DECLARACIÓN AMBIENTAL DE PRODUCTO

CONCRETO
Planta Soacha **/ Colombia**

SOSTENIBILIDAD COLOMBIA
2024

Declared product:

This Environmental Product Declaration (EPD) covers ready-mix concrete products manufactured by CEMEX Colombia in the Soacha Plant.

Plant address: Autopista Sur Nº 1 - 54 - Soacha - Cundinamarca /Calle 7 Nº 28 B -55

Declared unit**:** 1 cubic meter of concrete

Declaration Owner:

CEMEX Colombia S.A.
Cl. 99 #9a 54, Bogotá, Colombia
SustainabilitySCA&C@cemex.com
www.cemexcolombia.com

Program Operator:

Labeling Sustainability
11670 W Sunset Blvd.
Los Angeles, CA
http://labelinsustainability.com/

ISO 21930:2017 Sustainability in Building Construction – Environmental Declaration of Building Products serves as the core PCR.

NSF PCR for Concrete (NSF, 2022v) serves as the subcategory PCR.

Subcategory PCR Review was conducted by:

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Independent verification of the declaration and data, according to ISO 21930:2017 and ISO 14025:2006

✓ External ☐ Internal

Third-party verifier:

Denice V. Staaf, Certified 3rd Party Verifier under Labeling Sustainability (www.labelingsustainability.com)

EPD Software Tool: GCCA Industry EPD Tool for Cement and Concrete (V4.2), North American version.

Date of Issue: 28 February 2025
Period of validity: 28 February 2030
EPD Number: CCO02282508

ENVIRONMENTAL PRODUCT DECLARATION
CEMEX COLOMBIA

1. Company Description

CEMEX S.A.B. de C.V. (CEMEX) is at global building materials company dedicated to building at 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.

Cemex Colombia's cement plants have an environmental management system certified under ISO 14001, which guarantees that the environmental impact is being rigorously measured, that pollution is being prevented, and that continuous improvement is enabled.

2. Study Goal

The intended application of this life cycle assessment (LCA) is to comply with the procedures for creating 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 Concrete (version 2.3, dated February 2024) and is at 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. EPDs for concrete that follow other PCRs may not be comparable.

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 differentiate CEMEX S.A.B. de C.V.

from their competition for the following reasons: generate an advantage for the organization; offer customers information to help them make informed product decisions; improve the environmental performance of 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; and to strengthen CEMEX S.A.B. de C.V. license to operate in the community. The intended audience for this LCA report is CEMEX S.A.B. de C.V. 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 of other facilities.

Only EPDs prepared from cradle-to-grave life-cycle results and based on the same function, reference service life, and quantified by the same functional unit, can be used to assist purchasers and users in making informed comparisons between products. Since EPDs developed under these PCR only cover the cradle-to-gate impacts of Ready-mix concrete, using at declared unit, the results cannot be used to compare products used in different mixtures and construction products. The results from Concrete EPD must be integrated into a comprehensive cradle-to-grave, ISO 14044-compliant LCA to compare between different products. The basis of at comparison, where applicable, shall include the product application in accordance with ISO 21930 ASTM (2014).

3. Product Information

3.1. Product Identification

This EPD is prepared for products classified as UN CPC Group 3744-Cement or CSI MasterFormat Division 03 30 00 Cast-in-Place Concrete.

3.2. Ready-mix Concrete Design Summary

The following table provides a list of the concrete products considered in this EPD along with key performance parameters.

Strength <15 Mpa

Table 1. Declared products considered in this Environmental Product Declaration

Nº	Ready-mix	Description	Strength (MPa)	Age (Days)	Slump (cm)	Category
1	1-105-3-A-28-10-0-3-000	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	10	Convencional
2	1-105-3-A-28-13-1-3-000	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	13	Convencional
3	1-105-3-A-28-15-1-3-000	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	15	Convencional
4	1-105-5-A-28-10-0-3-000	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	10	Convencional

Table 1. Declared products considered in this Environmental Product Declaration

N°	Ready-mix	Description	Strength (MPa)	Age (Days)	Slump (cm)	Category
5	1-105-5-A-28-13-1-3-000	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	13	Convencional
6	1-105-5-A-28-20-1-3-000	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	20	Convencional
7	1-140-3-A-28-20-1-3-000	13.73 MPa at 28 Days Strength Ready Mix Concrete	13.7	28	20	Convencional
8	1-140-5-A-28-10-0-3-000	13.73 MPa at 28 Days Strength Ready Mix Concrete	13.7	28	10	Convencional
9	1-140-5-A-28-10-0-3-55A	13.73 MPa at 28 Days Strength Ready Mix Concrete	13.7	28	10	Convencional
10	1-140-5-A-28-13-1-3-000	13.73 MPa at 28 Days Strength Ready Mix Concrete	13.7	28	13	Convencional
11	1-140-5-A-28-15-1-3-000	13.73 MPa at 28 Days Strength Ready Mix Concrete	13.7	28	15	Convencional
12	G-140-3-A-28-20-1-3-000	13.73 MPa at 28 Days Strength Ready Mix Concrete	13.7	28	20	Especial
13	M-125-0-A-28-13-1-3-000	12.26 MPa at 28 Days Strength Ready Mix Concrete	12.3	28	13	Mortero
14	M-125-0-A-28-15-1-3-000	12.26 MPa at 28 Days Strength Ready Mix Concrete	12.3	28	15	Mortero
15	M-125-0-A-28-20-1-3-000	12.26 MPa at 28 Days Strength Ready Mix Concrete	12.3	28	20	Mortero
16	P-040-5-A-07-13-0-3-000	3.92 MPa at 07 Days Strength Ready Mix Concrete	3.9	7	13	Pavimento
17	P-041-5-A-03-13-0-3-000	4.02 MPa at 03 Days Strength Ready Mix Concrete	4.0	3	13	Pavimento
18	P-041-5-A-07-13-0-3-000	4.02 MPa at 07 Days Strength Ready Mix Concrete	4.0	7	13	Pavimento
19	P-041-5-A-07-13-0-3-542	4.02 MPa at 07 Days Strength Ready Mix Concrete	4.0	7	13	Pavimento
20	P-041-5-A-28-10-0-3-000	4.02 MPa at 28 Days Strength Ready Mix Concrete	4.0	28	10	Pavimento
21	P-041-5-A-28-13-0-3-000	4.02 MPa at 28 Days Strength Ready Mix Concrete	4.0	28	13	Pavimento
22	P-041-5-A-28-15-1-3-000	4.02 MPa at 28 Days Strength Ready Mix Concrete	4.0	28	15	Pavimento
23	P-042-5-A-28-10-0-3-000	4.12 MPa at 28 Days Strength Ready Mix Concrete	4.1	28	10	Pavimento
24	P-042-5-A-28-13-0-3-000	4.12 MPa at 28 Days Strength Ready Mix Concrete	4.1	28	13	Pavimento
25	P-043-5-A-03-13-0-3-000	4.22 MPa at 03 Days Strength Ready Mix Concrete	4.2	3	13	Pavimento
26	P-043-5-A-28-10-0-3-000	4.22 MPa at 28 Days Strength Ready Mix Concrete	4.2	28	10	Pavimento
27	P-043-5-A-28-13-0-3-000	4.22 MPa at 28 Days Strength Ready Mix Concrete	4.2	28	13	Pavimento
28	P-045-5-A-03-13-0-3-000	4.41 MPa at 03 Days Strength Ready Mix Concrete	4.4	3	13	Pavimento
29	P-045-5-A-03-13-0-3-534	4.41 MPa at 03 Days Strength Ready Mix Concrete	4.4	3	13	Pavimento

Table 1. Declared products considered in this Environmental Product Declaration						
N°	**Ready-mix**	**Description**	**Strength (MPa)**	**Age (Days)**	**Slump (cm)**	**Category**
30	**P-045-5-A-07-13-0-3-000**	4.41 MPa at 07 Days Strength Ready Mix Concrete	4.4	7	13	Pavimento
31	**P-045-5-A-07-13-0-3-534**	4.41 MPa at 07 Days Strength Ready Mix Concrete	4.4	7	13	Pavimento
32	**P-045-5-A-07-15-1-3-000**	4.41 MPa at 07 Days Strength Ready Mix Concrete	4.4	7	15	Pavimento
33	**P-045-5-A-28-10-0-3-000**	4.41 MPa at 28 Days Strength Ready Mix Concrete	4.4	28	10	Pavimento
34	**P-045-5-A-28-10-0-3-534**	4.41 MPa at 28 Days Strength Ready Mix Concrete	4.4	28	10	Pavimento
35	**P-045-5-A-28-13-0-3-000**	4.41 MPa at 28 Days Strength Ready Mix Concrete	4.4	28	13	Pavimento
36	**P-045-5-A-28-15-1-3-000**	4.41 MPa at 28 Days Strength Ready Mix Concrete	4.4	28	15	Pavimento
37	**P-045-5-A-28-18-0-3-530**	4.41 MPa at 28 Days Strength Ready Mix Concrete	4.4	28	18	Pavimento
38	**P-050-5-A-03-13-0-3-000**	4.90 MPa at 03 Days Strength Ready Mix Concrete	4.9	3	13	Pavimento
39	**P-050-5-A-28-18-0-3-530**	4.90 MPa at 28 Days Strength Ready Mix Concrete	4.9	28	18	Pavimento
40	**R-010-0-A-28-20-0-3-000**	0.98 MPa at 28 Days Strength Ready Mix Concrete	1.0	28	20	Rellenos Fluidos

Strength 15 to 20 Mpa

Table 2. Declared products considered in this Environmental Product Declaration						
N°	**Ready-mix**	**Description**	**Strength (MPa)**	**Age (Days)**	**Slump (cm)**	**Category**
41	**1-175-3-A-28-13-1-3-000**	17.16 MPa at 28 Days Strength Ready Mix Concrete	17.2	28	13	Convencional
42	**1-175-3-A-28-15-1-3-000**	17.16 MPa at 28 Days Strength Ready Mix Concrete	17.2	28	15	Convencional
43	**1-175-3-A-28-20-1-3-000**	17.16 MPa at 28 Days Strength Ready Mix Concrete	17.2	28	20	Convencional
44	**1-175-5-A-28-10-0-3-000**	17.16 MPa at 28 Days Strength Ready Mix Concrete	17.2	28	10	Convencional
45	**1-175-5-A-28-13-1-3-000**	17.16 MPa at 28 Days Strength Ready Mix Concrete	17.2	28	13	Convencional
46	**1-175-5-A-28-15-1-3-000**	17.16 MPa at 28 Days Strength Ready Mix Concrete	17.2	28	15	Convencional
47	**G-175-3-A-28-20-1-3-000**	17.16 MPa at 28 Days Strength Ready Mix Concrete	17.2	28	20	Especial

Strength 20 to 35 Mpa

Table 3. Declared products considered in this Environmental Product Declaration						
N°	**Ready-mix**	**Description**	**Strength (MPa)**	**Age (Days)**	**Slump (cm)**	**Category**
48	**1-210-3-A-03-13-1-3-000**	20.59 MPa at 03 Days Strength Ready Mix Concrete	20.6	3	13	Acelerado
49	**1-210-3-A-03-13-1-3-001**	20.59 MPa at 03 Days Strength Ready Mix Concrete	20.6	3	13	Acelerado
50	**1-210-3-A-03-15-1-3-000**	20.59 MPa at 03 Days Strength Ready Mix Concrete	20.6	3	15	Acelerado
51	**1-210-3-A-03-20-1-3-000**	20.59 MPa at 03 Days Strength Ready Mix Concrete	20.6	3	20	Acelerado
52	**1-210-3-A-07-15-1-3-000**	20.59 MPa at 07 Days Strength Ready Mix Concrete	20.6	7	15	Acelerado
53	**1-210-3-A-07-20-1-3-000**	20.59 MPa at 07 Days Strength Ready Mix Concrete	20.6	7	20	Acelerado
54	**1-210-3-A-28-10-0-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	10	Convencional
55	**1-210-3-A-28-13-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	13	Convencional
56	**1-210-3-A-28-13-1-3-001**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	13	Convencional
57	**1-210-3-A-28-13-1-3-55A**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	13	Convencional
58	**1-210-3-A-28-15-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	15	Convencional
59	**1-210-3-A-28-15-1-3-009**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	15	Convencional
60	**1-210-3-A-28-15-1-3-073**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	15	Convencional
61	**1-210-3-A-28-20-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	20	Convencional
62	**1-210-5-A-03-13-1-3-000**	20.59 MPa at 03 Days Strength Ready Mix Concrete	20.6	3	13	Acelerado
63	**1-210-5-A-03-20-1-3-000**	20.59 MPa at 03 Days Strength Ready Mix Concrete	20.6	3	20	Acelerado
64	**1-210-5-A-28-08-0-3-59K**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	8	Convencional
65	**1-210-5-A-28-10-0-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	10	Convencional
66	**1-210-5-A-28-13-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	13	Convencional
67	**1-210-5-A-28-13-1-3-001**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	13	Convencional
68	**1-210-5-A-28-13-1-3-55A**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	13	Convencional
69	**1-210-5-A-28-15-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	15	Convencional
70	**1-210-5-A-28-15-1-3-001**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	15	Convencional
71	**1-210-5-A-28-15-1-3-004**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	15	Convencional

Table 3. Declared products considered in this Environmental Product Declaration						
N°	**Ready-mix**	**Description**	**Strength (MPa)**	**Age (Days)**	**Slump (cm)**	**Category**
72	**1-210-5-A-28-20-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	20	Convencional
73	**1-245-3-A-28-20-1-3-000**	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	20	Convencional
74	**1-245-5-A-03-13-1-3-000**	24.03 MPa at 03 Days Strength Ready Mix Concrete	24.0	3	13	Acelerado
75	**1-245-5-A-03-15-1-3-000**	24.03 MPa at 03 Days Strength Ready Mix Concrete	24.0	3	15	Acelerado
76	**1-245-5-A-28-10-0-3-000**	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	10	Convencional
77	**1-245-5-A-28-13-1-3-000**	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	13	Convencional
78	**1-245-5-A-28-15-1-3-000**	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	15	Convencional
79	**1-280-3-A-03-13-1-3-000**	27.46 MPa at 03 Days Strength Ready Mix Concrete	27.5	3	13	Acelerado
80	**1-280-3-A-03-15-1-3-000**	27.46 MPa at 03 Days Strength Ready Mix Concrete	27.5	3	15	Acelerado
81	**1-280-3-A-03-15-1-3-001**	27.46 MPa at 03 Days Strength Ready Mix Concrete	27.5	3	15	Acelerado
82	**1-280-3-A-03-20-1-3-001**	27.46 MPa at 03 Days Strength Ready Mix Concrete	27.5	3	20	Acelerado
83	**1-280-3-A-07-15-1-3-001**	27.46 MPa at 07 Days Strength Ready Mix Concrete	27.5	7	15	Acelerado
84	**1-280-3-A-14-13-1-3-000**	27.46 MPa at 14 Days Strength Ready Mix Concrete	27.5	14	13	Acelerado
85	**1-280-3-A-14-15-1-3-000**	27.46 MPa at 14 Days Strength Ready Mix Concrete	27.5	14	15	Acelerado
86	**1-280-3-A-28-10-0-3-001**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	10	Convencional
87	**1-280-3-A-28-13-1-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	13	Convencional
88	**1-280-3-A-28-13-1-3-001**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	13	Convencional
89	**1-280-3-A-28-13-1-3-55A**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	13	Convencional
90	**1-280-3-A-28-15-1-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Convencional
91	**1-280-3-A-28-15-1-3-001**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Convencional
92	**1-280-3-A-28-20-1-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Convencional
93	**1-280-3-A-28-20-1-3-001**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Convencional
94	**1-280-3-A-28-20-1-3-55A**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Convencional
95	**1-280-5-A-03-13-1-3-000**	27.46 MPa at 03 Days Strength Ready Mix Concrete	27.5	3	13	Acelerado

Table 3. Declared products considered in this Environmental Product Declaration

N°	Ready-mix	Description	Strength (MPa)	Age (Days)	Slump (cm)	Category
96	1-280-5-A-03-15-1-3-000	27.46 MPa at 03 Days Strength Ready Mix Concrete	27.5	3	15	Acelerado
97	1-280-5-A-07-13-1-3-001	27.46 MPa at 07 Days Strength Ready Mix Concrete	27.5	7	13	Acelerado
98	1-280-5-A-07-15-1-3-001	27.46 MPa at 07 Days Strength Ready Mix Concrete	27.5	7	15	Acelerado
99	1-280-5-A-28-10-0-3-000	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	10	Convencional
100	1-280-5-A-28-10-0-3-001	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	10	Convencional
101	1-280-5-A-28-13-1-3-000	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	13	Convencional
102	1-280-5-A-28-13-1-3-001	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	13	Convencional
103	1-280-5-A-28-13-1-3-55A	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	13	Convencional
104	1-280-5-A-28-15-1-3-000	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Convencional
105	1-280-5-A-28-15-1-3-001	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Convencional
106	1-280-5-A-28-20-1-3-001	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Convencional
107	1-315-5-A-28-15-1-3-000	30.89 MPa at 28 Days Strength Ready Mix Concrete	30.9	28	15	Convencional
108	1-315-5-A-28-15-1-3-001	30.89 MPa at 28 Days Strength Ready Mix Concrete	30.9	28	15	Convencional
109	1-350-3-A-03-13-1-3-000	34.32 MPa at 03 Days Strength Ready Mix Concrete	34.3	3	13	Acelerado
110	1-350-3-A-03-15-1-3-000	34.32 MPa at 03 Days Strength Ready Mix Concrete	34.3	3	15	Acelerado
111	1-350-3-A-03-20-1-3-000	34.32 MPa at 03 Days Strength Ready Mix Concrete	34.3	3	20	Acelerado
112	1-350-3-A-28-13-1-3-000	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	13	Convencional
113	1-350-3-A-28-15-1-3-000	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	15	Convencional
114	1-350-3-A-28-20-1-3-000	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	20	Convencional
115	1-350-5-A-03-13-1-3-000	34.32 MPa at 03 Days Strength Ready Mix Concrete	34.3	3	13	Acelerado
116	1-350-5-A-28-13-1-3-000	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	13	Convencional
117	1-350-5-A-28-15-1-3-000	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	15	Convencional
118	3-280-3-A-28-15-1-3-000	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Durabilidad
119	8-245-5-A-28-15-1-3-000	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	15	Especial

Table 3. Declared products considered in this Environmental Product Declaration						
N°	**Ready-mix**	**Description**	**Strength (MPa)**	**Age (Days)**	**Slump (cm)**	**Category**
120	**8-315-5-A-28-20-1-3-000**	30.89 MPa at 28 Days Strength Ready Mix Concrete	30.9	28	20	Especial
121	**C-210-3-A-28-25-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	25	Especial
122	**C-245-3-A-28-25-1-3-000**	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	25	Especial
123	**C-245-3-A-28-25-1-3-60Z**	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	25	Especial
124	**D-280-3-A-28-18-1-3-65O**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	18	Especial
125	**D-280-5-A-28-15-1-3-65K**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Especial
126	**D-350-3-A-28-18-1-3-65P**	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	18	Especial
127	**D-350-5-A-28-15-1-3-65G**	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	15	Especial
128	**D-350-5-A-28-20-1-3-65L**	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	20	Especial
129	**E-210-5-A-28-05-0-3-62R**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	5	Especial
130	**F-280-3-A-18-65-1-3-000**	27.46 MPa at 18 Days Strength Ready Mix Concrete	27.5	18	65	Especial
131	**F-315-3-A-18-65-1-3-000**	30.89 MPa at 18 Days Strength Ready Mix Concrete	30.9	18	65	Especial
132	**F-350-3-A-18-65-1-3-000**	34.32 MPa at 18 Days Strength Ready Mix Concrete	34.3	18	65	Especial
133	**I-280-5-A-28-13-1-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	13	Especial
134	**J-210-3-A-28-65-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	65	Especial
135	**J-245-3-A-28-65-1-3-000**	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	65	Especial
136	**M-210-0-A-28-15-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	15	Mortero
137	**M-210-0-A-28-15-1-3-001**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	15	Mortero
138	**M-210-0-A-28-15-1-3-074**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	15	Mortero
139	**N-280-3-A-28-18-1-3-55A**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	18	Especial
140	**N-280-3-A-28-18-1-3-5D4**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	18	Especial
141	**N-280-3-A-28-18-1-3-5D5**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	18	Especial
142	**O-210-3-A-18-13-1-3-000**	20.59 MPa at 18 Days Strength Ready Mix Concrete	20.6	18	13	Industrializado
143	**O-210-3-A-18-18-1-3-000**	20.59 MPa at 18 Days Strength Ready Mix Concrete	20.6	18	18	Industrializado

Table 3. Declared products considered in this Environmental Product Declaration

N°	Ready-mix	Description	Strength (MPa)	Age (Days)	Slump (cm)	Category
144	O-210-3-A-18-23-1-3-000	20.59 MPa at 18 Days Strength Ready Mix Concrete	20.6	18	23	Industrializado
145	O-210-5-A-18-13-1-3-000	20.59 MPa at 18 Days Strength Ready Mix Concrete	20.6	18	13	Industrializado
146	O-210-5-A-18-15-1-3-000	20.59 MPa at 18 Days Strength Ready Mix Concrete	20.6	18	15	Industrializado
147	O-245-3-A-18-23-1-3-000	24.03 MPa at 18 Days Strength Ready Mix Concrete	24.0	18	23	Industrializado
148	O-245-5-A-18-13-1-3-000	24.03 MPa at 18 Days Strength Ready Mix Concrete	24.0	18	13	Industrializado
149	O-280-3-A-18-13-1-3-000	27.46 MPa at 18 Days Strength Ready Mix Concrete	27.5	18	13	Industrializado
150	O-280-3-A-18-15-1-3-000	27.46 MPa at 18 Days Strength Ready Mix Concrete	27.5	18	15	Industrializado
151	O-280-3-A-18-18-1-3-000	27.46 MPa at 18 Days Strength Ready Mix Concrete	27.5	18	18	Industrializado
152	O-280-3-A-18-23-1-3-000	27.46 MPa at 18 Days Strength Ready Mix Concrete	27.5	18	23	Industrializado
153	O-280-5-A-18-13-1-3-000	27.46 MPa at 18 Days Strength Ready Mix Concrete	27.5	18	13	Industrializado
154	O-315-3-A-18-23-1-3-000	30.89 MPa at 18 Days Strength Ready Mix Concrete	30.9	18	23	Industrializado
155	O-315-5-A-18-13-1-3-000	30.89 MPa at 18 Days Strength Ready Mix Concrete	30.9	18	13	Industrializado
156	O-350-3-A-18-18-1-3-001	34.32 MPa at 18 Days Strength Ready Mix Concrete	34.3	18	18	Industrializado
157	O-350-5-A-18-15-1-3-61U	34.32 MPa at 18 Days Strength Ready Mix Concrete	34.3	18	15	Industrializado
158	T-245-5-A-28-20-1-3-000	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	20	Tremie
159	T-280-3-A-28-20-1-3-000	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Tremie
160	T-280-3-A-28-20-1-3-55A	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Tremie
161	T-280-5-A-28-20-1-3-55A	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Tremie
162	T-350-3-A-28-20-1-3-000	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	20	Tremie
163	T-350-3-A-28-23-1-3-65E	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	23	Tremie
164	V-210-3-A-28-65-1-3-000	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	65	Especial
165	V-280-3-A-28-65-1-3-000	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	65	Especial
166	V-280-3-A-28-65-1-3-001	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	65	Especial
167	V-350-3-A-28-65-1-3-000	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	65	Especial

Strength >35 Mpa

Table 4. Declared products considered in this Environmental Product Declaration						
N°	**Ready-mix**	**Description**	**Strength (MPa)**	**Age (Days)**	**Slump (cm)**	**Category**
168	**1-420-3-A-03-13-1-3-000**	41.19 MPa at 03 Days Strength Ready Mix Concrete	41.2	3	13	Acelerado
169	**1-420-3-A-03-15-1-3-000**	41.19 MPa at 03 Days Strength Ready Mix Concrete	41.2	3	15	Acelerado
170	**1-420-3-A-07-13-1-3-000**	41.19 MPa at 07 Days Strength Ready Mix Concrete	41.2	7	13	Acelerado
171	**1-420-3-A-07-13-1-3-001**	41.19 MPa at 07 Days Strength Ready Mix Concrete	41.2	7	13	Acelerado
172	**1-420-3-A-28-13-1-3-001**	41.19 MPa at 28 Days Strength Ready Mix Concrete	41.2	28	13	Convencional
173	**1-420-5-A-03-13-1-3-000**	41.19 MPa at 03 Days Strength Ready Mix Concrete	41.2	3	13	Acelerado
174	**1-420-5-A-03-15-1-3-55A**	41.19 MPa at 03 Days Strength Ready Mix Concrete	41.2	3	15	Acelerado
175	**1-420-5-A-07-13-1-3-000**	41.19 MPa at 07 Days Strength Ready Mix Concrete	41.2	7	13	Acelerado
176	**1-420-5-A-14-15-1-3-55A**	41.19 MPa at 14 Days Strength Ready Mix Concrete	41.2	14	15	Acelerado
177	**1-420-5-A-28-10-0-3-014**	41.19 MPa at 28 Days Strength Ready Mix Concrete	41.2	28	10	Convencional
178	**1-420-5-A-28-13-1-3-001**	41.19 MPa at 28 Days Strength Ready Mix Concrete	41.2	28	13	Convencional
179	**1-420-5-A-28-15-1-3-55A**	41.19 MPa at 28 Days Strength Ready Mix Concrete	41.2	28	15	Convencional
180	**A-490-3-A-28-15-1-3-55A**	48.05 MPa at 28 Days Strength Ready Mix Concrete	48.1	28	15	Alta resistencia

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

Table 5. Ready-mix Concrete Composition	
Product Components	**Raw Material, weight (%)**
Cement	Proprietary
Aggregates	30 - 60
Water	10-15
Others	0.01 – 5.00
Total	100.00

This EPD was calculated using manufacturer-specific cement data from Cemex, representing 100% of the total cement used in each mix included in this EPD. The cement data used in the concrete mixes is Cemex' cement products EPDs, which are supplied from Caracolito Plant[1] in Ibagué and Santa Rosa Plant[2] in La Calera. The GCCA Industry EPD tool uses the results from the clinker and cement life cycle assessment to generate results.

4. Life Cycle Assessment (LCA)

4.1 Declared Unit

This Environmental Product Declaration refers to **one cubic meter of ready-mix concrete (1 m³)**

4.2 Time representativeness

Data was collected by CEMEX at its own plants between January and December 2023 (12 months) and the data collected is representative of the production technology used in 2023.

4.3 LCA Software and Data Bases Used

The Life Cycle Assessment was developed using the GCCA Industry EPD Tool for Cement and Concrete (V4.2), North American version, which uses Ecoinvent v3.5 and GCCA datasets for the LCA database.

4.4 System Boundaries

This study covers **the cradle-to-gate** stages of the product; transport to site (A4), construction (A5), Use (B) or end of life (C) stages of the products <u>are not included</u>. The following figure depicts the cradle-to-gate system boundary considered in this study:

Environmental assessment information, Cradle to Gate (A1-A3)
(MA – Module assessed, MNA – Module not assessed, INA – Indicator Not Assessed)

Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufaturing	Transport to construction site	Construction installation process	Use	Maintenance	Repair	Refurbishment	Operational energy use	Operational water use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery recycling potential
A1	A2	A3	A4	A5	B1	B2	A3	B4	B5	B6	B7	C1	C2	C3	C4	D
MA	MA	MA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	I

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

1. A1: Raw material supply (upstream processes) - Extraction, handling, and processing of the

[1] EPD Number CCO01102501
[2] EPD Number CCO01102502

materials used in manufacturing the declared products in this LCA.

2. A2: Transportation - Transportation of A1 materials from the supplier to the "gate" of the manufacturing facility (i.e., A3).
3. A3: Manufacturing (core processes)- The energy and other utility inputs used to store, move, and manufacture the declared products and to operate the facility.

The product category rules for this EPD recognize fly ash, silica fume, and slag as recovered materials and thus the environmental impacts allocated to these materials are limited to the treatment and transportation required to use as a concrete material input.

In addition, 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 production equipment, delivery vehicles, earthmoving equipment, and laboratory equipment.
- Personnel-related activities (travel, furniture, office supplies).

4.5 Process Information

4.5.1 Modules A1 - A2: Extraction and transport of raw materials

One of the main constituents of concrete is cement, and CEMEX is the manufacturer of the cement used in the concrete mixes. The following process describes the manufacture of cement.

Limestone and clay are extracted from the stone quarries by drilling and blasting with explosives, the impact of which is minimal thanks to the modern technology used. Once the large masses of stone have been fragmented, they are transported to the plant in trucks or conveyors.

The entire extraction process has rigorous operational controls that mitigate environmental impact, allow comprehensive monitoring and ensure compliance with the requirements of current environmental regulations.

The quarry material is fragmented in crushers and, by impact and/or pressure, reduced to a maximum size of one and at half inches. Then, in the pre-homogenization process, the different types of clay, limestone or any other material that is required are mixed proportionally. Each of the raw materials is transported separately to silos where they are for the production of different types of cement.

They are then ground using a vertical steel mill, which grinds the material by means of the pressure exerted by three conical rollers rolling on a rotating grinding table. Horizontal mills are also used for this phase, in which the material is pulverized by means of steel balls.

The homogenization process of raw meal is carried out in silos equipped to achieve a

homogeneous mixture of the material. This meal is then subjected to the calcination process, the core part of the process, where large rotary kilns are used, inside which, at 1400 °C, the flour is transformed into clinker, which are small dark grey modules of 3 to 4 cm.

Finally, the clinker is ground through steel balls of different sizes as it passes through the two chambers of the mill, adding gypsum to lengthen the setting time of the cement. The cement is sent to the storage silos; from which it is extracted by pneumatic or mechanical systems.

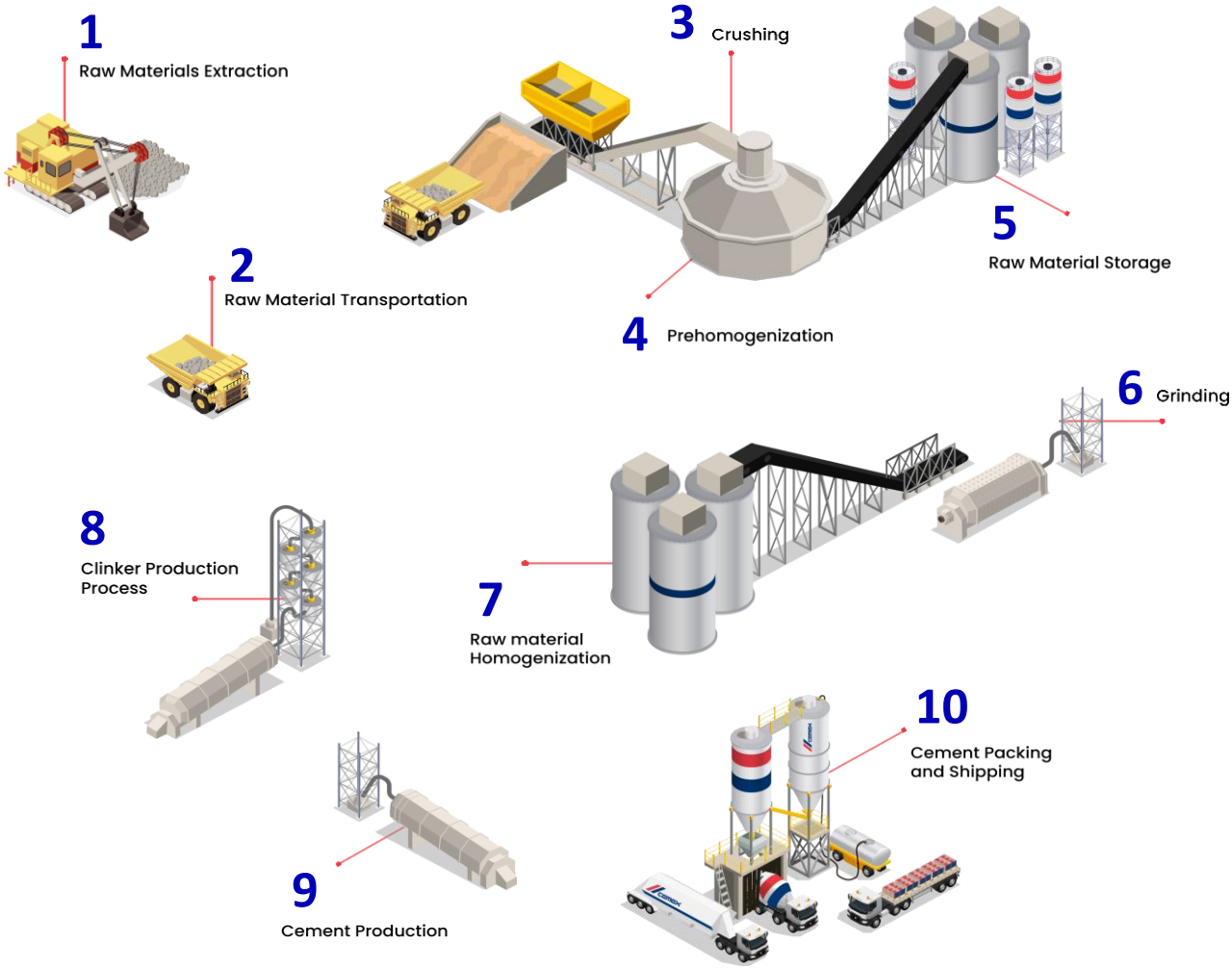

Figure 2. Cement Production

Truck transportation calculations are based on the weight of transported products per unit of clinker, cement or raw material and on the distances travelled per transported product. The volume of the materials was not considered because the majority of the transported materials are weight-limited and not volume-limited. In the Ecoinvent datasets, the allocation of truck's impact to the merchandise transported is done through at top-down approach, considering the total tonnes and total km transported. An average load factor is considered (5.79 t for 16-32 t trucks i.e. 39% average

load rate and 15.96 t for > 32 t trucks, i.e. 71% average load factor) – this average load factor accounts for all truck journeys including empty backhauls and is used to allocate an impact per truck per km to at tonne transported over 1 km (one tkm). In effect, this approach allocates empty backhauls, on average, to at tkm of transported merchandise. Infrastructure, maintenance and end-of-life of roads and trucks are taken into consideration, assuming at 540'000 km lifetime per truck.[3]

4.5.2 Module A3: Production

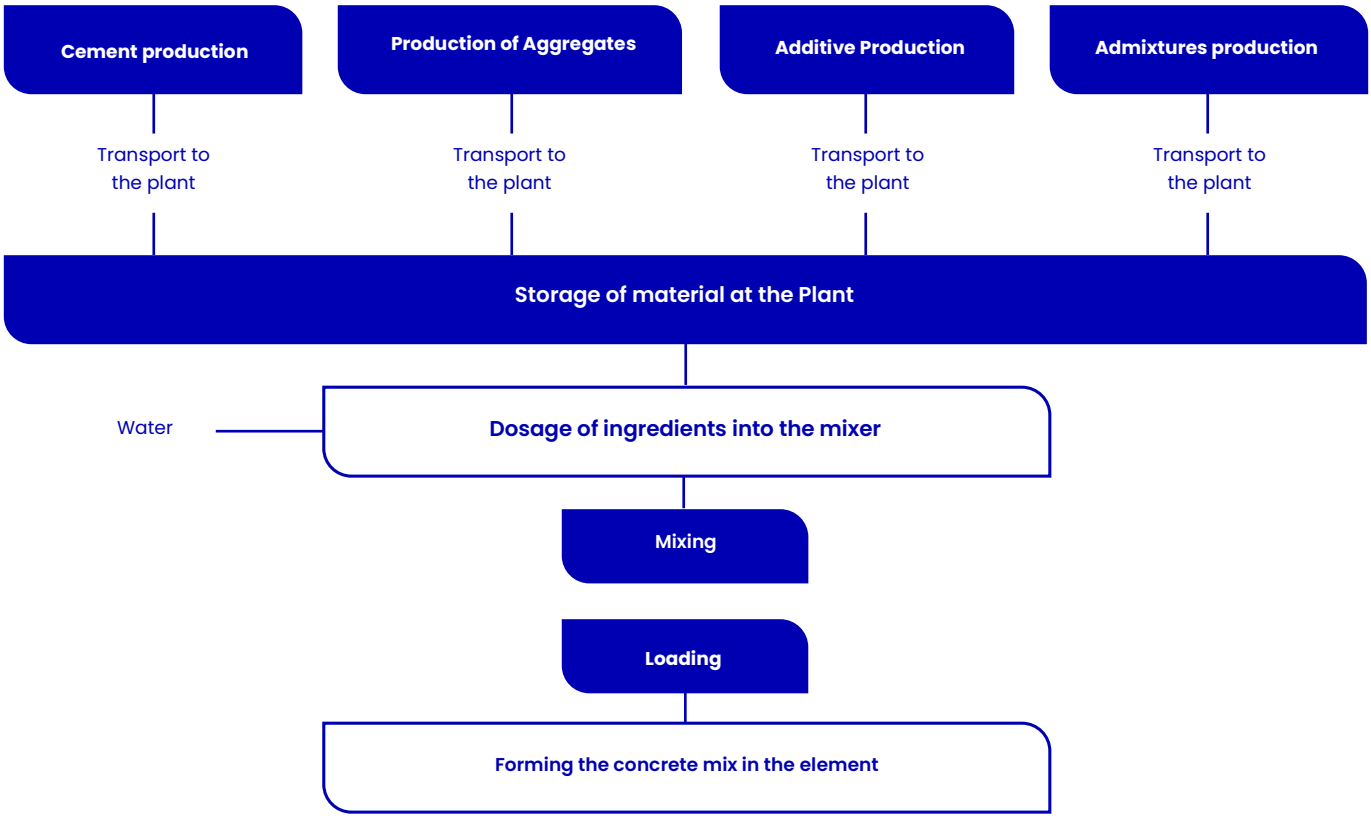

Figure 3. Concrete Production - Inputs and Processes System

After the materials for concrete are transferred to the concrete plant and stored, the substrates are weighed and mixed according to the process shown in Figure 3. The environmental impacts related to the ash have been considered based on economic allocation.

- **Reception and Storage of Raw Materials**: The process begins with the collection of necessary raw materials such as sand, gravel, water, cement, admixtures and additives.
- **Storage Silos**: Cement and fly-ash are received in bulk via tanker trucks and stored in silos equipped with filters and pressure control systems.
- **Weighing and Dosing**: The production coordinator uses the RMS (Ready Mixer Solution) program to automatically load the exact quantities of materials required for the specific mix. Aggregates

[3] Information taken from the GCCA Industry EPD Tool for Cement and Concrete: LCA Model, North American version, 18 December 2023.

are weighed and transported to the mixing machine, while water and additives are dosed and loaded directly into the mixer.

- **Mixing**: All materials are homogenized in the mixer to prepare the concrete, which is then ready to be discharged either directly at the construction site or into a transport vehicle.

  During the mixing phase, the different components come together to produce at uniform mass of concrete. Mixing time is registered from the moment material and water are poured into the cement mixer, and it begins rotating.

- **Transport:** While transporting concrete to site, the concrete mixer never stops revolving at speed of two to six rotations per minute. Transport from the concrete plant to the project site (A4) is not accounted for in this study, however, 30% of the truck diesel is allocated to manufacturing (A3) as per the PCR.

5. CUT-OFF CRITERIA

ISO 14044:2006 and the focus PCR requires the LCA model to contain at minimum of 95% of the total inflows (mass and energy) to the upstream and core modules which have been 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%.

6. DATA SOURCES AND DATA QUALITY ASSESSMENT

- Raw material transport: Actual distance data is provided for each key bulk material. For materials with more than one supplier, the distance is weighted to obtain at single datum.
- Material loss: The Operations, Operational Excellence and Internal Control teams strive to maintain meticulous control of material inventory, performing several monitoring and management processes to limit material loss.

  According to these process controls, there are different permitted inventory deviations that adhere to the following maximums, which are used as material loss factors: 1% for cement and supplementary cementitious materials such as fly-ash, 2% for aggregates (gravel/sand) and 3% for additions and admixtures.

- Electricity: CEMEX Colombia, consumes electricity from various electricity sources and suppliers, including the national grid and self-generation. To calculate the site-specific electricity mix used in the EPD Tool, and align with the PCR, the site-specific electricity mix is distributed proportionally to the plant's energy consumption. The national electricity mix used is published by the authorities (UPME, Colombia's Mining and Energy Planning Unit).
- Ancillary OEM Materials: Due to technical limitations, lubricating oils, engine oils, & other consumable operations equipment maintenance (OEM) were not included within the study and are subject to the cut-off criteria.
- Fuel required for machinery: Fuel needs related to machinery and the low heating value were determined from direct calculations by CEMEX with actual accounting of consumption at the

plant.

- Waste generation: Waste generation values are directly reported from CEMEX operations.
- Recovered energy: Thermal energy recovered from fuels produced from recycled materials. It was 31.0% average for cement plants Colombia in 2023.
- Recycled/reused material/components: CEMEX is committed to sustainability and circularity practices. Cemex uses post-industrial material waste as inputs to its products, to save virgin raw materials as well as reducing impacts within and outside its boundaries. Common recycled raw materials include fly-ash, ground granulated blast-furnace slag and recycled aggregates from industrial and construction and demolition waste. The quantities are directly reported by CEMEX operations. Specific batch/mix recycled content is readily available for Cemex' customers upon request.
- Direct A1 and A3 emissions accounting: The direct CO2 emissions of the plant (calcination process and fuel) were calculated following the methodology stipulated in "The Cement CO2 and Energy Protocol[4]" of the GCCA. Process emissions were estimated using method A2 - Analysis of the CO2 released from total carbon (TC) of raw meals. Emissions are from fuels burned on-site (kiln and non-kiln fuels) and calculated in the clinker phase in the Caracolito plant. These emissions were estimated using fossil fuel Emission Factors from the IPCC Energy Module - 2006, as well as Emission Factors for alternative fuels suggested by the GCCA[5]. AT third party audits these direct emissions annually. All other emissions were obtained from Ecoinvent Emission Factor data and the respective consumption recorded by the plant.
- Concrete mixing energy use: actual truck fuel use is considered (specific gal/m^3, by plant); the GCCA Industry EPD Tool allocates 30% of all mixing truck (fleet) energy use to Module A3, as defined by the PCR. The Operations and Operational Excellence teams within Cemex continuously monitor and track truck energy use for optimization and efficiency measures.
- Waste transport requirements: Transport distances use actual values between the plant location and the waste treatment location.

7. DATA QUALITY ASSESSMENT

Data quality/variability requirements, as specified in the PCR, are applied. This section describes the data quality achieved 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 at study serving as at data source) and representativeness (geographical, temporal, and technological).

7.1. Precision: Thorough measurement and calculation; the manufacturer collected and provided primary data on their annual production.

7.2. Completeness: All relevant specific processes, including inputs (raw materials, energy, and

[4] https://www.cement-co2-protocol.org/en/
[5] https://www.cement-co2-protocol.org/v3/Content/Internet_Manual/constants.htm

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 v3.5 LCI datasets and GCCA data where relatively recent region-specific electricity inputs were utilized.

7.3. 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 Cement materials, emissions to air, water and soil, and waste recycling and treatment. The same background LCI datasets from the GCCA EPD Tool (which includes the Ecoinvent v3.5 database and GCCA data) were used across all product systems. Cross checks 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 level to maintain a high level of consistency.

7.4. Reproducibility: Internal reproducibility is possible since the data and the models are stored and available in a consolidated database with all inputs and all background reports (outputs) within Cemex' archives and within the GCCA's Industry EPD Tool. The Life Cycle Assessment and calculations for all foreground and background processes are contained within the Industry EPD Tool and replicable at any moment. 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.

7.5. Life Cycle Assessment tool: The Global Cement and Concrete Association (GCCA) is at CEO-led industry initiative. Its members, Board of Directors, and Executive team are committed to sustainability – reducing the impacts of cement production and promoting the unique properties of concrete as at sustainable, durable and resilient building material – at material that will answer the needs of at growing and increasingly urban population that is set to exceed 9 billion people by 2050.

GCCA's Industry EPD Tool for Cement and Concrete is at web-based calculation tool for EPDs of clinker, cement, aggregates, concrete and precast elements, available in both International and North American versions. The latter complies with the latest North American cement and concrete PCRs registered at NSF International, namely PCR for Portland, Blended, Masonry, Mortar, and Plastic (Stucco) Cements (version 3.2, dated September 2021), the PCR for Concrete (version 3.2, dated February 2022) and the PCR for Precast Concrete (version 3.0, dated May 2021), all registered at NSF International.

The tool produces a background report with the complete set of input data and results of the specific product. This document is in the form of an Excel file that contains all the information required to produce an EPD and for a verifier to validate it.

7.6. 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 v3.5 database.
- Geographical coverage for inputs required by the A3 facility is representative of its region of focus (Bogotá, Colombia); other upstream and background processes are based on US, North American, regional 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.

8. 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 at 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 (see tables below). 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.

9. LIMITATIONS

This EPD is at 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 at 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 this data may be informational in other ways, it does not provide at measure of impact on the environment.

10. ENVIRONMENTAL INFORMATION

The results presented in this document cover cradle-to-gate scope (A1-A3); transport to site (A4), construction (A5), Use (B) or end of life (C) stages of the products are not included. The following tables present aggregated A1 to A3 results:

Strength <15Mpa

ENVIRONMENTAL IMPACTS: 1 M^3 OF READY-MIX CONCRETE.								
Indicator	**GWP-tot ***	**GWP-bio ***	**ODP**	**AP**	**EP**	**POCP**	**ADPE**	**ADPF**
Unit	**kg CO_2 eq.**	**kg CO_2 eq.**	**kg CFC 11 eq.**	**kg SO_2 eq.**	**kg N eq**	**kg O_3 eq.**	**kg Sb eq.**	**MJ, net calorific value**
1-105-3-A-28-10-0-3-000	213	0.07	7.8E-06	1.07	0.22	22.27	1.52E-004	1234.38
1-105-3-A-28-13-1-3-000	233	0.07	8.1E-06	1.15	0.24	23.92	1.55E-004	1311.02
1-105-3-A-28-15-1-3-000	216	0.07	7.7E-06	1.07	0.23	22.37	1.50E-004	1235.13
1-105-5-A-28-10-0-3-000	206	0.06	7.4E-06	1.07	0.21	22.86	1.01E-004	1262.73
1-105-5-A-28-13-1-3-000	208	0.06	7.5E-06	1.08	0.21	22.92	1.00E-004	1268.17
1-105-5-A-28-20-1-3-000	209	0.06	7.4E-06	1.08	0.22	22.87	9.89E-005	1263.87
1-140-3-A-28-20-1-3-000	235	0.07	8.2E-06	1.16	0.24	23.93	1.50E-004	1316.11
1-140-5-A-28-10-0-3-000	216	0.06	7.6E-06	1.11	0.22	23.52	1.01E-004	1297.72
1-140-5-A-28-10-0-3-55A	209	0.06	7.4E-06	1.10	0.21	23.42	1.03E-004	1285.15
1-140-5-A-28-13-1-3-000	215	0.06	7.6E-06	1.11	0.22	23.33	9.94E-005	1288.49
1-140-5-A-28-15-1-3-000	209	0.06	7.4E-06	1.08	0.21	22.84	9.91E-005	1263.00
G-140-3-A-28-20-1-3-000	269	0.08	9.3E-06	1.31	0.28	27.12	1.62E-004	1518.10
M-125-0-A-28-13-1-3-000	262	0.07	9.5E-06	1.34	0.27	27.91	1.23E-004	1596.67
M-125-0-A-28-15-1-3-000	270	0.07	9.8E-06	1.39	0.28	28.98	1.27E-004	1651.93
M-125-0-A-28-20-1-3-000	278	0.08	9.9E-06	1.40	0.29	29.04	1.23E-004	1655.48
P-040-5-A-07-13-0-3-000	428	0.10	1.4E-05	1.98	0.43	39.84	1.20E-004	2209.57
P-041-5-A-03-13-0-3-000	432	0.10	1.4E-05	1.98	0.44	39.71	1.17E-004	2209.86
P-041-5-A-07-13-0-3-000	424	0.10	1.3E-05	1.94	0.43	39.08	1.16E-004	2171.63
P-041-5-A-07-13-0-3-542	392	0.10	1.3E-05	1.84	0.40	37.27	1.22E-004	2104.97
P-041-5-A-28-10-0-3-000	353	0.09	9.8E-06	1.65	0.35	34.04	1.11E-004	1784.18
P-041-5-A-28-13-0-3-000	346	0.09	9.8E-06	1.62	0.34	33.55	1.11E-004	1763.91
P-041-5-A-28-15-1-3-000	335	0.08	9.7E-06	1.58	0.33	32.47	1.08E-004	1723.57
P-042-5-A-28-10-0-3-000	346	0.09	9.6E-06	1.62	0.34	33.35	1.09E-004	1748.87
P-042-5-A-28-13-0-3-000	374	0.09	1.0E-05	1.74	0.37	35.78	1.16E-004	1874.36

ENVIRONMENTAL IMPACTS: 1 M^3 OF READY-MIX CONCRETE.								
Indicator	**GWP-tot ***	**GWP-bio ***	**ODP**	**AP**	**EP**	**POCP**	**ADPE**	**ADPF**
Unit	**kg CO_2 eq.**	**kg CO_2 eq.**	**kg CFC 11 eq.**	**kg SO_2 eq.**	**kg N eq**	**kg O_3 eq.**	**kg Sb eq.**	**MJ, net calorific value**
P-043-5-A-03-13-0-3-000	450	0.10	1.4E-05	2.05	0.45	41.08	1.18E-004	2279.19
P-043-5-A-28-10-0-3-000	365	0.09	1.0E-05	1.69	0.36	34.81	1.10E-004	1819.29
P-043-5-A-28-13-0-3-000	345	0.09	9.9E-06	1.62	0.34	33.38	1.10E-004	1768.22
P-045-5-A-03-13-0-3-000	508	0.11	1.6E-05	2.29	0.51	45.59	1.25E-004	2523.55
P-045-5-A-03-13-0-3-534	433	0.10	1.3E-05	1.99	0.43	40.23	1.20E-004	2212.99
P-045-5-A-07-13-0-3-000	448	0.10	1.4E-05	2.04	0.45	40.79	1.17E-004	2273.68
P-045-5-A-07-13-0-3-534	427	0.10	1.3E-05	1.97	0.43	39.81	1.20E-004	2196.24
P-045-5-A-07-15-1-3-000	475	0.11	1.5E-05	2.16	0.48	43.14	1.21E-004	2398.40
P-045-5-A-28-10-0-3-000	405	0.10	1.1E-05	1.86	0.40	38.17	1.17E-004	1989.78
P-045-5-A-28-10-0-3-534	337	0.08	1.0E-05	1.61	0.34	33.30	1.14E-004	1770.32
P-045-5-A-28-13-0-3-000	381	0.09	1.1E-05	1.77	0.38	36.28	1.14E-004	1906.69
P-045-5-A-28-15-1-3-000	376	0.09	1.0E-05	1.74	0.37	35.70	1.12E-004	1881.72
P-045-5-A-28-18-0-3-530	467	0.11	1.4E-05	2.12	0.47	42.37	1.20E-004	2338.77
P-050-5-A-03-13-0-3-000	514	0.11	1.6E-05	2.31	0.52	45.87	1.22E-004	2537.50
P-050-5-A-28-18-0-3-530	523	0.12	1.6E-05	2.34	0.52	46.60	1.23E-004	2562.71
R-010-0-A-28-20-0-3-000	139	0.05	6.6E-06	0.80	0.15	17.40	9.25E-005	1050.35
Acronyms	GWP-tot (Global warming potential) • GWP-bio (Global warming potential, biogenic) • ODP (Depletion potential of the stratospheric ozone layer) • AP (Acidification potential of soil and water sources) • EP (Eutrophication potential) • POCP (Photochemical oxidant creation potential) • ADPE (Abiotic depletion potential for non-fossil mineral resources) • ADPF (Abiotic depletion potential for fossil resources)							

RESOURCES USED: 1 M^3 OF READY-MIX CONCRETE.										
Indicator	**PERE**	**PERM**	**PERT**	**PENRE**	**PENRM**	**PENRT**	**SM**	**RSF**	**NRSF**	**NFW**
Unit	**MJ**	**MJ**	**MJ**	**MJ**	**MJ.**	**MJ**	**kg**	**MJ**	**MJ**	**m^3**
1-105-3-A-28-10-0-3-000	62.08	0.00	62.08	1288.99	0.00	1288.99	25.77	18.51	224.94	2.19
1-105-3-A-28-13-1-3-000	66.90	0.00	66.90	1365.92	0.00	1365.92	6.89	20.70	251.49	2.21
1-105-3-A-28-15-1-3-000	62.61	0.00	62.61	1288.83	0.00	1288.83	29.11	18.88	229.38	2.17
1-105-5-A-28-10-0-3-000	56.92	0.00	56.92	1301.23	0.00	1301.23	15.78	17.28	209.90	3.09
1-105-5-A-28-13-1-3-000	57.38	0.00	57.38	1306.41	0.00	1306.41	21.18	17.56	213.30	3.06
1-105-5-A-28-20-1-3-000	57.60	0.00	57.60	1301.00	0.00	1301.00	27.23	17.78	216.05	3.02
1-140-3-A-28-20-1-3-000	67.07	0.00	67.07	1368.70	0.00	1368.70	43.13	21.00	255.20	2.17
1-140-5-A-28-10-0-3-000	59.14	0.00	59.14	1336.21	0.00	1336.21	24.44	18.37	223.13	3.07
1-140-5-A-28-10-0-3-55A	57.65	0.00	57.65	1325.49	0.00	1325.49	48.83	17.46	212.08	3.18
1-140-5-A-28-13-1-3-000	59.01	0.00	59.01	1325.80	0.00	1325.80	28.48	18.44	224.04	3.02
1-140-5-A-28-15-1-3-000	57.37	0.00	57.37	1300.65	0.00	1300.65	40.79	17.65	214.44	3.02
G-140-3-A-28-20-1-3-000	74.10	0.00	74.10	1553.42	0.00	1553.42	23.95	23.76	288.65	2.47
M-125-0-A-28-13-1-3-000	67.88	0.00	67.88	1596.67	0.00	1596.67	17.36	22.35	271.50	2.83
M-125-0-A-28-15-1-3-000	70.07	0.00	70.07	1654.72	0.00	1654.72	32.46	23.06	280.12	2.98
M-125-0-A-28-20-1-3-000	71.75	0.00	71.75	1655.48	0.00	1655.48	21.98	24.21	294.12	2.78
P-040-5-A-07-13-0-3-000	107.47	0.00	107.47	2255.17	0.00	2255.17	33.50	40.51	492.23	3.16
P-041-5-A-03-13-0-3-000	108.08	0.00	108.08	2252.11	0.00	2252.11	24.96	41.15	499.97	2.98
P-041-5-A-07-13-0-3-000	106.18	0.00	106.18	2214.01	0.00	2214.01	24.76	40.27	489.22	2.98
P-041-5-A-07-13-0-3-542	99.32	0.00	99.32	2149.01	0.00	2149.01	22.22	36.09	438.44	3.20
P-041-5-A-28-10-0-3-000	91.99	0.00	91.99	1827.49	0.00	1827.49	31.52	33.80	410.65	3.02
P-041-5-A-28-13-0-3-000	90.32	0.00	90.32	1808.36	0.00	1808.36	44.53	32.94	400.26	3.07
P-041-5-A-28-15-1-3-000	87.28	0.00	87.28	1764.28	0.00	1764.28	48.79	31.72	385.40	2.96
P-042-5-A-28-10-0-3-000	90.29	0.00	90.29	1792.06	0.00	1792.06	50.89	33.11	402.29	2.98
P-042-5-A-28-13-0-3-000	96.89	0.00	96.89	1918.87	0.00	1918.87	12.53	35.91	436.27	3.09
P-043-5-A-03-13-0-3-000	112.19	0.00	112.19	2321.28	0.00	2321.28	26.29	43.07	523.34	2.97
P-043-5-A-28-10-0-3-000	94.71	0.00	94.71	1862.52	0.00	1862.52	46.00	35.19	427.51	2.97
P-043-5-A-28-13-0-3-000	89.74	0.00	89.74	1812.75	0.00	1812.75	50.03	32.67	396.94	3.05
P-045-5-A-03-13-0-3-000	125.39	0.00	125.39	2564.78	0.00	2564.78	10.40	49.16	597.29	2.96
P-045-5-A-03-13-0-3-534	108.84	0.00	108.84	2261.48	0.00	2261.48	1.01	41.14	499.80	3.18

RESOURCES USED: 1 M^3 OF READY-MIX CONCRETE.										
Indicator	**PERE**	**PERM**	**PERT**	**PENRE**	**PENRM**	**PENRT**	**SM**	**RSF**	**NRSF**	**NFW**
Unit	**MJ**	**MJ**	**MJ**	**MJ**	**MJ.**	**MJ**	**kg**	**MJ**	**MJ**	**m^3**
P-045-5-A-07-13-0-3-000	111.57	0.00	111.57	2315.37	0.00	2315.37	36.83	42.87	520.84	2.93
P-045-5-A-07-13-0-3-534	107.48	0.00	107.48	2244.36	0.00	2244.36	0.99	40.49	491.90	3.20
P-045-5-A-07-15-1-3-000	117.83	0.00	117.83	2438.43	0.00	2438.43	32.79	45.67	554.84	2.99
P-045-5-A-28-10-0-3-000	104.11	0.00	104.11	2034.25	0.00	2034.25	0.96	39.33	477.90	3.06
P-045-5-A-28-10-0-3-534	88.07	0.00	88.07	1818.67	0.00	1818.67	45.03	31.50	382.72	3.22
P-045-5-A-28-13-0-3-000	98.49	0.00	98.49	1951.04	0.00	1951.04	55.08	36.77	446.72	3.05
P-045-5-A-28-15-1-3-000	96.97	0.00	96.97	1921.69	0.00	1921.69	56.69	36.28	440.79	2.94
P-045-5-A-28-18-0-3-530	116.51	0.00	116.51	2385.83	0.00	2385.83	1.10	44.98	546.53	3.02
P-050-5-A-03-13-0-3-000	126.87	0.00	126.87	2578.75	0.00	2578.75	30.47	50.03	607.87	2.90
P-050-5-A-28-18-0-3-530	129.63	0.00	129.63	2615.07	0.00	2615.07	31.55	51.02	619.91	3.06
R-010-0-A-28-20-0-3-000	38.62	0.00	38.62	1050.35	0.00	1050.35	15.10	9.80	119.10	2.49
Acronyms	PERE (Use of renewable primary energy excluding renewable primary energy resources used as raw materials) • PERM (Use of renewable primary energy resources used as raw materials) • PERT (Total use of renewable primary energy resources) • PENRE (Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials) • PENRM (Use of non-renewable primary energy resources used as raw materials) • PENRT (Total use of non-renewable primary energy resources) • SM (Use of secondary materials) • RSF (Use of renewable secondary fuels) • NRSF (Use of non-renewable secondary fuels) • NFW (Net use of fresh water)									

Strength 15 to 20 Mpa

ENVIRONMENTAL IMPACTS: 1 M^3 OF READY-MIX CONCRETE.								
Indicator	**GWP-tot ***	**GWP-bio ***	**ODP**	**AP**	**EP**	**POCP**	**ADPE**	**ADPF**
Unit	**kg CO_2 eq.**	**kg CO_2 eq.**	**kg CFC 11 eq.**	**kg SO_2 eq.**	**kg N eq**	**kg O_3 eq.**	**kg Sb eq.**	**MJ, net calorific value**
1-175-3-A-28-13-1-3-000	248	0.07	8.22E-06	1.20	0.25	24.85	1.53E-004	1349.76
1-175-3-A-28-15-1-3-000	246	0.07	8.32E-06	1.20	0.25	24.81	1.54E-004	1354.16
1-175-3-A-28-20-1-3-000	269	0.08	8.65E-06	1.29	0.28	26.58	1.55E-004	1435.72
1-175-5-A-28-10-0-3-000	239	0.07	7.90E-06	1.21	0.24	25.47	1.04E-004	1382.34
1-175-5-A-28-13-1-3-000	238	0.07	7.86E-06	1.20	0.24	25.27	1.03E-004	1372.36
1-175-5-A-28-15-1-3-000	238	0.07	7.85E-06	1.19	0.24	25.11	1.02E-004	1365.31
G-175-3-A-28-20-1-3-000	290	0.08	9.76E-06	1.40	0.30	28.75	1.65E-004	1599.76

ENVIRONMENTAL IMPACTS: 1 M^3 OF READY-MIX CONCRETE.								
Indicator	**GWP-tot ***	**GWP-bio ***	**ODP**	**AP**	**EP**	**POCP**	**ADPE**	**ADPF**
Unit	**kg CO_2 eq.**	**kg CO_2 eq.**	**kg CFC 11 eq.**	**kg SO_2 eq.**	**kg N eq**	**kg O_3 eq.**	**kg Sb eq.**	**MJ, net calorific value**
Acronyms	GWP-tot (Global warming potential) • GWP-bio (Global warming potential, biogenic) • ODP (Depletion potential of the stratospheric ozone layer) • AP (Acidification potential of soil and water sources) • EP (Eutrophication potential) • POCP (Photochemical oxidant creation potential) • ADPE (Abiotic depletion potential for non-fossil mineral resources) • ADPF (Abiotic depletion potential for fossil resources)							

RESOURCES USED: 1 M^3 OF READY-MIX CONCRETE										
Indicator	**PERE**	**PERM**	**PERT**	**PENRE**	**PENRM**	**PENRT**	**SM**	**RSF**	**NRSF**	**NFW**
Unit	**MJ**	**MJ**	**MJ**	**MJ**	**MJ.**	**MJ**	**kg**	**MJ**	**MJ**	**m^3**
1-175-3-A-28-13-1-3-000	70.18	0.00	70.18	1403.57	0.00	1403.57	34.47	22.43	272.55	2.16
1-175-3-A-28-15-1-3-000	69.96	0.00	69.96	1409.19	0.00	1409.19	34.30	22.24	270.16	2.14
1-175-3-A-28-20-1-3-000	75.17	0.00	75.17	1489.13	0.00	1489.13	18.33	24.74	300.59	2.17
1-175-5-A-28-10-0-3-000	64.90	0.00	64.90	1420.89	0.00	1420.89	15.60	21.03	255.47	3.08
1-175-5-A-28-13-1-3-000	64.59	0.00	64.59	1410.28	0.00	1410.28	26.27	20.98	254.89	3.04
1-175-5-A-28-15-1-3-000	64.34	0.00	64.34	1402.94	0.00	1402.94	31.58	20.92	254.22	3.01
G-175-3-A-28-20-1-3-000	79.17	0.00	79.17	1634.51	0.00	1634.51	29.27	26.08	316.85	2.47
Acronyms	PERE (Use of renewable primary energy excluding renewable primary energy resources used as raw materials) • PERM (Use of renewable primary energy resources used as raw materials) • PERT (Total use of renewable primary energy resources) • PENRE (Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials) • PENRM (Use of non-renewable primary energy resources used as raw materials) • PENRT (Total use of non-renewable primary energy resources) • SM (Use of secondary materials) • RSF (Use of renewable secondary fuels) • NRSF (Use of non-renewable secondary fuels) • NFW (Net use of fresh water)									

Strength 20 to 35 Mpa

ENVIRONMENTAL IMPACTS: 1 M^3 OF READY-MIX CONCRETE.								
Indicator	**GWP-tot ***	**GWP-bio ***	**ODP**	**AP**	**EP**	**POCP**	**ADPE**	**ADPF**
Unit	**kg CO_2** eq.	**kg CO_2** eq.	**kg CFC 11 eq.**	**kg SO_2 eq.**	**kg N eq**	**kg O_3 eq.**	**kg Sb eq.**	**MJ, net calorific value**
1-210-3-A-03-13-1-3-000	306	0.08	1.1E-05	1.45	0.32	29.48	1.65E-004	1675.04

ENVIRONMENTAL IMPACTS: 1 M^3 OF READY-MIX CONCRETE.								
Indicator	**GWP-tot ***	**GWP-bio ***	**ODP**	**AP**	**EP**	**POCP**	**ADPE**	**ADPF**
Unit	**kg CO_2 eq.**	**kg CO_2 eq.**	**kg CFC 11 eq.**	**kg SO_2 eq.**	**kg N eq**	**kg O_3 eq.**	**kg Sb eq.**	**MJ, net calorific value**
1-210-3-A-03-13-1-3-001	300	0.08	1.1E-05	1.42	0.31	28.60	1.56E-004	1635.07
1-210-3-A-03-15-1-3-000	308	0.08	1.1E-05	1.46	0.32	29.63	1.65E-004	1681.38
1-210-3-A-03-20-1-3-000	321	0.09	1.1E-05	1.52	0.33	30.67	1.65E-004	1742.37
1-210-3-A-07-15-1-3-000	289	0.08	1.1E-05	1.39	0.30	28.19	1.62E-004	1606.15
1-210-3-A-07-20-1-3-000	292	0.08	1.1E-05	1.40	0.30	28.42	1.64E-004	1622.05
1-210-3-A-28-10-0-3-000	281	0.08	8.9E-06	1.34	0.29	27.57	1.59E-004	1480.86
1-210-3-A-28-13-1-3-000	267	0.08	8.6E-06	1.27	0.27	26.32	1.54E-004	1423.38
1-210-3-A-28-13-1-3-001	271	0.08	8.6E-06	1.29	0.28	26.54	1.52E-004	1430.06
1-210-3-A-28-13-1-3-55A	258	0.08	8.6E-06	1.27	0.27	26.62	1.64E-004	1444.89
1-210-3-A-28-15-1-3-000	286	0.08	9.0E-06	1.35	0.29	27.90	1.57E-004	1500.21
1-210-3-A-28-15-1-3-009	292	0.08	9.2E-06	1.38	0.30	28.18	1.57E-004	1567.61
1-210-3-A-28-15-1-3-073	278	0.08	9.1E-06	1.32	0.29	26.83	1.64E-004	1513.19
1-210-3-A-28-20-1-3-000	273	0.08	8.7E-06	1.30	0.28	26.77	1.53E-004	1445.76
1-210-5-A-03-13-1-3-000	304	0.08	1.1E-05	1.48	0.31	30.37	1.11E-004	1723.33
1-210-5-A-03-20-1-3-000	297	0.08	1.1E-05	1.46	0.31	29.82	1.10E-004	1695.00
1-210-5-A-28-08-0-3-59K	268	0.07	9.4E-06	1.36	0.28	28.29	1.11E-004	1571.01
1-210-5-A-28-10-0-3-000	250	0.07	8.2E-06	1.24	0.25	26.14	1.04E-004	1419.71
1-210-5-A-28-13-1-3-000	259	0.07	8.3E-06	1.28	0.26	26.85	1.04E-004	1449.85
1-210-5-A-28-13-1-3-001	281	0.07	8.6E-06	1.37	0.28	28.58	1.07E-004	1530.48
1-210-5-A-28-13-1-3-55A	245	0.07	8.0E-06	1.24	0.25	26.23	1.06E-004	1420.43
1-210-5-A-28-15-1-3-000	259	0.07	8.3E-06	1.28	0.26	26.78	1.04E-004	1448.83
1-210-5-A-28-15-1-3-001	259	0.07	8.2E-06	1.28	0.26	26.80	1.04E-004	1447.28
1-210-5-A-28-15-1-3-004	291	0.08	8.9E-06	1.41	0.29	29.25	1.09E-004	1613.74
1-210-5-A-28-20-1-3-000	289	0.08	8.8E-06	1.40	0.29	29.28	1.08E-004	1568.57
1-245-3-A-28-20-1-3-000	295	0.08	9.4E-06	1.40	0.30	28.80	1.60E-004	1557.89
1-245-5-A-03-13-1-3-000	325	0.08	1.1E-05	1.57	0.33	32.10	1.13E-004	1808.62
1-245-5-A-03-15-1-3-000	320	0.08	1.1E-05	1.54	0.33	31.48	1.10E-004	1785.77
1-245-5-A-28-10-0-3-000	247	0.07	8.2E-06	1.23	0.25	25.87	1.03E-004	1411.95

ENVIRONMENTAL IMPACTS: 1 M^3 OF READY-MIX CONCRETE.								
Indicator	**GWP-tot ***	**GWP-bio ***	**ODP**	**AP**	**EP**	**POCP**	**ADPE**	**ADPF**
Unit	**kg CO_2 eq.**	**kg CO_2 eq.**	**kg CFC 11 eq.**	**kg SO_2 eq.**	**kg N eq**	**kg O_3 eq.**	**kg Sb eq.**	**MJ, net calorific value**
1-245-5-A-28-13-1-3-000	252	0.07	8.2E-06	1.25	0.26	26.32	1.04E-004	1428.63
1-245-5-A-28-15-1-3-000	253	0.07	8.3E-06	1.26	0.26	26.37	1.04E-004	1433.47
1-280-3-A-03-13-1-3-000	372	0.10	1.3E-05	1.73	0.38	34.53	1.69E-004	1961.44
1-280-3-A-03-15-1-3-000	360	0.09	1.2E-05	1.67	0.37	33.36	1.63E-004	1898.95
1-280-3-A-03-15-1-3-001	385	0.10	1.3E-05	1.77	0.39	35.24	1.62E-004	1990.57
1-280-3-A-03-20-1-3-001	393	0.10	1.3E-05	1.80	0.40	35.84	1.62E-004	2030.24
1-280-3-A-07-15-1-3-001	364	0.09	1.2E-05	1.68	0.37	33.62	1.61E-004	1897.39
1-280-3-A-14-13-1-3-000	339	0.09	1.0E-05	1.57	0.34	32.07	1.62E-004	1712.32
1-280-3-A-14-15-1-3-000	333	0.09	1.0E-05	1.55	0.34	31.53	1.60E-004	1689.82
1-280-3-A-28-10-0-3-001	285	0.08	9.0E-06	1.35	0.29	27.66	1.54E-004	1494.20
1-280-3-A-28-13-1-3-000	283	0.08	9.1E-06	1.35	0.29	27.67	1.58E-004	1499.92
1-280-3-A-28-13-1-3-001	296	0.08	9.4E-06	1.40	0.30	28.73	1.58E-004	1551.31
1-280-3-A-28-13-1-3-55A	308	0.08	9.4E-06	1.45	0.31	29.81	1.65E-004	1591.28
1-280-3-A-28-15-1-3-000	281	0.08	9.1E-06	1.33	0.29	27.36	1.55E-004	1485.05
1-280-3-A-28-15-1-3-001	305	0.08	9.5E-06	1.43	0.31	29.36	1.58E-004	1579.62
1-280-3-A-28-20-1-3-000	292	0.08	9.3E-06	1.39	0.30	28.39	1.58E-004	1538.72
1-280-3-A-28-20-1-3-001	317	0.09	9.7E-06	1.48	0.32	30.28	1.59E-004	1626.54
1-280-3-A-28-20-1-3-55A	302	0.08	9.4E-06	1.42	0.31	29.18	1.64E-004	1566.96
1-280-5-A-03-13-1-3-000	298	0.08	1.0E-05	1.43	0.31	29.16	1.03E-004	1659.77
1-280-5-A-03-15-1-3-000	341	0.08	1.2E-05	1.63	0.35	33.00	1.11E-004	1873.28
1-280-5-A-07-13-1-3-001	332	0.08	1.1E-05	1.58	0.34	32.26	1.10E-004	1815.55
1-280-5-A-07-15-1-3-001	361	0.09	1.2E-05	1.70	0.37	34.49	1.13E-004	1932.59
1-280-5-A-28-10-0-3-000	286	0.08	8.8E-06	1.40	0.29	29.16	1.09E-004	1565.39
1-280-5-A-28-10-0-3-001	287	0.08	8.8E-06	1.40	0.29	29.11	1.08E-004	1562.03
1-280-5-A-28-13-1-3-000	273	0.07	8.8E-06	1.34	0.28	27.87	1.05E-004	1514.50
1-280-5-A-28-13-1-3-001	290	0.08	9.0E-06	1.41	0.29	29.42	1.09E-004	1580.10
1-280-5-A-28-13-1-3-55A	299	0.08	9.1E-06	1.45	0.30	30.33	1.10E-004	1620.54
1-280-5-A-28-15-1-3-000	276	0.07	8.8E-06	1.35	0.28	28.12	1.06E-004	1522.60

ENVIRONMENTAL IMPACTS: 1 M^3 OF READY-MIX CONCRETE.								
Indicator	**GWP-tot ***	**GWP-bio ***	**ODP**	**AP**	**EP**	**POCP**	**ADPE**	**ADPF**
Unit	**kg CO_2 eq.**	**kg CO_2 eq.**	**kg CFC 11 eq.**	**kg SO_2 eq.**	**kg N eq**	**kg O_3 eq.**	**kg Sb eq.**	**MJ, net calorific value**
1-280-5-A-28-15-1-3-001	284	0.07	8.8E-06	1.38	0.29	28.73	1.06E-004	1547.19
1-280-5-A-28-20-1-3-001	300	0.08	9.2E-06	1.45	0.30	30.14	1.09E-004	1620.93
1-315-5-A-28-15-1-3-000	318	0.08	9.5E-06	1.52	0.32	31.57	1.11E-004	1684.56
1-315-5-A-28-15-1-3-001	311	0.08	9.3E-06	1.48	0.31	30.67	1.07E-004	1640.86
1-350-3-A-03-13-1-3-000	381	0.10	1.3E-05	1.77	0.39	35.29	1.72E-004	2003.91
1-350-3-A-03-15-1-3-000	462	0.11	1.5E-05	2.09	0.47	41.31	1.70E-004	2319.97
1-350-3-A-03-20-1-3-000	498	0.12	1.6E-05	2.23	0.51	44.03	1.71E-004	2462.06
1-350-3-A-28-13-1-3-000	311	0.08	9.7E-06	1.46	0.32	29.85	1.60E-004	1610.20
1-350-3-A-28-15-1-3-000	306	0.08	9.6E-06	1.44	0.31	29.37	1.58E-004	1589.44
1-350-3-A-28-20-1-3-000	330	0.09	1.0E-05	1.54	0.34	31.34	1.60E-004	1695.71
1-350-5-A-03-13-1-3-000	396	0.09	1.3E-05	1.86	0.40	37.55	1.20E-004	2117.56
1-350-5-A-28-13-1-3-000	299	0.08	9.2E-06	1.45	0.30	30.10	1.09E-004	1619.83
1-350-5-A-28-15-1-3-000	301	0.08	9.3E-06	1.46	0.30	30.26	1.09E-004	1630.22
3-280-3-A-28-15-1-3-000	418	0.10	1.2E-05	1.89	0.42	38.33	1.70E-004	2012.49
8-245-5-A-28-15-1-3-000	253	0.07	8.3E-06	1.26	0.26	26.36	1.03E-004	1436.41
8-315-5-A-28-20-1-3-000	311	0.08	9.5E-06	1.49	0.31	30.78	1.08E-004	1655.51
C-210-3-A-28-25-1-3-000	274	0.08	9.9E-06	1.34	0.29	27.17	1.81E-004	1534.28
C-245-3-A-28-25-1-3-000	364	0.10	1.2E-05	1.69	0.38	34.00	1.95E-004	1877.84
C-245-3-A-28-25-1-3-60Z	462	0.13	1.5E-05	2.12	0.49	41.50	2.52E-004	2339.68
D-280-3-A-28-18-1-3-65O	291	0.09	1.0E-05	1.38	0.31	27.75	1.87E-004	1565.99
D-280-5-A-28-15-1-3-65K	289	0.08	9.2E-06	1.40	0.30	28.94	1.31E-004	1578.25
D-350-3-A-28-18-1-3-65P	326	0.09	1.1E-05	1.53	0.34	30.38	1.93E-004	1718.58
D-350-5-A-28-15-1-3-65G	325	0.08	1.0E-05	1.57	0.33	32.27	1.13E-004	1764.88
D-350-5-A-28-20-1-3-65L	335	0.08	1.1E-05	1.60	0.34	32.92	1.13E-004	1803.22
E-210-5-A-28-05-0-3-62R	286	0.08	1.0E-05	1.42	0.30	29.02	1.58E-004	1638.17
F-280-3-A-18-65-1-3-000	329	0.09	1.2E-05	1.56	0.34	31.26	1.52E-004	1787.98
F-315-3-A-18-65-1-3-000	369	0.09	1.3E-05	1.72	0.38	34.32	1.56E-004	1953.31
F-350-3-A-18-65-1-3-000	377	0.09	1.3E-05	1.76	0.39	35.09	1.60E-004	2005.21

ENVIRONMENTAL IMPACTS: 1 M^3 OF READY-MIX CONCRETE.								
Indicator	**GWP-tot ***	**GWP-bio ***	**ODP**	**AP**	**EP**	**POCP**	**ADPE**	**ADPF**
Unit	**kg CO_2 eq.**	**kg CO_2 eq.**	**kg CFC 11 eq.**	**kg SO_2 eq.**	**kg N eq**	**kg O_3 eq.**	**kg Sb eq.**	**MJ, net calorific value**
I-280-5-A-28-13-1-3-000	298	0.08	9.0E-06	1.44	0.30	29.95	1.08E-004	1598.41
J-210-3-A-28-65-1-3-000	327	0.09	1.1E-05	1.54	0.34	30.93	1.91E-004	1727.32
J-245-3-A-28-65-1-3-000	292	0.09	1.0E-05	1.39	0.31	28.05	1.83E-004	1584.01
M-210-0-A-28-15-1-3-000	308	0.08	1.0E-05	1.52	0.32	31.35	1.29E-004	1768.37
M-210-0-A-28-15-1-3-001	321	0.08	1.1E-05	1.57	0.33	32.18	1.27E-004	1804.67
M-210-0-A-28-15-1-3-074	325	0.09	1.1E-05	1.58	0.34	32.15	1.54E-004	1872.76
N-280-3-A-28-18-1-3-55A	334	0.09	1.1E-05	1.61	0.34	33.28	1.54E-004	1815.06
N-280-3-A-28-18-1-3-5D4	362	0.09	1.2E-05	1.75	0.37	35.22	1.53E-004	1984.73
N-280-3-A-28-18-1-3-5D5	367	0.10	1.3E-05	1.79	0.39	35.60	2.04E-004	2046.23
O-210-3-A-18-13-1-3-000	295	0.08	1.1E-05	1.40	0.31	28.52	1.60E-004	1617.37
O-210-3-A-18-18-1-3-000	300	0.08	1.1E-05	1.42	0.31	28.76	1.54E-004	1630.54
O-210-3-A-18-23-1-3-000	319	0.08	1.1E-05	1.50	0.33	30.23	1.55E-004	1718.68
O-210-5-A-18-13-1-3-000	272	0.07	9.7E-06	1.34	0.28	27.80	1.07E-004	1574.53
O-210-5-A-18-15-1-3-000	287	0.07	9.8E-06	1.39	0.29	28.73	1.06E-004	1608.77
O-245-3-A-18-23-1-3-000	301	0.08	1.1E-05	1.44	0.31	29.00	1.58E-004	1672.36
O-245-5-A-18-13-1-3-000	280	0.07	1.0E-05	1.38	0.29	28.42	1.08E-004	1616.88
O-280-3-A-18-13-1-3-000	317	0.09	1.1E-05	1.49	0.33	30.12	1.61E-004	1714.26
O-280-3-A-18-15-1-3-000	328	0.09	1.1E-05	1.54	0.34	31.02	1.61E-004	1748.65
O-280-3-A-18-18-1-3-000	330	0.09	1.2E-05	1.55	0.34	31.27	1.61E-004	1782.60
O-280-3-A-18-23-1-3-000	324	0.09	1.2E-05	1.53	0.34	30.80	1.58E-004	1767.82
O-280-5-A-18-13-1-3-000	300	0.08	1.1E-05	1.46	0.31	29.92	1.09E-004	1697.31
O-315-3-A-18-23-1-3-000	355	0.09	1.2E-05	1.66	0.37	33.18	1.61E-004	1892.14
O-315-5-A-18-13-1-3-000	324	0.08	1.1E-05	1.56	0.33	31.78	1.11E-004	1794.72
O-350-3-A-18-18-1-3-001	353	0.09	1.2E-05	1.64	0.36	33.09	1.61E-004	1840.53
O-350-5-A-18-15-1-3-61U	356	0.09	1.2E-05	1.69	0.36	34.21	1.13E-004	1932.97
T-245-5-A-28-20-1-3-000	259	0.07	8.7E-06	1.29	0.27	26.82	1.15E-004	1473.31
T-280-3-A-28-20-1-3-000	304	0.09	9.7E-06	1.44	0.31	29.33	1.72E-004	1594.40
T-280-3-A-28-20-1-3-55A	341	0.09	1.1E-05	1.64	0.35	33.49	1.43E-004	1818.53

ENVIRONMENTAL IMPACTS: 1 M^3 OF READY-MIX CONCRETE.								
Indicator	**GWP-tot ***	**GWP-bio ***	**ODP**	**AP**	**EP**	**POCP**	**ADPE**	**ADPF**
Unit	**kg CO_2 eq.**	**kg CO_2 eq.**	**kg CFC 11 eq.**	**kg SO_2 eq.**	**kg N eq**	**kg O_3 eq.**	**kg Sb eq.**	**MJ, net calorific value**
T-280-5-A-28-20-1-3-55A	325	0.09	1.0E-05	1.58	0.33	32.38	1.41E-004	1762.24
T-350-3-A-28-20-1-3-000	338	0.09	1.1E-05	1.58	0.35	31.98	1.75E-004	1732.59
T-350-3-A-28-23-1-3-65E	349	0.10	1.2E-05	1.65	0.37	33.03	1.81E-004	1877.24
V-210-3-A-28-65-1-3-000	329	0.09	1.1E-05	1.56	0.34	31.62	1.67E-004	1730.58
V-280-3-A-28-65-1-3-000	318	0.09	1.0E-05	1.51	0.33	30.71	1.66E-004	1688.64
V-280-3-A-28-65-1-3-001	299	0.08	1.0E-05	1.43	0.31	28.99	1.61E-004	1609.61
V-350-3-A-28-65-1-3-000	303	0.08	1.0E-05	1.46	0.32	29.58	1.65E-004	1642.81
Acronyms	GWP-tot (Global warming potential) • GWP-bio (Global warming potential, biogenic) • ODP (Depletion potential of the stratospheric ozone layer) • AP (Acidification potential of soil and water sources) • EP (Eutrophication potential) • POCP (Photochemical oxidant creation potential) • ADPE (Abiotic depletion potential for non-fossil mineral resources) • ADPF (Abiotic depletion potential for fossil resources)							

RESOURCES USED: 1 M^3 OF READY-MIX CONCRETE.										
Indicator	**PERE**	**PERM**	**PERT**	**PENRE**	**PENRM**	**PENRT**	**SM**	**RSF**	**NRSF**	**NFW**
Unit	**MJ**	**MJ**	**MJ**	**MJ**	**MJ.**	**MJ**	**kg**	**MJ**	**MJ**	**m^3**
1-210-3-A-03-13-1-3-000	82.75	0.00	82.75	1732.59	0.00	1732.59	9.02	27.71	336.70	2.24
1-210-3-A-03-13-1-3-001	80.81	0.00	80.81	1688.91	0.00	1688.91	23.50	27.26	331.24	2.12
1-210-3-A-03-15-1-3-000	83.09	0.00	83.09	1738.39	0.00	1738.39	0.68	27.88	338.74	2.25
1-210-3-A-03-20-1-3-000	86.10	0.00	86.10	1798.77	0.00	1798.77	0.72	29.31	356.07	2.25
1-210-3-A-07-15-1-3-000	78.76	0.00	78.76	1662.31	0.00	1662.31	0.63	25.92	314.89	2.26
1-210-3-A-07-20-1-3-000	79.43	0.00	79.43	1679.26	0.00	1679.26	0.64	26.15	317.73	2.26
1-210-3-A-28-10-0-3-000	78.29	0.00	78.29	1536.56	0.00	1536.56	10.14	26.05	316.47	2.18
1-210-3-A-28-13-1-3-000	74.71	0.00	74.71	1477.41	0.00	1477.41	47.16	24.57	298.57	2.13
1-210-3-A-28-13-1-3-001	75.66	0.00	75.66	1483.19	0.00	1483.19	38.49	25.14	305.48	2.09
1-210-3-A-28-13-1-3-55A	72.70	0.00	72.70	1501.10	0.00	1501.10	76.72	22.98	279.14	2.34
1-210-3-A-28-15-1-3-000	79.22	0.00	79.22	1554.31	0.00	1554.31	22.01	26.60	323.22	2.16
1-210-3-A-28-15-1-3-009	81.88	0.00	81.88	1598.87	21.71	1620.58	41.49	26.96	327.54	2.17
1-210-3-A-28-15-1-3-073	79.23	0.00	79.23	1542.71	21.71	1564.42	71.16	25.42	308.88	2.11

FUTURO EN ACCIÓN

RESOURCES USED: 1 M³ OF READY-MIX CONCRETE.										
Indicator	**PERE**	**PERM**	**PERT**	**PENRE**	**PENRM**	**PENRT**	**SM**	**RSF**	**NRSF**	**NFW**
Unit	**MJ**	**MJ**	**MJ**	**MJ**	**MJ.**	**MJ**	**kg**	**MJ**	**MJ**	**m³**
1-210-3-A-28-20-1-3-000	75.91	0.00	75.91	1498.63	0.00	1498.63	37.71	25.18	305.94	2.14
1-210-5-A-03-13-1-3-000	78.48	0.00	78.48	1762.74	0.00	1762.74	11.66	27.09	329.10	3.12
1-210-5-A-03-20-1-3-000	76.97	0.00	76.97	1734.45	0.00	1734.45	0.65	26.40	320.70	3.12
1-210-5-A-28-08-0-3-59K	71.01	0.00	71.01	1612.25	0.00	1612.25	65.34	23.42	284.49	3.24
1-210-5-A-28-10-0-3-000	67.19	0.00	67.19	1458.31	0.00	1458.31	29.93	22.17	269.36	3.04
1-210-5-A-28-13-1-3-000	69.36	0.00	69.36	1487.99	0.00	1487.99	29.17	23.20	281.93	3.03
1-210-5-A-28-13-1-3-001	74.57	0.00	74.57	1568.16	0.00	1568.16	3.84	25.63	311.43	3.03
1-210-5-A-28-13-1-3-55A	66.11	0.00	66.11	1460.03	0.00	1460.03	59.73	21.45	260.58	3.15
1-210-5-A-28-15-1-3-000	69.32	0.00	69.32	1486.48	0.00	1486.48	36.28	23.25	282.45	3.00
1-210-5-A-28-15-1-3-001	69.28	0.00	69.28	1484.92	0.00	1484.92	35.92	23.21	282.02	3.01
1-210-5-A-28-15-1-3-004	78.52	0.00	78.52	1629.73	21.71	1651.44	1.93	26.50	322.00	3.07
1-210-5-A-28-20-1-3-000	76.44	0.00	76.44	1605.83	0.00	1605.83	0.65	26.47	321.59	3.05
1-245-3-A-28-20-1-3-000	81.26	0.00	81.26	1612.39	0.00	1612.39	0.67	27.36	332.39	2.23
1-245-5-A-03-13-1-3-000	83.52	0.00	83.52	1847.95	0.00	1847.95	5.30	29.40	357.25	3.13
1-245-5-A-03-15-1-3-000	82.15	0.00	82.15	1824.60	0.00	1824.60	24.81	28.91	351.23	3.06
1-245-5-A-28-10-0-3-000	66.44	0.00	66.44	1450.50	0.00	1450.50	54.32	21.86	265.54	3.02
1-245-5-A-28-13-1-3-000	67.67	0.00	67.67	1467.09	0.00	1467.09	34.39	22.39	272.01	3.05
1-245-5-A-28-15-1-3-000	67.88	0.00	67.88	1471.73	0.00	1471.73	43.57	22.51	273.54	3.03
1-280-3-A-03-13-1-3-000	97.55	0.00	97.55	2017.49	0.00	2017.49	12.52	34.66	421.16	2.22
1-280-3-A-03-15-1-3-000	94.59	0.00	94.59	1952.82	0.00	1952.82	28.93	33.59	408.07	2.14
1-280-3-A-03-15-1-3-001	100.11	0.00	100.11	2042.32	0.00	2042.32	22.12	36.30	441.06	2.12
1-280-3-A-03-20-1-3-001	101.82	0.00	101.82	2081.36	0.00	2081.36	22.71	37.13	451.09	2.12
1-280-3-A-07-15-1-3-001	95.50	0.00	95.50	1949.82	0.00	1949.82	20.91	34.15	414.92	2.12
1-280-3-A-14-13-1-3-000	91.63	0.00	91.63	1766.87	0.00	1766.87	26.02	32.35	393.01	2.16
1-280-3-A-14-15-1-3-000	90.12	0.00	90.12	1743.73	0.00	1743.73	48.82	31.74	385.59	2.12
1-280-3-A-28-10-0-3-001	78.75	0.00	78.75	1547.08	0.00	1547.08	57.48	26.58	322.88	2.08
1-280-3-A-28-13-1-3-000	78.39	0.00	78.39	1554.92	0.00	1554.92	52.93	26.14	317.59	2.16
1-280-3-A-28-13-1-3-001	81.50	0.00	81.50	1605.72	0.00	1605.72	42.55	27.62	335.62	2.15
1-280-3-A-28-13-1-3-55A	84.72	0.00	84.72	1650.68	0.00	1650.68	80.76	28.86	350.63	2.16
1-280-3-A-28-15-1-3-000	77.62	0.00	77.62	1538.97	0.00	1538.97	63.72	25.92	314.97	2.12

FUTURO EN ACCIÓN

RESOURCES USED: 1 M³ OF READY-MIX CONCRETE.										
Indicator	**PERE**	**PERM**	**PERT**	**PENRE**	**PENRM**	**PENRT**	**SM**	**RSF**	**NRSF**	**NFW**
Unit	**MJ**	**MJ**	**MJ**	**MJ**	**MJ.**	**MJ**	**kg**	**MJ**	**MJ**	**m³**
1-280-3-A-28-15-1-3-001	83.56	0.00	83.56	1633.14	0.00	1633.14	25.81	28.68	348.44	2.13
1-280-3-A-28-20-1-3-000	80.48	0.00	80.48	1593.00	0.00	1593.00	37.65	27.15	329.85	2.16
1-280-3-A-28-20-1-3-001	86.24	0.00	86.24	1680.00	0.00	1680.00	0.73	29.89	363.16	2.14
1-280-3-A-28-20-1-3-55A	83.36	0.00	83.36	1627.16	0.00	1627.16	78.53	28.27	343.41	2.13
1-280-5-A-03-13-1-3-000	76.86	0.00	76.86	1694.37	0.00	1694.37	10.49	26.99	327.86	2.77
1-280-5-A-03-15-1-3-000	86.83	0.00	86.83	1911.29	0.00	1911.29	26.78	31.17	378.65	3.01
1-280-5-A-07-13-1-3-001	84.93	0.00	84.93	1852.71	0.00	1852.71	13.39	30.36	368.86	2.99
1-280-5-A-07-15-1-3-001	91.59	0.00	91.59	1969.48	0.00	1969.48	8.82	33.48	406.72	2.97
1-280-5-A-28-10-0-3-000	75.76	0.00	75.76	1604.68	0.00	1604.68	12.00	26.02	316.11	3.09
1-280-5-A-28-10-0-3-001	76.04	0.00	76.04	1600.11	0.00	1600.11	11.03	26.28	319.32	3.02
1-280-5-A-28-13-1-3-000	72.45	0.00	72.45	1552.30	0.00	1552.30	44.50	24.68	299.87	3.00
1-280-5-A-28-13-1-3-001	76.73	0.00	76.73	1618.70	0.00	1618.70	13.08	26.54	322.41	3.07
1-280-5-A-28-13-1-3-55A	78.74	0.00	78.74	1660.56	0.00	1660.56	76.58	27.42	333.10	3.11
1-280-5-A-28-15-1-3-000	73.16	0.00	73.16	1560.40	0.00	1560.40	43.88	25.00	303.73	3.01
1-280-5-A-28-15-1-3-001	75.11	0.00	75.11	1584.71	0.00	1584.71	24.42	25.94	315.13	2.99
1-280-5-A-28-20-1-3-001	79.01	0.00	79.01	1658.72	0.00	1658.72	0.68	27.66	336.08	3.02
1-315-5-A-28-15-1-3-000	83.19	0.00	83.19	1722.45	0.00	1722.45	36.90	29.60	359.69	3.04
1-315-5-A-28-15-1-3-001	81.40	0.00	81.40	1676.88	0.00	1676.88	44.61	29.05	352.97	2.92
1-350-3-A-03-13-1-3-000	99.62	0.00	99.62	2061.38	0.00	2061.38	20.08	35.49	431.18	2.23
1-350-3-A-03-15-1-3-000	117.78	0.00	117.78	2371.60	0.00	2371.60	29.80	44.44	539.88	2.16
1-350-3-A-03-20-1-3-000	125.80	0.00	125.80	2511.73	0.00	2511.73	1.18	48.26	586.40	2.17
1-350-3-A-28-13-1-3-000	84.80	0.00	84.80	1664.61	0.00	1664.61	42.53	29.15	354.18	2.16
1-350-3-A-28-15-1-3-000	83.50	0.00	83.50	1643.51	0.00	1643.51	53.51	28.61	347.57	2.14
1-350-3-A-28-20-1-3-000	89.03	0.00	89.03	1748.90	0.00	1748.90	39.19	31.16	378.59	2.16
1-350-5-A-03-13-1-3-000	99.39	0.00	99.39	2156.70	0.00	2156.70	14.85	36.73	446.25	3.13
1-350-5-A-28-13-1-3-000	78.64	0.00	78.64	1658.13	0.00	1658.13	33.19	27.44	333.38	3.05
1-350-5-A-28-15-1-3-000	79.14	0.00	79.14	1668.49	0.00	1668.49	30.51	27.67	336.16	3.06
3-280-3-A-28-15-1-3-000	110.23	0.00	110.23	2066.55	0.00	2066.55	1.00	40.99	498.01	2.18
8-245-5-A-28-15-1-3-000	67.94	0.00	67.94	1474.78	0.00	1474.78	34.66	22.55	273.98	3.02
8-315-5-A-28-20-1-3-000	81.27	0.00	81.27	1692.30	0.00	1692.30	43.89	28.85	350.51	2.98

FUTURO EN ACCIÓN

RESOURCES USED: 1 M³ OF READY-MIX CONCRETE.										
Indicator	**PERE**	**PERM**	**PERT**	**PENRE**	**PENRM**	**PENRT**	**SM**	**RSF**	**NRSF**	**NFW**
Unit	**MJ**	**MJ**	**MJ**	**MJ**	**MJ.**	**MJ**	**kg**	**MJ**	**MJ**	**m³**
C-210-3-A-28-25-1-3-000	77.03	0.00	77.03	1586.09	0.00	1586.09	104.42	24.29	295.15	2.32
C-245-3-A-28-25-1-3-000	98.34	0.00	98.34	1926.98	0.00	1926.98	0.83	33.98	412.90	2.33
C-245-3-A-28-25-1-3-60Z	124.17	0.00	124.17	2384.02	0.00	2384.02	1.07	43.85	532.72	2.44
D-280-3-A-28-18-1-3-65O	81.44	0.00	81.44	1625.93	0.00	1625.93	73.42	26.26	319.03	2.11
D-280-5-A-28-15-1-3-65K	78.12	0.00	78.12	1617.49	0.00	1617.49	73.41	26.25	318.89	3.02
D-350-3-A-28-18-1-3-65P	89.51	0.00	89.51	1778.16	0.00	1778.16	83.64	29.88	363.06	2.10
D-350-5-A-28-15-1-3-65G	83.56	0.00	83.56	1804.80	0.00	1804.80	83.56	29.48	358.21	3.15
D-350-5-A-28-20-1-3-65L	85.86	0.00	85.86	1842.51	0.00	1842.51	86.57	30.65	372.43	3.10
E-210-5-A-28-05-0-3-62R	78.63	0.00	78.63	1678.63	0.00	1678.63	70.36	25.11	305.03	3.23
F-280-3-A-18-65-1-3-000	86.61	0.00	86.61	1832.18	0.00	1832.18	29.92	30.22	367.16	2.25
F-315-3-A-18-65-1-3-000	95.57	0.00	95.57	1998.01	0.00	1998.01	31.64	34.33	417.11	2.24
F-350-3-A-18-65-1-3-000	97.60	0.00	97.60	2051.26	0.00	2051.26	12.97	35.09	426.32	2.28
I-280-5-A-28-13-1-3-000	78.80	0.00	78.80	1640.45	0.00	1640.45	10.87	27.49	333.94	3.08
J-210-3-A-28-65-1-3-000	89.85	0.00	89.85	1770.70	0.00	1770.70	53.60	30.18	366.67	2.29
J-245-3-A-28-65-1-3-000	81.26	0.00	81.26	1626.41	0.00	1626.41	73.96	26.41	320.91	2.26
M-210-0-A-28-15-1-3-000	79.00	0.00	79.00	1768.37	0.00	1768.37	33.03	27.52	334.37	2.77
M-210-0-A-28-15-1-3-001	82.01	0.00	82.01	1804.67	0.00	1804.67	26.35	29.05	352.99	2.72
M-210-0-A-28-15-1-3-074	86.26	0.00	86.26	1851.04	21.71	1872.76	44.54	28.96	351.84	2.77
N-280-3-A-28-18-1-3-55A	88.03	0.00	88.03	1850.35	0.00	1850.35	87.67	30.72	373.27	2.60
N-280-3-A-28-18-1-3-5D4	93.47	0.00	93.47	2018.38	0.00	2018.38	92.73	33.31	404.67	2.55
N-280-3-A-28-18-1-3-5D5	98.13	0.00	98.13	2079.67	0.00	2079.67	92.75	33.21	403.49	2.70
O-210-3-A-18-13-1-3-000	80.14	0.00	80.14	1672.84	0.00	1672.84	8.20	26.71	324.51	2.22
O-210-3-A-18-18-1-3-000	80.78	0.00	80.78	1681.48	0.00	1681.48	15.89	27.34	332.16	2.18
O-210-3-A-18-23-1-3-000	84.75	0.00	84.75	1767.73	0.00	1767.73	7.53	29.22	355.00	2.21
O-210-5-A-18-13-1-3-000	71.24	0.00	71.24	1613.08	0.00	1613.08	11.39	23.84	289.59	3.10
O-210-5-A-18-15-1-3-000	74.84	0.00	74.84	1646.08	0.00	1646.08	7.56	25.73	312.60	3.01
O-245-3-A-18-23-1-3-000	80.66	0.00	80.66	1724.19	0.00	1724.19	11.19	27.03	328.42	2.24
O-245-5-A-18-13-1-3-000	72.94	0.00	72.94	1655.61	0.00	1655.61	8.63	24.60	298.86	3.09
O-280-3-A-18-13-1-3-000	84.82	0.00	84.82	1768.98	0.00	1768.98	13.92	28.93	351.53	2.19
O-280-3-A-18-15-1-3-000	87.64	0.00	87.64	1802.50	0.00	1802.50	17.99	30.35	368.74	2.17

RESOURCES USED: 1 M³ OF READY-MIX CONCRETE.										
Indicator	**PERE**	**PERM**	**PERT**	**PENRE**	**PENRM**	**PENRT**	**SM**	**RSF**	**NRSF**	**NFW**
Unit	**MJ**	**MJ**	**MJ**	**MJ**	**MJ.**	**MJ**	**kg**	**MJ**	**MJ**	**m³**
O-280-3-A-18-18-1-3-000	87.60	0.00	87.60	1834.98	0.00	1834.98	3.86	30.25	367.49	2.23
O-280-3-A-18-23-1-3-000	85.95	0.00	85.95	1818.52	0.00	1818.52	14.24	29.56	359.20	2.23
O-280-5-A-18-13-1-3-000	77.52	0.00	77.52	1735.78	0.00	1735.78	10.18	26.76	325.09	3.07
O-315-3-A-18-23-1-3-000	93.18	0.00	93.18	1943.19	0.00	1943.19	3.11	32.92	399.92	2.23
O-315-5-A-18-13-1-3-000	83.04	0.00	83.04	1832.84	0.00	1832.84	4.59	29.32	356.28	3.07
O-350-3-A-18-18-1-3-001	93.42	0.00	93.42	1891.78	0.00	1891.78	9.30	33.15	402.77	2.18
O-350-5-A-18-15-1-3-61U	90.29	0.00	90.29	1970.25	0.00	1970.25	20.84	32.75	397.95	3.03
T-245-5-A-28-20-1-3-000	69.88	0.00	69.88	1511.21	0.00	1511.21	28.11	22.96	278.94	3.06
T-280-3-A-28-20-1-3-000	84.17	0.00	84.17	1649.08	0.00	1649.08	22.82	28.27	343.47	2.20
T-280-3-A-28-20-1-3-55A	90.52	0.00	90.52	1857.20	0.00	1857.20	62.52	31.62	384.22	3.15
T-280-5-A-28-20-1-3-55A	86.79	0.00	86.79	1802.99	0.00	1802.99	59.37	29.81	362.19	3.21
T-350-3-A-28-20-1-3-000	92.08	0.00	92.08	1785.82	0.00	1785.82	35.74	31.96	388.29	2.20
T-350-3-A-28-23-1-3-65E	93.25	0.00	93.25	1910.73	0.00	1910.73	87.72	31.34	380.79	3.04
V-210-3-A-28-65-1-3-000	88.97	0.00	88.97	1775.86	0.00	1775.86	0.75	30.75	373.55	2.33
V-280-3-A-28-65-1-3-000	86.40	0.00	86.40	1733.69	0.00	1733.69	29.05	29.58	359.41	2.29
V-280-3-A-28-65-1-3-001	81.59	0.00	81.59	1653.83	0.00	1653.83	54.54	27.51	334.19	2.24
V-350-3-A-28-65-1-3-000	82.77	0.00	82.77	1688.37	0.00	1688.37	55.22	27.82	338.06	2.30
Acronyms	PERE (Use of renewable primary energy excluding renewable primary energy resources used as raw materials) • PERM (Use of renewable primary energy resources used as raw materials) • PERT (Total use of renewable primary energy resources) • PENRE (Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials) • PENRM (Use of non-renewable primary energy resources used as raw materials) • PENRT (Total use of non-renewable primary energy resources) • SM (Use of secondary materials) • RSF (Use of renewable secondary fuels) • NRSF (Use of non-renewable secondary fuels) • NFW (Net use of fresh water)									

Strength >35 Mpa

ENVIRONMENTAL IMPACTS: 1 M^3 OF READY-MIX CONCRETE.								
Indicator	**GWP-tot ***	**GWP-bio ***	**ODP**	**AP**	**EP**	**POCP**	**ADPE**	**ADPF**
Unit	**kg CO_2** eq.	**kg CO_2** eq.	**kg CFC 11 eq.**	**kg SO_2 eq.**	**kg N eq**	**kg O_3 eq.**	**kg Sb eq.**	**MJ, net calorific value**
1-420-3-A-03-13-1-3-000	479	0.11	1.56E-05	2.16	0.49	42.72	1.75E-004	2407.04
1-420-3-A-03-15-1-3-000	562	0.13	1.74E-05	2.49	0.57	48.80	1.72E-004	2729.69
1-420-3-A-07-13-1-3-000	431	0.11	1.43E-05	1.97	0.44	39.01	1.73E-004	2203.43
1-420-3-A-07-13-1-3-001	441	0.11	1.46E-05	2.00	0.45	39.70	1.71E-004	2241.32
1-420-3-A-28-13-1-3-001	371	0.09	1.09E-05	1.70	0.37	34.47	1.61E-004	1839.51
1-420-5-A-03-13-1-3-000	496	0.11	1.56E-05	2.27	0.50	45.24	1.28E-004	2526.23
1-420-5-A-03-15-1-3-55A	431	0.10	1.36E-05	1.99	0.43	40.10	1.19E-004	2224.85
1-420-5-A-07-13-1-3-000	408	0.10	1.35E-05	1.91	0.42	38.34	1.19E-004	2162.21
1-420-5-A-14-15-1-3-55A	391	0.09	1.10E-05	1.83	0.39	37.48	1.18E-004	1982.19
1-420-5-A-28-10-0-3-014	397	0.12	1.25E-05	1.87	0.42	37.62	2.31E-004	2073.58
1-420-5-A-28-13-1-3-001	351	0.09	1.02E-05	1.65	0.35	33.78	1.10E-004	1803.03
1-420-5-A-28-15-1-3-55A	371	0.09	1.08E-05	1.75	0.37	35.91	1.16E-004	1913.46
A-490-3-A-28-15-1-3-55A	355	0.09	1.08E-05	1.65	0.36	33.54	1.72E-004	1803.18
Acronyms	GWP-tot (Global warming potential) • GWP-bio (Global warming potential, biogenic) • ODP (Depletion potential of the stratospheric ozone layer) • AP (Acidification potential of soil and water sources) • EP (Eutrophication potential) • POCP (Photochemical oxidant creation potential) • ADPE (Abiotic depletion potential for non-fossil mineral resources) • ADPF (Abiotic depletion potential for fossil resources)							

RESOURCES USED: 1 M^3 OF READY-MIX CONCRETE.										
Indicator	**PERE**	**PERM**	**PERT**	**PENRE**	**PENRM**	**PENRT**	**SM**	**RSF**	**NRSF**	**NFW**
Unit	**MJ**	**MJ**	**MJ**	**MJ**	**MJ.**	**MJ**	**kg**	**MJ**	**MJ**	**m^3**
1-420-3-A-03-13-1-3-000	121.52	0.00	121.52	2460.40	0.00	2460.40	32.48	45.95	558.26	2.20
1-420-3-A-03-15-1-3-000	139.93	0.00	139.93	2776.37	0.00	2776.37	33.67	55.08	669.19	2.11
1-420-3-A-07-13-1-3-000	110.92	0.00	110.92	2259.20	0.00	2259.20	24.99	40.93	497.24	2.19
1-420-3-A-07-13-1-3-001	113.05	0.00	113.05	2295.16	0.00	2295.16	25.70	42.09	511.33	2.15
1-420-3-A-28-13-1-3-001	98.56	0.00	98.56	1891.14	0.00	1891.14	54.61	35.78	434.76	2.10

RESOURCES USED: 1 M³ OF READY-MIX CONCRETE.										
Indicator	**PERE**	**PERM**	**PERT**	**PENRE**	**PENRM**	**PENRT**	**SM**	**RSF**	**NRSF**	**NFW**
Unit	**MJ**	**MJ**	**MJ**	**MJ**	**MJ.**	**MJ**	**kg**	**MJ**	**MJ**	**m³**
1-420-5-A-03-13-1-3-000	122.33	0.00	122.33	2563.75	0.00	2563.75	1.16	47.45	576.55	3.08
1-420-5-A-03-15-1-3-55A	107.61	0.00	107.61	2264.25	0.00	2264.25	81.11	40.81	495.85	3.03
1-420-5-A-07-13-1-3-000	102.20	0.00	102.20	2200.48	0.00	2200.48	23.38	38.17	463.72	3.08
1-420-5-A-14-15-1-3-55A	100.18	0.00	100.18	2021.07	0.00	2021.07	73.71	37.46	455.11	3.06
1-420-5-A-28-10-0-3-014	109.93	0.00	109.93	2111.27	0.00	2111.27	0.91	37.04	449.99	3.30
1-420-5-A-28-13-1-3-001	90.60	0.00	90.60	1838.73	0.00	1838.73	51.11	33.34	405.10	2.89
1-420-5-A-28-15-1-3-55A	95.28	0.00	95.28	1952.25	0.00	1952.25	83.23	35.13	426.88	3.09
A-490-3-A-28-15-1-3-55A	95.23	0.00	95.23	1863.35	0.00	1863.35	93.74	33.59	408.05	2.18
Acronyms	PERE (Use of renewable primary energy excluding renewable primary energy resources used as raw materials) • PERM (Use of renewable primary energy resources used as raw materials) • PERT (Total use of renewable primary energy resources) • PENRE (Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials) • PENRM (Use of non-renewable primary energy resources used as raw materials) • PENRT (Total use of non-renewable primary energy resources) • SM (Use of secondary materials) • RSF (Use of renewable secondary fuels) • NRSF (Use of non-renewable secondary fuels) • NFW (Net use of fresh water)									

11. OTHER ENVIRONMENTAL INFORMATION

Strength <15 MPa

OTHER ENVIRONMENTAL INFORMATION: 1 M³ OF READY-MIX CONCRETE.								
Indicator	**GWP Net**	**HWD**	**NHWD**	**RWD**	**MER**	**MFR**	**EE**	**CRU**
Unit	**kgCO_2 eq**	**kg**	**kg**	**kg**	**kg**	**kg**	**MJ**	**kg**
1-105-3-A-28-10-0-3-000	191	0.28	0.04	-	0	69.24	0	0
1-105-3-A-28-13-1-3-000	209	0.28	0.04	-	0	69.25	0	0
1-105-3-A-28-15-1-3-000	193	0.28	0.04	-	0	69.24	0	0
1-105-5-A-28-10-0-3-000	185	0.28	0.04	-	0	69.24	0	0
1-105-5-A-28-13-1-3-000	187	0.28	0.04	-	0	69.24	0	0
1-105-5-A-28-20-1-3-000	188	0.28	0.04	-	0	69.24	0	0
1-140-3-A-28-20-1-3-000	210	0.28	0.04	-	0	69.25	0	0
1-140-5-A-28-10-0-3-000	194	0.28	0.04	-	0	69.24	0	0
1-140-5-A-28-10-0-3-55A	188	0.28	0.04	-	0	69.24	0	0

OTHER ENVIRONMENTAL INFORMATION: 1 M^3 OF READY-MIX CONCRETE.								
Indicator	**GWP Net**	**HWD**	**NHWD**	**RWD**	**MER**	**MFR**	**EE**	**CRU**
Unit	**kgCO_2 eq**	**kg**	**kg**	**kg**	**kg**	**kg**	**MJ**	**kg**
1-140-5-A-28-13-1-3-000	193	0.28	0.04	-	0	69.24	0	0
1-140-5-A-28-15-1-3-000	188	0.28	0.04	-	0	69.24	0	0
G-140-3-A-28-20-1-3-000	241	0.28	0.04	-	0	69.26	0	0
M-125-0-A-28-13-1-3-000	235	0.28	0.04	-	0	69.25	0	0
M-125-0-A-28-15-1-3-000	243	0.28	0.04	-	0	69.25	0	0
M-125-0-A-28-20-1-3-000	249	0.28	0.04	-	0	69.26	0	0
P-040-5-A-07-13-0-3-000	380	0.30	0.05	-	0	69.30	0	0
P-041-5-A-03-13-0-3-000	383	0.30	0.05	-	0	69.31	0	0
P-041-5-A-07-13-0-3-000	376	0.30	0.05	-	0	69.30	0	0
P-041-5-A-07-13-0-3-542	349	0.30	0.05	-	0	69.29	0	0
P-041-5-A-28-10-0-3-000	313	0.29	0.05	-	0	69.29	0	0
P-041-5-A-28-13-0-3-000	307	0.29	0.04	-	0	69.28	0	0
P-041-5-A-28-15-1-3-000	297	0.29	0.04	-	0	69.28	0	0
P-042-5-A-28-10-0-3-000	307	0.29	0.04	-	0	69.28	0	0
P-042-5-A-28-13-0-3-000	331	0.30	0.10	-	0	69.29	0	0
P-043-5-A-03-13-0-3-000	399	0.30	0.05	-	0	69.31	0	0
P-043-5-A-28-10-0-3-000	323	0.29	0.05	-	0	69.29	0	0
P-043-5-A-28-13-0-3-000	306	0.29	0.04	-	0	69.28	0	0
P-045-5-A-03-13-0-3-000	449	0.31	0.08	-	0	69.33	0	0
P-045-5-A-03-13-0-3-534	384	0.30	0.05	-	0	69.31	0	0
P-045-5-A-07-13-0-3-000	397	0.30	0.05	-	0	69.31	0	0
P-045-5-A-07-13-0-3-534	379	0.30	0.05	-	0	69.30	0	0
P-045-5-A-07-15-1-3-000	421	0.31	0.05	-	0	69.32	0	0
P-045-5-A-28-10-0-3-000	358	0.30	0.05	-	0	69.30	0	0
P-045-5-A-28-10-0-3-534	299	0.29	0.05	-	0	69.28	0	0
P-045-5-A-28-13-0-3-000	338	0.30	0.05	-	0	69.29	0	0
P-045-5-A-28-15-1-3-000	333	0.30	0.05	-	0	69.29	0	0
P-045-5-A-28-18-0-3-530	414	0.30	0.05	-	0	69.32	0	0
P-050-5-A-03-13-0-3-000	455	0.31	0.05	-	0	69.33	0	0

OTHER ENVIRONMENTAL INFORMATION: 1 M³ OF READY-MIX CONCRETE.								
Indicator	**GWP Net**	**HWD**	**NHWD**	**RWD**	**MER**	**MFR**	**EE**	**CRU**
Unit	**kgCO_2 eq**	**kg**	**kg**	**kg**	**kg**	**kg**	**MJ**	**kg**
P-050-5-A-28-18-0-3-530	463	0.31	0.05	-	0	69.33	0	0
R-010-0-A-28-20-0-3-000	128	0.27	0.04	-	0	69.22	0	0
Acronyms	GWP-Net (Net Global warming potential) • HWD (hazardous waste disposed) • NHWD (non-hazardous waste disposed) • RWD (radioactive waste disposed) • MER (materials for energy recovery) • MFR (materials for recycling) • EE (exported energy) • CRU (components for re-use)							
Note	• The gross GWP values include the greenhouse gas emissions from the coprocessing of secondary fuels at clinker production. The net GWP values exclude emissions from the coprocessing of secondary fuels at clinker production. • Not all LCA datasets for upstream materials include these impact categories and thus results may be incomplete. Use caution when interpreting data in these categories: 'Radioactive waste disposed'. According to the Global Cement and Concrete Association and industry studies, the only contribution in the cement and concrete sectors is the indirect contribution from the nuclear power share in the electricity mix, which is not present in Colombia's energy mix.							

Strength 15 to 20 MPa

OTHER ENVIRONMENTAL INFORMATION: 1 M³ OF READY-MIX CONCRETE.								
Indicator	**GWP Net**	**HWD**	**NHWD**	**RWD**	**MER**	**MFR**	**EE**	**CRU**
Unit	**kgCO_2 eq**	**kg**	**kg**	**kg**	**kg**	**kg**	**MJ**	**kg**
1-175-3-A-28-13-1-3-000	221	0.28	0.04	-	0	69.25	0	0
1-175-3-A-28-15-1-3-000	220	0.28	0.04	-	0	69.25	0	0
1-175-3-A-28-20-1-3-000	240	0.28	0.04	-	0	69.26	0	0
1-175-5-A-28-10-0-3-000	214	0.28	0.04	-	0	69.25	0	0
1-175-5-A-28-13-1-3-000	213	0.28	0.04	-	0	69.25	0	0
1-175-5-A-28-15-1-3-000	213	0.28	0.04	-	0	69.25	0	0
G-175-3-A-28-20-1-3-000	259	0.28	0.04	-	0	69.26	0	0
Acronyms	GWP-Net (Net Global warming potential) • HWD (hazardous waste disposed) • NHWD (non-hazardous waste disposed) • RWD (radioactive waste disposed) • MER (materials for energy recovery) • MFR (materials for recycling) • EE (exported energy) • CRU (components for re-use)							
Notes	• The gross GWP values include the greenhouse gas emissions from the coprocessing of secondary fuels at clinker production. The net GWP values exclude emissions from the coprocessing of secondary fuels at clinker production. • Not all LCA datasets for upstream materials include these impact categories and thus results may be incomplete. Use caution when interpreting data in these categories: 'Radioactive waste disposed'. According to the Global Cement and Concrete Association and industry studies, the only contribution in the cement and concrete sectors is the indirect contribution from the nuclear power share in the electricity mix, which is not present in Colombia's energy mix.							

Strength 20 to 35 MPa

OTHER ENVIRONMENTAL INFORMATION: 1 M³ OF READY-MIX CONCRETE.								
Indicator	**GWP Net**	**HWD**	**NHWD**	**RWD**	**MER**	**MFR**	**EE**	**CRU**
Unit	**kgCO_2 eq**	**kg**	**kg**	**kg**	**kg**	**kg**	**MJ**	**kg**
1-210-3-A-03-13-1-3-000	273	0.29	0.05	-	0	69.27	0	0
1-210-3-A-03-13-1-3-001	267	0.29	0.04	-	0	69.27	0	0
1-210-3-A-03-15-1-3-000	274	0.29	0.04	-	0	69.27	0	0
1-210-3-A-03-20-1-3-000	286	0.29	0.04	-	0	69.27	0	0
1-210-3-A-07-15-1-3-000	258	0.28	0.04	-	0	69.26	0	0
1-210-3-A-07-20-1-3-000	261	0.28	0.04	-	0	69.26	0	0
1-210-3-A-28-10-0-3-000	250	0.28	0.04	-	0	69.26	0	0
1-210-3-A-28-13-1-3-000	238	0.28	0.05	-	0	69.26	0	0
1-210-3-A-28-13-1-3-001	241	0.28	0.04	-	0	69.26	0	0
1-210-3-A-28-13-1-3-55A	231	0.28	0.04	-	0	69.25	0	0
1-210-3-A-28-15-1-3-000	254	0.29	0.04	-	0	69.26	0	0
1-210-3-A-28-15-1-3-009	260	0.29	0.04	-	0	69.27	0	0
1-210-3-A-28-15-1-3-073	248	0.28	0.04	-	0	69.26	0	0
1-210-3-A-28-20-1-3-000	243	0.28	0.04	-	0	69.26	0	0
1-210-5-A-03-13-1-3-000	272	0.29	0.04	-	0	69.27	0	0
1-210-5-A-03-20-1-3-000	266	0.28	0.04	-	0	69.26	0	0
1-210-5-A-28-08-0-3-59K	240	0.28	0.04	-	0	69.26	0	0
1-210-5-A-28-10-0-3-000	223	0.28	0.04	-	0	69.25	0	0
1-210-5-A-28-13-1-3-000	231	0.28	0.05	-	0	69.26	0	0
1-210-5-A-28-13-1-3-001	250	0.28	0.04	-	0	69.26	0	0
1-210-5-A-28-13-1-3-55A	220	0.28	0.04	-	0	69.25	0	0
1-210-5-A-28-15-1-3-000	231	0.28	0.04	-	0	69.26	0	0
1-210-5-A-28-15-1-3-001	231	0.28	0.04	-	0	69.26	0	0
1-210-5-A-28-15-1-3-004	260	0.29	0.04	-	0	69.26	0	0
1-210-5-A-28-20-1-3-000	257	0.28	0.04	-	0	69.26	0	0
1-245-3-A-28-20-1-3-000	262	0.29	0.04	-	0	69.27	0	0
1-245-5-A-03-13-1-3-000	291	0.29	0.04	-	0	69.27	0	0

OTHER ENVIRONMENTAL INFORMATION: 1 M^3 OF READY-MIX CONCRETE.								
Indicator	**GWP Net**	**HWD**	**NHWD**	**RWD**	**MER**	**MFR**	**EE**	**CRU**
Unit	**kgCO_2 eq**	**kg**	**kg**	**kg**	**kg**	**kg**	**MJ**	**kg**
1-245-5-A-03-15-1-3-000	286	0.29	0.04	-	0	69.27	0	0
1-245-5-A-28-10-0-3-000	221	0.28	0.04	-	0	69.25	0	0
1-245-5-A-28-13-1-3-000	225	0.28	0.04	-	0	69.25	0	0
1-245-5-A-28-15-1-3-000	226	0.28	0.04	-	0	69.25	0	0
1-280-3-A-03-13-1-3-000	331	0.29	0.04	-	0	69.29	0	0
1-280-3-A-03-15-1-3-000	321	0.29	0.04	-	0	69.28	0	0
1-280-3-A-03-15-1-3-001	342	0.30	0.05	-	0	69.29	0	0
1-280-3-A-03-20-1-3-001	349	0.30	0.05	-	0	69.29	0	0
1-280-3-A-07-15-1-3-001	324	0.29	0.04	-	0	69.29	0	0
1-280-3-A-14-13-1-3-000	301	0.29	0.04	-	0	69.28	0	0
1-280-3-A-14-15-1-3-000	296	0.29	0.04	-	0	69.28	0	0
1-280-3-A-28-10-0-3-001	254	0.29	0.04	-	0	69.26	0	0
1-280-3-A-28-13-1-3-000	252	0.28	0.05	-	0	69.26	0	0
1-280-3-A-28-13-1-3-001	263	0.29	0.04	-	0	69.27	0	0
1-280-3-A-28-13-1-3-55A	273	0.29	0.04	-	0	69.27	0	0
1-280-3-A-28-15-1-3-000	250	0.28	0.04	-	0	69.26	0	0
1-280-3-A-28-15-1-3-001	271	0.29	0.04	-	0	69.27	0	0
1-280-3-A-28-20-1-3-000	260	0.29	0.04	-	0	69.27	0	0
1-280-3-A-28-20-1-3-001	281	0.29	0.04	-	0	69.27	0	0
1-280-3-A-28-20-1-3-55A	268	0.29	0.04	-	0	69.27	0	0
1-280-5-A-03-13-1-3-000	266	0.29	0.04	-	0	69.27	0	0
1-280-5-A-03-15-1-3-000	304	0.29	0.04	-	0	69.28	0	0
1-280-5-A-07-13-1-3-001	296	0.29	0.05	-	0	69.28	0	0
1-280-5-A-07-15-1-3-001	322	0.29	0.04	-	0	69.28	0	0
1-280-5-A-28-10-0-3-000	255	0.28	0.04	-	0	69.26	0	0
1-280-5-A-28-10-0-3-001	256	0.29	0.05	-	0	69.26	0	0
1-280-5-A-28-13-1-3-000	244	0.28	0.05	-	0	69.26	0	0
1-280-5-A-28-13-1-3-001	259	0.29	0.04	-	0	69.26	0	0
1-280-5-A-28-13-1-3-55A	266	0.29	0.04	-	0	69.27	0	0
1-280-5-A-28-15-1-3-000	246	0.28	0.05	-	0	69.26	0	0

OTHER ENVIRONMENTAL INFORMATION: 1 M^3 OF READY-MIX CONCRETE.

Indicator	GWP Net	HWD	NHWD	RWD	MER	MFR	EE	CRU
Unit	$kgCO_2$ eq	kg	kg	kg	kg	kg	MJ	kg
1-280-5-A-28-15-1-3-001	253	0.28	0.04	-	0	69.26	0	0
1-280-5-A-28-20-1-3-001	267	0.29	0.04	-	0	69.27	0	0
1-315-5-A-28-15-1-3-000	283	0.29	0.04	-	0	69.27	0	0
1-315-5-A-28-15-1-3-001	276	0.29	0.04	-	0	69.27	0	0
1-350-3-A-03-13-1-3-000	339	0.29	0.05	-	0	69.29	0	0
1-350-3-A-03-15-1-3-000	410	0.30	0.05	-	0	69.32	0	0
1-350-3-A-03-20-1-3-000	441	0.31	0.05	-	0	69.33	0	0
1-350-3-A-28-13-1-3-000	276	0.29	0.04	-	0	69.27	0	0
1-350-3-A-28-15-1-3-000	272	0.29	0.04	-	0	69.27	0	0
1-350-3-A-28-20-1-3-000	293	0.29	0.05	-	0	69.28	0	0
1-350-5-A-03-13-1-3-000	352	0.30	0.05	-	0	69.29	0	0
1-350-5-A-28-13-1-3-000	266	0.29	0.04	-	0	69.27	0	0
1-350-5-A-28-15-1-3-000	268	0.29	0.04	-	0	69.27	0	0
3-280-3-A-28-15-1-3-000	369	0.30	0.05	-	0	69.31	0	0
8-245-5-A-28-15-1-3-000	226	0.28	0.04	-	0	69.25	0	0
8-315-5-A-28-20-1-3-000	276	0.29	0.04	-	0	69.27	0	0
C-210-3-A-28-25-1-3-000	245	0.28	0.04	-	0	69.26	0	0
C-245-3-A-28-25-1-3-000	323	0.29	0.04	-	0	69.29	0	0
C-245-3-A-28-25-1-3-60Z	410	0.30	0.05	-	0	69.31	0	0
D-280-3-A-28-18-1-3-65O	260	0.28	0.04	-	0	69.26	0	0
D-280-5-A-28-15-1-3-65K	258	0.28	0.04	-	0	69.26	0	0
D-350-3-A-28-18-1-3-65P	291	0.29	0.04	-	0	69.27	0	0
D-350-5-A-28-15-1-3-65G	290	0.29	0.04	-	0	69.27	0	0
D-350-5-A-28-20-1-3-65L	299	0.29	0.04	-	0	69.28	0	0
E-210-5-A-28-05-0-3-62R	256	0.28	0.04	-	0	69.26	0	0
F-280-3-A-18-65-1-3-000	294	0.29	0.04	-	0	69.28	0	0
F-315-3-A-18-65-1-3-000	328	0.29	0.04	-	0	69.29	0	0
F-350-3-A-18-65-1-3-000	335	0.29	0.05	-	0	69.29	0	0
I-280-5-A-28-13-1-3-000	265	0.29	0.04	-	0	69.27	0	0
J-210-3-A-28-65-1-3-000	291	0.29	0.04	-	0	69.27	0	0

OTHER ENVIRONMENTAL INFORMATION: 1 M^3 OF READY-MIX CONCRETE.								
Indicator	**GWP Net**	**HWD**	**NHWD**	**RWD**	**MER**	**MFR**	**EE**	**CRU**
Unit	**kgCO_2 eq**	**kg**	**kg**	**kg**	**kg**	**kg**	**MJ**	**kg**
J-245-3-A-28-65-1-3-000	261	0.28	0.04	-	0	69.26	0	0
M-210-0-A-28-15-1-3-000	276	0.29	0.08	-	0	69.27	0	0
M-210-0-A-28-15-1-3-001	286	0.29	0.04	-	0	69.27	0	0
M-210-0-A-28-15-1-3-074	290	0.29	0.04	-	0	69.27	0	0
N-280-3-A-28-18-1-3-55A	298	0.29	0.04	-	0	69.28	0	0
N-280-3-A-28-18-1-3-5D4	322	0.29	0.04	-	0	69.28	0	0
N-280-3-A-28-18-1-3-5D5	327	0.29	0.04	-	0	69.28	0	0
O-210-3-A-18-13-1-3-000	263	0.29	0.04	-	0	69.27	0	0
O-210-3-A-18-18-1-3-000	268	0.29	0.04	-	0	69.27	0	0
O-210-3-A-18-23-1-3-000	284	0.29	0.05	-	0	69.27	0	0
O-210-5-A-18-13-1-3-000	244	0.28	0.04	-	0	69.26	0	0
O-210-5-A-18-15-1-3-000	256	0.28	0.05	-	0	69.26	0	0
O-245-3-A-18-23-1-3-000	268	0.29	0.04	-	0	69.27	0	0
O-245-5-A-18-13-1-3-000	251	0.28	0.04	-	0	69.26	0	0
O-280-3-A-18-13-1-3-000	282	0.29	0.04	-	0	69.27	0	0
O-280-3-A-18-15-1-3-000	292	0.29	0.04	-	0	69.28	0	0
O-280-3-A-18-18-1-3-000	294	0.29	0.05	-	0	69.28	0	0
O-280-3-A-18-23-1-3-000	289	0.29	0.04	-	0	69.27	0	0
O-280-5-A-18-13-1-3-000	268	0.29	0.04	-	0	69.27	0	0
O-315-3-A-18-23-1-3-000	316	0.29	0.05	-	0	69.28	0	0
O-315-5-A-18-13-1-3-000	289	0.29	0.04	-	0	69.27	0	0
O-350-3-A-18-18-1-3-001	314	0.29	0.04	-	0	69.28	0	0
O-350-5-A-18-15-1-3-61U	317	0.29	0.04	-	0	69.28	0	0
T-245-5-A-28-20-1-3-000	231	0.28	0.05	-	0	69.25	0	0
T-280-3-A-28-20-1-3-000	270	0.29	0.05	-	0	69.27	0	0
T-280-3-A-28-20-1-3-55A	304	0.29	0.04	-	0	69.28	0	0
T-280-5-A-28-20-1-3-55A	290	0.29	0.04	-	0	69.27	0	0
T-350-3-A-28-20-1-3-000	300	0.29	0.04	-	0	69.28	0	0
T-350-3-A-28-23-1-3-65E	311	0.29	0.04	-	0	69.28	0	0
V-210-3-A-28-65-1-3-000	293	0.29	0.04	-	0	69.28	0	0

OTHER ENVIRONMENTAL INFORMATION: 1 M³ OF READY-MIX CONCRETE.								
Indicator **Unit**	**GWP Net** **kgCO₂ eq**	**HWD** **kg**	**NHWD** **kg**	**RWD** **kg**	**MER** **kg**	**MFR** **kg**	**EE** **MJ**	**CRU** **kg**
V-280-3-A-28-65-1-3-000	283	0.29	0.04	-	0	69.27	0	0
V-280-3-A-28-65-1-3-001	266	0.29	0.04	-	0	69.27	0	0
V-350-3-A-28-65-1-3-000	270	0.29	0.04	-	0	69.27	0	0
Acronyms	GWP-Net (Net Global warming potential) • HWD (hazardous waste disposed) • NHWD (non-hazardous waste disposed) • RWD (radioactive waste disposed) • MER (materials for energy recovery) • MFR (materials for recycling) • EE (exported energy) • CRU (components for re-use)							
Notes	• The gross GWP values include the greenhouse gas emissions from the coprocessing of secondary fuels at clinker production. The net GWP values exclude emissions from the coprocessing of secondary fuels at clinker production. • Not all LCA datasets for upstream materials include these impact categories and thus results may be incomplete. Use caution when interpreting data in these categories: 'Radioactive waste disposed'. According to the Global Cement and Concrete Association and industry studies, the only contribution in the cement and concrete sectors is the indirect contribution from the nuclear power share in the electricity mix, which is not present in Colombia's energy mix.							

Strength >35 MPa

OTHER ENVIRONMENTAL INFORMATION: 1 M³ OF READY-MIX CONCRETE.								
Indicator **Unit**	**GWP Net** **kgCO₂ eq**	**HWD** **kg**	**NHWD** **kg**	**RWD** **kg**	**MER** **kg**	**MFR** **kg**	**EE** **MJ**	**CRU** **kg**
1-420-3-A-03-13-1-3-000	424	0.31	0.05	-	0	69.32	0	0
1-420-3-A-03-15-1-3-000	497	0.32	0.05	-	0	69.35	0	0
1-420-3-A-07-13-1-3-000	382	0.30	0.05	-	0	69.31	0	0
1-420-3-A-07-13-1-3-001	391	0.30	0.05	-	0	69.31	0	0
1-420-3-A-28-13-1-3-001	328	0.29	0.05	-	0	69.29	0	0
1-420-5-A-03-13-1-3-000	440	0.31	0.05	-	0	69.32	0	0
1-420-5-A-03-15-1-3-55A	382	0.30	0.05	-	0	69.30	0	0
1-420-5-A-07-13-1-3-000	363	0.30	0.05	-	0	69.30	0	0
1-420-5-A-14-15-1-3-55A	347	0.30	0.05	-	0	69.30	0	0
1-420-5-A-28-10-0-3-014	353	0.30	0.05	-	0	69.29	0	0
1-420-5-A-28-13-1-3-001	311	0.29	0.04	-	0	69.28	0	0
1-420-5-A-28-15-1-3-55A	329	0.29	0.05	-	0	69.29	0	0
A-490-3-A-28-15-1-3-55A	315	0.29	0.04	-	0	69.28	0	0

OTHER ENVIRONMENTAL INFORMATION: 1 M^3 OF READY-MIX CONCRETE.								
Indicator	**GWP Net**	**HWD**	**NHWD**	**RWD**	**MER**	**MFR**	**EE**	**CRU**
Unit	**kgCO_2 eq**	**kg**	**kg**	**kg**	**kg**	**kg**	**MJ**	**kg**
Acronyms	GWP-Net (Net Global warming potential) • HWD (hazardous waste disposed) • NHWD (non-hazardous waste disposed) • RWD (radioactive waste disposed) • MER (materials for energy recovery) • MFR (materials for recycling) • EE (exported energy) • CRU (components for re-use)							
Notes	• The gross GWP values include the greenhouse gas emissions from the coprocessing of secondary fuels at clinker production. The net GWP values exclude emissions from the coprocessing of secondary fuels at clinker production. • Not all LCA datasets for upstream materials include these impact categories and thus results may be incomplete. Use caution when interpreting data in these categories: 'Radioactive waste disposed'. According to the Global Cement and Concrete Association and industry studies, the only contribution in the cement and concrete sectors is the indirect contribution from the nuclear power share in the electricity mix, which is not present in Colombia's energy mix.							

12. REFERENCES

- 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 21930, Sustainability in building construction — Environmental declaration of building products.
- Labeling Sustainability - Program Operator for Product Category Rules (PCRs) and Environmental Product Declarations (EPDs): General Program Instructions
- NTC 220 - Cementos. Determinación de la resistencia de morteros de cemento hidráulico a la compresión, usando cubos de 50 mm o 2 pulgadas de lado.
- NTC 396 - Ingeniería Civil y Arquitectura. Método de ensayo para determinar el asentamiento del concreto.
- NTC 673 - Concretos. Ensayo de resistencia a la compresión de cilindros normales de Concreto.
- NTC 3318 - Concreto Premezclado.
- NSF International PCR for Portland, Blended, Masonry, Mortar, and Plastic (Stucco) Cements v3.2
- NSF International PCR for Concrete, Version 2.3 (including deviation) – 2024 Extension
- GCCA Industry EPD Tool for Cement and Concrete (v4.1), North American Version