID: c9067c84-e015-42a1-8c45-c389cb8fa0a4							
Volcanic Sand	sand quarry operation, extraction from river bed/sand/BR/kg; Note: modifications made (see ecoinvent activity changes table)	ecoinvent v3.10 in 2024	Michoacán	2024	2	3	1	3	3
Llanta kg	Waste input produced off-site	See A3 inputs	Guanjuato	See A3 inputs	2	A3	1	A3	A3

DATA QUALITY ASSESSMENT

Data quality/variability requirements, as specified in the PCR, are applied. This section describes the achieved data quality relative to the ISO 14044:2006 requirements. Data quality is judged based on its precision (measured, calculated, or estimated), completeness (e.g., unreported emissions), consistency (degree of uniformity of the methodology applied within a study serving as a data source) and representativeness (geographical, temporal, and technological).

Precision: Through measurement and calculation, the manufacturers collected and provided primary data on their annual production. For accuracy, the LCA practitioner and 3rd Party Verifier validated the plant gate-to-gate data.

Completeness: All relevant specific processes, including inputs (raw materials, energy, and ancillary materials) and outputs (emissions and production volume) were considered and modeled to represent the specified and declared products. Most relevant background materials and processes were taken from ecoinvent v3.10 LCI datasets where relatively recent region-specific electricity inputs were utilized. The most relevant EPDs requiring key A1 inputs were also utilized where readily available.

Consistency: To ensure consistency, the same modeling structure across the respective product systems was utilized for all inputs, which consisted of raw material inputs and ancillary material, energy flows, water resource inputs, product, and co-products outputs, returned and recovered Ready mix concrete materials, emissions to air, water and soil, and waste recycling and treatment. The same background LCI datasets from the ecoinvent v3.10 database were used across all product systems. Crosschecks concerning the plausibility of mass and energy flows were continuously conducted. The LCA team conducted mass and energy balances at the plant and selected process levels to maintain a high level of consistency.

Reproducibility: Internal reproducibility is possible since the data and the models are stored and available in a machine-readable project file for all foreground and background processes, and in Labeling Sustainability's proprietary Ready Mix Concrete LCA calculator* for all production facility and product-specific calculations. A considerable level of transparency is provided throughout the detailed LCA report as the specifications and material quantity make-up for the declared products are presented and key primary and secondary LCI data sources are summarized. The provision of more

detailed publicly accessible data to allow full external reproducibility was not possible due to reasons of confidentiality.

*Labeling Sustainability has developed a proprietary tool that allows the calculation of PCR-compliant LCA results for ready mix concrete product designs. The tool auto-calculates results by scaling base-unit technosphere inputs (i.e., 1 kg sand, 1 kWh electricity, etc.) to replicate the reference flow conversions that take place in any typical LCA software like openLCA or SimaPro. The tool was tested against several LCAs performed in openLCA and the tool generated identical results to those realized in openLCA across every impact category and inventory metric (where comparisons could be readily made).

Representativeness: The representativeness of the data is summarized as follows.

- Time related coverage of the manufacturing processes' primary collected data from 2023-01-01 to 2023-12-31.
- Upstream (background) LCI data was either the PCR specified default (if applicable) or more appropriate LCI datasets as found in the country-adjusted ecoinvent v3.10 database.
- Geographical coverage for inputs required by the A3 facility(ies) is representative of its region of focus; other upstream and background processes are based on US, North American, or global average data and adjusted to regional electricity mixes when relevant.
- Technological coverage is typical or average and specific to the participating facilities for all primary data.

ENVIRONMENTAL INDICATORS AND INVENTORY METRICS

Per the PCR, this EPD supports the life cycle impact assessment indicators and inventory metrics as listed in the tables below. As specified in the PCR, the most recent US EPA Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI), impact categories were utilized as they provide a North American context for the mandatory category indicators to be included in the EPD. Additionally, the PCR requires a set of inventory metrics to be reported with the LCIA indicators.

Table 9: **Life cycle impact categories and life cycle inventory metrics**

ID	LCIA.indicators	Abbreviations	Units
1	Climate change: global warming potential (GWP100)	GWP100	kg CO2-eq
2	Ozone depletion: ozone depletion potential (ODP)	ODP	kg CFC-11-eq
3	Acidification: acidification potential (AP)	AP	kg SO2-eq
4	Eutrophication: eutrophication potential	EP	kg N-eq
5	Smog formation potential	SFP	kg O3-eq
6	Energy resources: non-renewable: abiotic depletion potential (ADP): fossil fuels	ADPfossil	MJ
Inventory metrics			
7	Inventory indicators ISO21930: Cumulative Energy Demand - renewable energy resources	RPRE	MJ
8	Inventory indicators ISO21930: Renewable primary resources with energy content used as material (i.e., PERM)	PRM	MJ
9	Inventory indicators ISO21930: Cumulative Energy Demand - non-renewable energy resources	NRPRE	MJ

10	Inventory indicators ISO21930: Non-renewable primary resources with energy content used as material (i.e., PENRM)	NRPRM	kg
11	Inventory indicators ISO21930: use of secondary material	SM	MJ
12	Inventory indicators ISO21930: use of renewable secondary fuels	RSF	MJ
13	Inventory indicators ISO21930: recovered energy	RE	MJ
14	Inventory indicators ISO21930: use of net fresh water	FW	m3
15	Inventory indicators ISO21930: hazardous waste disposed	HWD	kg
16	Inventory indicators ISO21930: non-hazardous waste disposed	NHWD	kg
17	Inventory indicators ISO21930: high-level radioactive waste disposed	HLRW	kg
18	Inventory indicators ISO21930: intermediate and low-level radioactive waste disposed	ILLRW	kg
19	Inventory indicators ISO21930: materials for recycling	MR	kg
20	Inventory indicators ISO21930: materials for energy recovery	MER	kg

It should be noted that emerging LCA impact categories and inventory items are still under development and can have high levels of uncertainty that preclude international acceptance pending further development. Use caution when interpreting data in any of the following categories.

- Renewable primary energy resources as energy (fuel);
- Renewable primary resources as material;
- Non-renewable primary resources as energy (fuel);
- Non-renewable primary resources as material;
- Secondary Materials;
- Renewable secondary fuels;
- Non-renewable secondary fuels;
- Recovered energy;
- Abiotic depletion potential for non-fossil mineral resources.
- Land use related impacts, for example on biodiversity and/or soil fertility;
- Toxicological aspects;
- Emissions from land use change [GWP 100 (land-use change)];
- Hazardous waste disposed;
- Non-hazardous waste disposed;
- High-level radioactive waste;
- Intermediate and low-level radioactive waste;
- Components for reuse;
- Materials for recycling;
- Materials for energy recovery;
- Recovered energy exported from the product system.

LIMITATIONS

This EPD is a declaration of potential environmental impact and does not support or provide definitive comparisons of the environmental performance of specific products. Only EPDs prepared from cradle-

to-grave life cycle results and based on the same function and reference service life and quantified by the same functional unit can be used to assist purchasers and users in making informed comparisons between products.

LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks. Further, LCA offers a wide array of environmental impact indicators, and this EPD reports a collection of those, as specified by the PCR.

In addition to the impact results, this EPD provides several metrics related to resource consumption and waste generation. While these data may be informational in other ways, they do not provide a measure of impact on the environment.

TOTAL IMPACT SUMMARY

The following table reports the total LCA results for each product produced at the given ready mix concrete facility on a per 1m3 of concrete basis.

Table 10: **Total life cycle (across modules in scope) impact results for all mix designs, assuming the geometric mean point values on a per 1 m3 of concrete basis.**

a) Midpoint Impact Categories:

Indicator/LCI Metric	GWP100	ODP	AP	EP	SFP	ADPfossil
Unit	**kg CO2-eq**	**kg CFC-11-eq**	**kg SO2-eq**	**kg N-eq**	**kg O3-eq**	**MJ**
Acelerado - 200 - 3 días, trab ext 3 horas	327	2.57E-06	0.393	0.24	7.92	2090
Acelerado - 250 - 3 días	354	2.74E-06	0.412	0.248	8.24	2230
Acelerado - 250 - 3 días, trab ext 3 horas	354	2.77E-06	0.414	0.258	8.27	2240
Acelerado - 250 - 7 días, trab ext 3 horas	328	2.62E-06	0.399	0.26	7.99	2110
Acelerado - 300 - 3 días	384	2.94E-06	0.435	0.258	8.61	2390
Acelerado - 350 - 3 días, trab ext 3 horas	423	3.27E-06	0.47	0.302	9.16	2640
Acelerado - MR 42 - 7 días, trab ext 3 horas	393	2.97E-06	0.438	0.242	8.68	2430
Acelerado - MR 45 - 3 días	463	3.45E-06	0.501	0.285	9.68	2820
Alta resistencia - MR 48 - 28 días	378	2.84E-06	0.427	0.238	8.44	2330
Antibacteriano - 250 - 28 días	273	2.16E-06	0.347	0.198	7.2	1770
Antideslave - 350 - 28 días	456	3.63E-06	0.51	0.36	9.79	2920
Antihongo antialga - 250 - 28 días	278	2.36E-06	0.365	0.275	7.44	1880
Antitermita - 250 - 28 días	273	2.16E-06	0.347	0.198	7.2	1770
Aparentia - 250 - 28 días	562	5.34E-06	0.691	0.366	12.9	4500

Autocompactable - 250 - 28 días	371	2.98E-06	0.437	0.309	8.62	2390
Baja contracción - MR 42 - 28 días	349	2.75E-06	0.421	0.267	8.42	2230
Vertua Menor Carbono - 150 - 28 días	190	1.57E-06	0.291	0.152	6.29	1300
Vertua Menor Carbono - 150 - 28 días, trab ext 3 horas	218	1.82E-06	0.311	0.183	6.57	1480
Vertua Menor Carbono - 200 - 28 días	217	1.75E-06	0.304	0.166	6.45	1440
Vertua Menor Carbono - 200 - 28 días, trab ext 3 horas	247	2.03E-06	0.333	0.203	6.92	1640
Vertua Menor Carbono - 250 - 14 días	283	2.22E-06	0.354	0.199	7.3	1820
Vertua Menor Carbono - 250 - 28 días	256	2.08E-06	0.338	0.212	6.99	1690
Vertua Menor Carbono - 250 - 28 días, trab ext 3 horas	260	2.11E-06	0.339	0.212	6.94	1710
Vertua Menor Carbono - 250 - 7 días	297	2.33E-06	0.369	0.215	7.54	1900
Vertua Menor Carbono - 300 - 28 días	297	2.34E-06	0.368	0.215	7.52	1910
Vertua Menor Carbono - 300 - 28 días, trab ext 3 horas	306	2.44E-06	0.378	0.236	7.68	1980
Contracción compensada - MR 42 - 28 días	372	2.91E-06	0.443	0.275	8.74	2380
Convencional - 100 - 28 días	183	1.52E-06	0.275	0.142	6.04	1250
Convencional - 150 - 28 días	210	1.74E-06	0.298	0.169	6.4	1420
Convencional - 200 - 28 días	238	1.91E-06	0.318	0.176	6.73	1570
Convencional - 200 - 7 días	282	2.23E-06	0.355	0.204	7.31	1820
Convencional - 250 - 14 días	284	2.24E-06	0.356	0.205	7.33	1830
Convencional - 250 - 28 días	264	2.10E-06	0.34	0.193	7.08	1720
Convencional - 250 - 7 días	309	2.42E-06	0.376	0.221	7.66	1980
Convencional - 300 - 28 días	293	2.31E-06	0.363	0.211	7.45	1890
Duramax - 250 - 28 días	400	3.14E-06	0.458	0.309	8.99	2530
Duramax Autosellante - 250 - 28 días	409	3.51E-06	0.491	0.453	9.44	2740
Estructural - 250 - 7 días	319	2.49E-06	0.384	0.227	7.79	2030

Grout premezclado - 350 - 28 días	643	5.04E-06	0.633	0.452	11.5	4060
Hidratium - 150 - 28 días	250	2.05E-06	0.329	0.203	6.79	1660
Hidratium - 250 - 28 días	270	2.09E-06	0.345	0.181	7.1	1720
Hidratium - 250 - 3 días	347	2.72E-06	0.415	0.257	8.27	2210
Impercem - 200 - 28 días	249	2.20E-06	0.347	0.278	7.1	1740
Lanzado - 200 - 28 días	342	2.62E-06	0.379	0.207	7.63	2140
Ligero - 150 - 28 días	433	3.27E-06	0.471	0.32	8.67	2830
Materiales Reciclados Llanta - 200 - 28 días	248	1.99E-06	0.328	0.183	6.89	1630
Materiales Reciclados Pet - 200 - 28 días	248	1.99E-06	0.328	0.183	6.89	1630
Materiales Reciclados Plástico de difícil reciclado - 200 - 28 días	250	2.03E-06	0.333	0.186	6.99	1660
Mortero - 150 - 28 días	278	2.24E-06	0.322	0.185	6.74	1820
Mortero estabilizado - 150 - 28 días	290	2.41E-06	0.338	0.228	6.95	1920
Pavicrete - MR 38 - 28 días	319	2.45E-06	0.386	0.207	7.8	2010
Pavicrete - MR 38 - 28 días, trab ext 3 horas	334	2.59E-06	0.404	0.237	8.1	2110
Pavicrete - MR 42 - 14 días	363	2.72E-06	0.419	0.22	8.38	2240
Pavicrete - MR 42 - 28 días	329	2.50E-06	0.393	0.214	7.87	2060
Pavicrete - MR 42 - 28 días, trab ext 3 horas	347	2.67E-06	0.408	0.244	8.11	2180
Pavicrete - MR 42 - 7 días	383	2.88E-06	0.432	0.242	8.47	2360
Pavicrete - MR 45 - 28 días	349	2.64E-06	0.409	0.225	8.12	2170
Pavicrete - MR 45 - 28 días, trab ext 3 horas	368	2.82E-06	0.425	0.258	8.33	2290
Pavicrete - MR 45 - 3 días	459	3.42E-06	0.496	0.282	9.58	2790
Pervia - MR 36 - 28 días	436	3.35E-06	0.495	0.346	9.33	2700
Pesado - 300 - 28 días	460	4.07E-06	0.594	0.373	11.7	3380
Reducrack - 200 - 14 días	262	2.09E-06	0.34	0.193	7.09	1710
Reducrack - 200 - 28 días, trab ext 3 horas	220	1.81E-06	0.309	0.185	6.52	1470
Reducrack - 250 - 28 días	274	2.11E-06	0.345	0.182	7.1	1740
Reducrack Sin malla - 250 - 28 días	273	2.17E-06	0.35	0.2	7.2	1770
Relleno fluido - 100 - 28 días	264	1.96E-06	0.276	0.114	5.64	1620
Relleno fluido - 25 - 3 días	275	2.03E-06	0.283	0.117	5.74	1670

Revenimiento total - 250 - 28 días	286	2.30E-06	0.362	0.227	7.43	1870
Trabajabilidad extendida - 100 - 28 días, trab ext 3 horas	190	1.59E-06	0.281	0.155	6.13	1310
Trabajabilidad extendida - 150 - 28 días, trab ext 3 horas	213	1.76E-06	0.302	0.172	6.47	1440
Trabajabilidad extendida - 150 - 28 días, trab ext 4 horas	247	1.98E-06	0.32	0.181	6.7	1620
Trabajabilidad extendida - 200 - 28 días, trab ext 3 horas	242	1.97E-06	0.324	0.191	6.82	1610
Trabajabilidad extendida - 200 - 7 días, trab ext 3 horas	283	2.27E-06	0.358	0.218	7.36	1840
Trabajabilidad extendida - 25 - 3 días, trab ext 3 horas	253	1.82E-06	0.237	0.112	4.53	1500
Trabajabilidad extendida - 250 - 14 días, trab ext 3 horas	285	2.28E-06	0.359	0.22	7.38	1850
Trabajabilidad extendida - 250 - 28 días, trab ext 3 horas	268	2.14E-06	0.353	0.201	7.29	1750
Trabajabilidad extendida - 250 - 7 días, trab ext 3 horas	310	2.46E-06	0.38	0.237	7.71	2000
Trabajabilidad extendida - 300 - 28 días, trab ext 3 horas	299	2.39E-06	0.371	0.229	7.56	1940
Trabajabilidad extendida - MR 42 - 28 días, trab ext 3 horas	345	2.66E-06	0.402	0.241	8.02	2170
Trabajabilidad extendida - MR 45 - 28 días, trab ext 3 horas	367	2.83E-06	0.43	0.257	8.52	2300
Vertua Materiales Reciclados - 025 - 28 días	254	1.84E-06	0.238	0.113	4.55	1510

b) Resource Inventory Metrics:

Indicator/LCI Metric	**RPRE**	**PRM**	**NRPRE**	**NRPRM**	**SM**	**RSF**	**RE**	**FW**
Unit	**MJ**	**MJ**	**MJ**	**kg**	**MJ**	**MJ**	**MJ**	**m3**
Acelerado - 200 - 3 días, trab ext 3 horas	68	1.45	67.7	667	0.582	0.00687	0.301	0.682
Acelerado - 250 - 3 días	72.6	1.45	72.3	724	0.619	0.00722	0.316	0.692

Acelerado - 250 - 3 días, trab ext 3 horas	72.9	1.45	72.6	728	0.621	0.00724	0.321	0.697
Acelerado - 250 - 7 días, trab ext 3 horas	68.9	1.45	68.6	672	0.587	0.00695	0.329	0.701
Acelerado - 300 - 3 días	77.9	1.45	77.6	788	0.659	0.0076	0.334	0.697
Acelerado - 350 - 3 días, trab ext 3 horas	85.4	1.45	85.1	882	0.721	0.00821	0.371	0.732
Acelerado - MR 42 - 7 días, trab ext 3 horas	78.8	1.45	78.5	803	0.673	0.00776	0.329	0.701
Acelerado - MR 45 - 3 días	92.8	1.45	92.5	955	0.767	0.00867	0.4	0.71
Alta resistencia - MR 48 - 28 días	77.2	1.45	76.9	773	0.637	0.0073	0.322	0.637
Antibacteriano - 250 - 28 días	57.8	1.45	57.5	544	0.504	0.00612	0.257	0.658
Antideslave - 350 - 28 días	92.7	1.45	92.2	952	0.804	0.00945	0.446	0.805
Antihongo antialga - 250 - 28 días	60.5	1.45	60.2	576	0.524	0.0063	0.297	0.702
Antitermita - 250 - 28 días	57.8	1.45	57.5	544	0.504	0.00612	0.257	0.658
Aparentia - 250 - 28 días	116	1.45	116	1180	1.41	0.0161	0.651	0.765
Autocompactable - 250 - 28 días	77.1	1.45	76.7	776	0.653	0.00756	0.354	0.726
Baja contracción - MR 42 - 28 días	73.3	1.45	72.9	718	0.613	0.00717	0.327	0.66
Vertua Menor Carbono - 150 - 28 días	43.9	1.45	43.7	358	0.385	0.00501	0.221	0.593
Vertua Menor Carbono - 150 - 28 días, trab ext 3 horas	48.8	1.45	48.6	427	0.431	0.00546	0.246	0.644
Vertua Menor Carbono - 200 - 28 días	48.4	1.45	48.2	423	0.415	0.00519	0.22	0.579
Vertua Menor Carbono - 200 - 28 días, trab ext 3 horas	54.1	1.45	53.8	492	0.472	0.00584	0.267	0.658
Vertua Menor Carbono - 250 - 14 días	59.7	1.45	59.4	565	0.514	0.0062	0.262	0.645

Vertua Menor Carbono - 250 - 28 días	55.6	1.45	55.3	515	0.479	0.00583	0.258	0.646
Vertua Menor Carbono - 250 - 28 días, trab ext 3 horas	56.6	1.45	56.3	524	0.481	0.00585	0.276	0.639
Vertua Menor Carbono - 250 - 7 días	62.5	1.45	62.2	597	0.536	0.00641	0.276	0.656
Vertua Menor Carbono - 300 - 28 días	62.7	1.45	62.4	600	0.535	0.00639	0.277	0.649
Vertua Menor Carbono - 300 - 28 días, trab ext 3 horas	64.5	1.45	64.2	624	0.553	0.00658	0.29	0.676
Contracción compensada - MR 42 - 28 días	77.8	1.45	77.4	758	0.659	0.00807	0.372	0.704
Convencional - 100 - 28 días	41.3	1.45	41.1	344	0.376	0.00489	0.193	0.612
Convencional - 150 - 28 días	46.5	1.45	46.3	409	0.418	0.00529	0.217	0.635
Convencional - 200 - 28 días	51.3	1.45	51.1	466	0.455	0.00565	0.232	0.642
Convencional - 200 - 7 días	59.4	1.45	59.2	564	0.517	0.00625	0.264	0.659
Convencional - 250 - 14 días	59.8	1.45	59.5	569	0.52	0.00627	0.265	0.661
Convencional - 250 - 28 días	56.2	1.45	55.9	525	0.491	0.00599	0.251	0.652
Convencional - 250 - 7 días	64.4	1.45	64.1	624	0.555	0.00661	0.284	0.671
Convencional - 300 - 28 días	61.5	1.45	61.3	590	0.533	0.0064	0.272	0.666
Duramax - 250 - 28 días	82	1.45	81.7	834	0.691	0.00792	0.366	0.72
Duramax Autosellante - 250 - 28 días	87.3	1.45	86.8	895	0.728	0.00826	0.441	0.803
Estructural - 250 - 7 días	66.3	1.45	66	647	0.57	0.00675	0.291	0.675
Grout premezclado - 350 - 28 días	122	1.45	122	1340	1.14	0.0134	0.612	1.09
Hidratium - 150 - 28 días	54.1	1.45	53.8	501	0.475	0.00585	0.266	0.692
Hidratium - 250 - 28 días	57.9	1.45	57.7	533	0.489	0.00594	0.267	0.6
Hidratium - 250 - 3 días	72.4	1.45	72.1	710	0.612	0.00719	0.337	0.678

Impercem - 200 - 28 días	56.1	1.45	55.8	518	0.489	0.006	0.304	0.711
Lanzado - 200 - 28 días	67.2	1.45	67	693	0.609	0.00715	0.283	0.762
Ligero - 150 - 28 días	85.4	1.45	85	1010	0.699	0.00769	0.366	0.82
Materiales Reciclados Llanta - 200 - 28 días	53.4	1.45	53.1	489	0.47	0.00579	0.241	0.644
Materiales Reciclados Pet - 200 - 28 días	53.4	1.45	53.1	489	0.47	0.00579	0.241	0.644
Materiales Reciclados Plástico de difícil reciclado - 200 - 28 días	53.9	1.45	53.6	489	0.486	0.00599	0.248	0.649
Mortero - 150 - 28 días	54	1.45	53.8	555	0.541	0.00662	0.241	0.827
Mortero estabilizado - 150 - 28 días	57.2	1.45	56.9	593	0.563	0.00682	0.267	0.855
Pavicrete - MR 38 - 28 días	66.6	1.45	66.3	640	0.564	0.00671	0.3	0.652
Pavicrete - MR 38 - 28 días, trab ext 3 horas	70.2	1.45	69.9	677	0.586	0.00693	0.323	0.662
Pavicrete - MR 42 - 14 días	74.2	1.45	73.9	734	0.621	0.00723	0.309	0.65
Pavicrete - MR 42 - 28 días	68.9	1.45	68.6	664	0.57	0.00671	0.309	0.619
Pavicrete - MR 42 - 28 días, trab ext 3 horas	72.3	1.45	72	711	0.596	0.00691	0.312	0.631
Pavicrete - MR 42 - 7 días	78.4	1.45	78.1	784	0.644	0.0074	0.343	0.642
Pavicrete - MR 45 - 28 días	72.5	1.45	72.2	708	0.598	0.00697	0.322	0.627
Pavicrete - MR 45 - 28 días, trab ext 3 horas	76.3	1.45	76	757	0.627	0.00722	0.344	0.652
Pavicrete - MR 45 - 3 días	91.9	1.45	91.6	947	0.76	0.00859	0.396	0.704
Pervia - MR 36 - 28 días	92.3	1.45	91.9	924	0.703	0.00776	0.421	0.504
Pesado - 300 - 28 días	94.8	1.45	94.1	834	1.07	0.0128	0.556	0.851
Reducrack - 200 - 14 días	56	1.45	55.8	520	0.488	0.00596	0.251	0.644
Reducrack - 200 - 28 días, trab ext 3 horas	49.4	1.45	49.1	434	0.421	0.00523	0.23	0.588

Reducrack - 250 - 28 días	58.3	1.45	58	544	0.491	0.0059	0.25	0.589
Reducrack Sin malla - 250 - 28 días	58.2	1.45	57.9	544	0.507	0.00619	0.277	0.666
Relleno fluido - 100 - 28 días	49.9	1.45	49.8	522	0.477	0.00566	0.191	0.653
Relleno fluido - 25 - 3 días	51.7	1.45	51.6	545	0.49	0.00577	0.196	0.674
Revenimiento total - 250 - 28 días	60.6	1.45	60.3	579	0.527	0.00635	0.277	0.685
Trabajabilidad extendida - 100 - 28 días, trab ext 3 horas	42.7	1.45	42.5	363	0.39	0.00503	0.201	0.628
Trabajabilidad extendida - 150 - 28 días, trab ext 3 horas	47.3	1.45	47.1	415	0.421	0.00531	0.22	0.628
Trabajabilidad extendida - 150 - 28 días, trab ext 4 horas	52.6	1.45	52.4	489	0.466	0.00572	0.236	0.668
Trabajabilidad extendida - 200 - 28 días, trab ext 3 horas	52.5	1.45	52.2	481	0.463	0.00572	0.241	0.65
Trabajabilidad extendida - 200 - 7 días, trab ext 3 horas	60	1.45	59.7	570	0.521	0.00628	0.272	0.667
Trabajabilidad extendida - 25 - 3 días, trab ext 3 horas	47.8	1.45	47.7	517	0.418	0.00466	0.174	0.488
Trabajabilidad extendida - 250 - 14 días, trab ext 3 horas	60.3	1.45	60.1	575	0.523	0.0063	0.273	0.669
Trabajabilidad extendida - 250 - 28 días, trab ext 3 horas	58.3	1.45	58	533	0.496	0.00608	0.278	0.633
Trabajabilidad extendida - 250 - 7 días, trab ext 3 horas	65	1.45	64.7	631	0.56	0.00665	0.292	0.68
Trabajabilidad extendida - 300 - 28 días, trab ext 3 horas	63	1.45	62.7	608	0.544	0.00649	0.284	0.677

Trabajabilidad extendida - MR 42 - 28 días, trab ext 3 horas	71.2	1.45	70.9	707	0.598	0.00695	0.308	0.655
Trabajabilidad extendida - MR 45 - 28 días, trab ext 3 horas	76.1	1.45	75.8	750	0.634	0.00738	0.346	0.679
Vertua Materiales Reciclados - 025 - 28 días	48.1	1.45	48	521	0.421	0.00468	0.175	0.489

c) Waste/output Inventory Metrics:

Indicator/LCI Metric	**HWD**	**NHWD**	**HLRW**	**ILLRW**	**MR**	**MER**
Unit	**kg**	**kg**	**kg**	**kg**	**kg**	**kg**
Acelerado - 200 - 3 días, trab ext 3 horas	3.43	75.9	0.00017	0.000532	0.0292	8.26E-05
Acelerado - 250 - 3 días	3.62	79.9	0.000179	0.000565	0.0313	8.76E-05
Acelerado - 250 - 3 días, trab ext 3 horas	3.65	80.9	0.000181	0.000569	0.0314	8.84E-05
Acelerado - 250 - 7 días, trab ext 3 horas	3.55	79.2	0.000175	0.000544	0.0295	8.63E-05
Acelerado - 300 - 3 días	3.84	84.8	0.000191	0.000606	0.0337	9.32E-05
Acelerado - 350 - 3 días, trab ext 3 horas	4.23	93.4	0.000209	0.000664	0.0369	0.000103
Acelerado - MR 42 - 7 días, trab ext 3 horas	3.83	84	0.00019	0.000607	0.0342	9.36E-05
Acelerado - MR 45 - 3 días	4.51	99.1	0.000225	0.000719	0.0402	0.00011
Alta resistencia - MR 48 - 28 días	3.76	82.8	0.00019	0.000601	0.0334	9.01E-05
Antibacteriano - 250 - 28 días	2.94	65.2	0.000146	0.000453	0.0248	7.04E-05
Antideslave - 350 - 28 días	4.74	105	0.000228	0.000722	0.0399	0.000145
Antihongo antialga - 250 - 28 días	3.24	72.9	0.000159	0.000484	0.0257	7.76E-05
Antitermita - 250 - 28 días	2.94	65.2	0.000146	0.000453	0.0248	7.04E-05
Aparentia - 250 - 28 días	6.42	139	0.000283	0.000903	0.0529	0.000191
Autocompactable - 250 - 28 días	3.95	87.8	0.000194	0.000607	0.0331	9.56E-05
Baja contracción - MR 42 - 28 días	3.72	82.1	0.000186	0.000579	0.0315	8.87E-05
Vertua Menor Carbono - 150 - 28 días	2.37	52.8	0.00012	0.000354	0.0187	5.53E-05
Vertua Menor Carbono - 150 - 28 días, trab ext 3 horas	2.61	58.6	0.000129	0.00039	0.0208	6.25E-05

Vertua Menor Carbono - 200 - 28 días	2.51	56	0.000128	0.000386	0.0207	5.84E-05
Vertua Menor Carbono- 200 - 28 días, trab ext 3 horas	2.86	63.9	0.000141	0.00043	0.0231	6.87E-05
Vertua Menor Carbono - 250 - 14 días	3.01	66.7	0.000151	0.000468	0.0257	7.19E-05
Vertua Menor Carbono - 250 - 28 días	2.9	64.8	0.000145	0.000442	0.0238	6.86E-05
Vertua Menor Carbono - 250 - 28 días, trab ext 3 horas	2.96	66.4	0.000147	0.00045	0.0242	7.09E-05
Vertua Menor Carbono - 250 - 7 días	3.16	70.1	0.000158	0.000491	0.0269	7.56E-05
Vertua Menor Carbono - 300 - 28 días	3.17	70.2	0.000159	0.000492	0.0269	7.57E-05
Vertua Menor Carbono - 300 - 28 días, trab ext 3 horas	3.29	73.1	0.000163	0.000507	0.0277	7.89E-05
Contracción compensada - MR 42 - 28 días	3.97	87.2	0.000196	0.000609	0.0333	0.000128
Convencional - 100 - 28 días	2.19	48.9	0.00011	0.000328	0.0176	5.13E-05
Convencional - 150 - 28 días	2.45	54.7	0.000122	0.000369	0.0199	5.80E-05
Convencional - 200 - 28 días	2.64	58.7	0.000131	0.000403	0.022	6.30E-05
Convencional - 200 - 7 días	3.02	66.9	0.00015	0.000466	0.0255	7.24E-05
Convencional - 250 - 14 días	3.03	67.2	0.000151	0.000468	0.0257	7.27E-05
Convencional - 250 - 28 días	2.87	63.6	0.000143	0.000441	0.0241	6.85E-05
Convencional - 250 - 7 días	3.24	71.8	0.000161	0.000504	0.0277	7.81E-05
Convencional - 300 - 28 días	3.11	69	0.000155	0.000482	0.0265	7.48E-05
Duramax - 250 - 28 días	4.13	91.5	0.000204	0.000643	0.0353	1.00E-04
Duramax Autosellante - 250 - 28 días	4.71	106	0.000228	0.000703	0.0371	0.000114
Estructural - 250 - 7 días	3.33	73.7	0.000165	0.000518	0.0285	8.02E-05
Grout premezclado - 350 - 28 días	6.15	135	0.000276	0.000921	0.0531	0.00024
Hidratium - 150 - 28 días	2.84	63.9	0.000139	0.000426	0.0231	6.89E-05
Hidratium - 250 - 28 días	2.94	65.2	0.000149	0.000457	0.0249	7.01E-05
Hidratium - 250 - 3 días	3.68	81.6	0.000183	0.000569	0.0311	8.94E-05
Impercem - 200 - 28 días	3.13	70.9	0.000152	0.000455	0.0237	7.53E-05
Lanzado - 200 - 28 días	3.26	72.1	0.000156	0.000509	0.0292	8.21E-05
Ligero - 150 - 28 días	4.23	92.6	0.000202	0.000653	0.0367	0.000102

Materiales Reciclados Llanta - 200 - 28 días	2.75	61	0.000137	0.00042	0.0229	6.54E-05
Materiales Reciclados Pet - 200 - 28 días	2.75	61	0.000137	0.00042	0.0229	6.54E-05
Materiales Reciclados Plástico de difícil reciclado - 200 - 28 días	2.81	62.2	0.000139	0.000425	0.0232	6.76E-05
Mortero - 150 - 28 días	2.69	59.9	0.000121	0.000402	0.0234	7.05E-05
Mortero estabilizado - 150 - 28 días	2.92	65.4	0.000131	0.00043	0.0246	7.60E-05
Pavicrete - MR 38 - 28 días	3.33	73.7	0.000167	0.000521	0.0287	8.05E-05
Pavicrete - MR 38 - 28 días, trab ext 3 horas	3.55	78.8	0.000178	0.000553	0.0302	8.54E-05
Pavicrete - MR 42 - 14 días	3.62	79.5	0.000183	0.000577	0.0321	8.68E-05
Pavicrete - MR 42 - 28 días	3.44	76	0.000174	0.000541	0.0297	8.24E-05
Pavicrete - MR 42 - 28 días, trab ext 3 horas	3.6	79.6	0.000182	0.000568	0.0311	8.57E-05
Pavicrete - MR 42 - 7 días	3.85	84.9	0.000193	0.000611	0.0339	9.31E-05
Pavicrete - MR 45 - 28 días	3.6	79.4	0.000182	0.000568	0.0313	8.65E-05
Pavicrete - MR 45 - 28 días, trab ext 3 horas	3.81	84.5	0.000191	0.000598	0.0328	9.20E-05
Pavicrete - MR 45 - 3 días	4.47	98.1	0.000223	0.000712	0.0398	0.000109
Pervia - MR 36 - 28 días	4.65	103	0.000239	0.000738	0.0395	0.000109
Pesado - 300 - 28 días	5.69	121	0.000261	0.000779	0.0422	0.000155
Reducrack - 200 - 14 días	2.87	63.6	0.000143	0.000441	0.024	6.83E-05
Reducrack - 200 - 28 días, trab ext 3 horas	2.6	58.1	0.000132	0.000396	0.021	6.03E-05
Reducrack - 250 - 28 días	2.91	64.4	0.000148	0.000458	0.0251	6.86E-05
Reducrack Sin malla - 250 - 28 días	3	66.8	0.000148	0.000458	0.025	7.28E-05
Relleno fluido - 100 - 28 días	2.28	50.2	0.000104	0.00036	0.0218	5.98E-05
Relleno fluido - 25 - 3 días	2.35	52	0.000108	0.000373	0.0226	6.16E-05
Revenimiento total - 250 - 28 días	3.12	69.6	0.000154	0.000478	0.026	7.49E-05
Trabajabilidad extendida - 100 - 28 días, trab ext 3 horas	2.27	50.7	0.000113	0.000339	0.0182	5.36E-05
Trabajabilidad extendida - 150 - 28 días, trab ext 3 horas	2.49	55.6	0.000125	0.000376	0.0202	5.87E-05

Trabajabilidad extendida - 150 - 28 días, trab ext 4 horas	2.69	60.1	0.000133	0.000411	0.0226	6.45E-05
Trabajabilidad extendida - 200 - 28 días, trab ext 3 horas	2.72	60.7	0.000135	0.000414	0.0225	6.49E-05
Trabajabilidad extendida - 200 - 7 días, trab ext 3 horas	3.07	68.3	0.000152	0.000472	0.0257	7.37E-05
Trabajabilidad extendida - 25 - 3 días, trab ext 3 horas	2.09	47	9.83E-05	0.000344	0.0208	5.45E-05
Trabajabilidad extendida - 250 - 14 días, trab ext 3 horas	3.09	68.7	0.000153	0.000475	0.0259	7.41E-05
Trabajabilidad extendida - 250 - 28 días, trab ext 3 horas	3.02	67.2	0.000152	0.000463	0.0249	7.21E-05
Trabajabilidad extendida - 250 - 7 días, trab ext 3 horas	3.31	73.5	0.000164	0.00051	0.0279	7.96E-05
Trabajabilidad extendida - 300 - 28 días, trab ext 3 horas	3.21	71.4	0.000159	0.000495	0.027	7.72E-05
Trabajabilidad extendida - MR 42 - 28 días, trab ext 3 horas	3.54	78.4	0.000177	0.000557	0.0307	8.51E-05
Trabajabilidad extendida - MR 45 - 28 días, trab ext 3 horas	3.82	84.6	0.000191	0.000597	0.0327	9.24E-05
Vertua Materiales Reciclados - 025 - 28 días	2.11	47.2	9.90E-05	0.000346	0.021	5.48E-05

OTHER ENVIRONMENTAL INFO

A4 Diesel Emissions

The following table below is the GWP100 for the A4 diesel emissions. These emissions were calculated from primary CEMEX data on the exact diesel usage for the mixing trucks, minus 16.99% which was allotted to A3 for mixing the concrete.

Table 11: **A4 Diesel Emissions**

PLANT NAME	L DIESEL NOT INCLUDING A3	GWP FACTOR kgCO2 / LITER	Total kg CO2 eq (A4)	Total kg CO2 eq/m³ (A4)
MX-PD0678 URUAPAN	99,697.00	2.596	258,813.41	9.90

CEMEX Calculated Simplified CO2 Emissions

Under the auspices of the Global Commitment, the Global Cement and Concrete Association (GCCA) endeavors to establish a standardized methodology for assessing carbon dioxide (CO2) emissions with a view to facilitating effective comparative analyses. The association's computation model currently operates on a simplified premise, predominantly focusing on the efficiency of cement production within the concrete mix design.

The GCCA mandates the dual reporting of both Net Emissions and Gross Emissions, differentiating the impact of alternative fuel utilization in the cement production process. Net Emissions pertain to the CO2 emissions generated without considering the carbon offset potential of alternative fuels used in the production process. On the other hand, Gross Emissions account for this factor, recognizing the carbon neutrality or even carbon negativity that can be achieved through the strategic use of such alternative fuels. This dual-pronged reporting approach provides a more nuanced understanding of the industry's carbon footprint, thereby better informing efforts towards emissions reduction.

These calculations do not intend to replace CO2 footprint calculations. It is a starting point to monitor CO2 emissions in concrete while transitioning to a more comprehensive indicator based on the Life Cycle Assessment, such as the CO2 footprint or the Global Warming Potential indicator.

Table 12: **Simplified CO2**

NEW ID	Net ($kgCO_2/m^3$)	Gross ($kgCO_2/m^3$)
Acelerado - 200 - 3 días, trab ext 3 horas	181	211
Acelerado - 250 - 3 días	230	254
Acelerado - 250 - 3 días, trab ext 3 horas	230	254
Acelerado - 250 - 7 días, trab ext 3 horas	210	232
Acelerado - 300 - 3 días	251	278
Acelerado - 350 - 3 días, trab ext 3 horas	278	307
Acelerado - MR 42 - 7 días, trab ext 3 horas	259	286
Acelerado - MR 45 - 3 días	308	341
Alta resistencia - MR 48 - 28 días	249	275
Antibacteriano - 250 - 28 días	172	191
Antideslave - 350 - 28 días	295	327
Antihongo antialga - 250 - 28 días	172	191
Antitermita - 250 - 28 días	172	191
Aparentia - 250 - 28 días	293	318
Autocompactable - 250 - 28 días	239	264
Baja contracción - MR 42 - 28 días	225	249
Contracción compensada - MR 42 - 28 días	239	264
Convencional - 100 - 28 días	109	120
Convencional - 150 - 28 días	128	141
Convencional - 200 - 28 días	148	163
Convencional - 200 - 7 días	179	198
Convencional - 250 - 14 días	180	199
Convencional - 250 - 28 días	166	184
Convencional - 250 - 7 días	198	219

Convencional - 300 - 28 días	187	207
Duramax - 250 - 28 días	260	288
Duramax Autosellante - 250 - 28 días	260	288
Estructural - 250 - 7 días	205	227
Grout premezclado - 350 - 28 días	422	467
Hidratium - 150 - 28 días	156	173
Hidratium - 250 - 28 días	172	190
Hidratium - 250 - 3 días	224	247
Impercem - 200 - 28 días	151	167
Lanzado - 200 - 28 días	223	246
Ligero - 150 - 28 días	281	311
Materiales Reciclados Llanta - 200 - 28 días	155	171
Materiales Reciclados Pet - 200 - 28 días	155	171
Materiales Reciclados Plástico de difícil reciclado - 200 - 28 días	155	171
Mortero - 150 - 28 días	176	194
Mortero estabilizado - 150 - 28 días	183	202
Pavicrete - MR 38 - 28 días	206	228
Pavicrete - MR 38 - 28 días, trab ext 3 horas	215	238
Pavicrete - MR 42 - 14 días	238	263
Pavicrete - MR 42 - 28 días	214	236
Pavicrete - MR 42 - 28 días, trab ext 3 horas	226	250
Pavicrete - MR 42 - 7 días	252	279
Pavicrete - MR 45 - 28 días	228	252
Pavicrete - MR 45 - 28 días, trab ext 3 horas	241	266
Pavicrete - MR 45 - 3 días	305	337
Pervia - MR 36 - 28 días	288	319
Pesado - 300 - 28 días	260	288
Reducrack - 200 - 14 días	165	182
Reducrack - 200 - 28 días, trab ext 3 horas	135	149
Reducrack - 250 - 28 días	175	194
Reducrack Sin malla - 250 - 28 días	172	191
Relleno fluido - 100 - 28 días	174	192
Relleno fluido - 25 - 3 días	181	201
Revenimiento total - 250 - 28 días	180	199
Trabajabilidad extendida - 100 - 28 días, trab ext 3 horas	114	126
Trabajabilidad extendida - 150 - 28 días, trab ext 3 horas	130	144
Trabajabilidad extendida - 150 - 28 días, trab ext 4 horas	155	171
Trabajabilidad extendida - 200 - 28 días, trab ext 3 horas	151	166
Trabajabilidad extendida - 200 - 7 días, trab ext 3 horas	179	198
Trabajabilidad extendida - 25 - 3 días, trab ext 3 horas	171	189
Trabajabilidad extendida - 250 - 14 días, trab ext 3 horas	180	199
Trabajabilidad extendida - 250 - 28 días, trab ext 3 horas	169	187
Trabajabilidad extendida - 250 - 7 días, trab ext 3 horas	198	219
Trabajabilidad extendida - 300 - 28 días, trab ext 3 horas	190	211
Trabajabilidad extendida - MR 42 - 28 días, trab ext 3 horas	224	248
Trabajabilidad extendida - MR 45 - 28 días, trab ext 3 horas	238	264

Vertua Menor Carbono - 150 - 28 días	113	125
Vertua Menor Carbono - 150 - 28 días, trab ext 3 horas	133	147
Vertua Menor Carbono - 200 - 28 días	134	148
Vertua Menor Carbono - 200 - 28 días, trab ext 3 horas	153	170
Vertua Menor Carbono - 250 - 14 días	180	199
Vertua Menor Carbono - 250 - 28 días	160	177
Vertua Menor Carbono - 250 - 28 días, trab ext 3 horas	163	180
Vertua Menor Carbono - 250 - 7 días	189	209
Vertua Menor Carbono - 300 - 28 días	190	210
Vertua Menor Carbono - 300 - 28 días, trab ext 3 horas	196	216
Vertua Materiales Reciclados - 025 - 28 días	172	191

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- ASTM C33/C33M Standard Specification for Concrete Aggregates // NMX-C-111-ONNCCE-2018 Construction Industry - Aggregates for hydraulic concrete - Specifications and Test Methods
- ASTM C94 Standard Specification for Ready-Mixed Concrete //NMX-C-155-ONNCCE-2004 Construction Industry - Hydraulic Concrete - Mass dosed - Specifications and Test Methods
- ASTM C150/C150M Standard Specification for Portland Cement // NMX-C-414-ONNCCE-2017 Construction Industry - Hydraulic Cements - Specifications and Test Methods
- ASTM C260/C260M Standard Specification for Air-Entraining Admixtures for Concrete // NMX-C-255-ONNCCE-2006 Construction Industry - Concrete Chemical Admixtures - Specifications, sampling and test methods
- ASTM C595 Standard Specification for Blended Hydraulic Cements // NMX-C-414-ONNCCE-2017 Construction Industry - Hydraulic Cements-Specifications and Test Methods
- ASTM C618 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete // NMX-C-146-ONNCCE-2000 Construction Industry - Concrete additives raw or calcined natural pozzolana and fly ash for use as a mineral admixture in Portland cement concrete - Specifications
- ASTM C979/C979M Standard Specification for Pigments for Integrally Colored Concrete // NMX-C-313-1981 Construction Industry - Cement Portland - Color of mortars and concrete
- ASTM C989/C989M Standard Specification for Slag Cement for Use in Concrete and Mortars
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- ASTM G109 Standard Test Method for Determining Effects of Chemical Admixtures on Corrosion of Embedded Steel Reinforcement in Concrete Exposed to Chloride Environments
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ISO Standards:

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- ISO 14021:1999 Environmental Labels and Declarations - Self-declared Environmental Claims (Type II Environmental Labeling)
- ISO 14025:2006 Environmental Labels and Declarations - Type III Environmental Declarations - Principles and Procedures
- ISO 14040:2006 Environmental Management - Life Cycle Assessment - Principles and Framework
- ISO 14044:2006 Environmental Management - Life Cycle Assessment - Requirements and Guidelines
- ISO 14067:2018 Greenhouse Gases - Carbon Footprint of Products - Requirements and Guidelines for Quantification
- ISO 14050:2009 Environmental Management - Vocabulary
- ISO 21930:2017 Sustainability in Building Construction - Environmental Declaration of Building Products