DECLARACIÓN AMBIENTAL DE PRODUCTO

CONCRETO
Planta Siberia **/ Colombia**

SOSTENIBILIDAD COLOMBIA
2024

Declared product:

This Environmental Product Declaration (EPD) covers ready-mix concrete products manufactured by CEMEX Colombia in the Siberia Plant.
Plant address: Autopista Medellín Km 0.5, Cundinamarca, Colombia
Declared unit**:** 1 cubic meter of concrete

Declaration Owner:

CEMEX Colombia S.A.
Cl. 99 #9a 54, Bogotá, Colombia
SustainabilitySCA&C@cemex.com
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Program Operator:

Labeling Sustainability
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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: CCO02282507

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-28-15-1-3-000	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	15	Convencional
2	1-105-5-A-28-10-0-3-000	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	10	Convencional
3	1-105-5-A-28-13-1-3-000	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	13	Convencional
4	1-105-5-A-28-13-1-3-061	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	13	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-28-15-1-3-000	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	15	Convencional
6	1-105-5-A-28-15-1-3-060	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	15	Convencional
7	1-140-5-A-28-10-0-3-000	13.73 MPa at 28 Days Strength Ready Mix Concrete	13.7	28	10	Convencional
8	1-140-5-A-28-13-1-3-000	13.73 MPa at 28 Days Strength Ready Mix Concrete	13.7	28	13	Convencional
9	1-140-5-A-28-13-1-3-061	13.73 MPa at 28 Days Strength Ready Mix Concrete	13.7	28	13	Convencional
10	1-140-5-A-28-15-1-3-000	13.73 MPa at 28 Days Strength Ready Mix Concrete	13.7	28	15	Convencional
11	1-140-5-A-28-15-1-3-060	13.73 MPa at 28 Days Strength Ready Mix Concrete	13.7	28	15	Convencional
12	1-140-5-A-28-20-1-3-000	13.73 MPa at 28 Days Strength Ready Mix Concrete	13.7	28	20	Convencional
13	M-105-0-A-28-13-1-3-020	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	13	Mortero
14	M-105-0-A-28-15-1-3-000	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	15	Mortero
15	M-105-0-A-28-15-1-3-020	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	15	Mortero
16	M-105-0-A-28-15-1-3-04J	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	15	Mortero
17	M-105-0-A-28-20-1-3-000	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	20	Mortero
18	M-105-0-A-28-20-1-3-073	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	20	Mortero
19	M-105-0-A-28-20-1-3-074	10.30 MPa at 28 Days Strength Ready Mix Concrete	10.3	28	20	Mortero
20	M-125-0-A-28-13-1-3-020	12.26 MPa at 28 Days Strength Ready Mix Concrete	12.3	28	13	Mortero
21	M-125-0-A-28-15-1-3-061	12.26 MPa at 28 Days Strength Ready Mix Concrete	12.3	28	15	Mortero
22	M-140-0-A-28-13-1-3-000	13.73 MPa at 28 Days Strength Ready Mix Concrete	13.7	28	13	Mortero
23	M-140-0-A-28-15-1-3-000	13.73 MPa at 28 Days Strength Ready Mix Concrete	13.7	28	15	Mortero
24	M-140-0-A-28-15-1-3-060	13.73 MPa at 28 Days Strength Ready Mix Concrete	13.7	28	15	Mortero
25	P-041-5-A-03-13-0-3-000	4.02 MPa at 03 Days Strength Ready Mix Concrete	4.0	3	13	Pavimento
26	P-041-5-A-07-13-0-3-000	4.02 MPa at 07 Days Strength Ready Mix Concrete	4.0	7	13	Pavimento
27	P-041-5-A-28-10-0-3-000	4.02 MPa at 28 Days Strength Ready Mix Concrete	4.0	28	10	Pavimento
28	P-041-5-A-28-13-0-3-000	4.02 MPa at 28 Days Strength Ready Mix Concrete	4.0	28	13	Pavimento
29	P-041-5-A-28-15-1-3-000	4.02 MPa at 28 Days Strength Ready Mix Concrete	4.0	28	15	Pavimento

Table 1. Declared products considered in this Environmental Product Declaration						
N°	**Ready-mix**	**Description**	**Strength (MPa)**	**Age (Days)**	**Slump (cm)**	**Category**
30	**P-041-5-A-28-15-1-3-01Z**	4.02 MPa at 28 Days Strength Ready Mix Concrete	4.0	28	15	Pavimento
31	**P-041-5-A-28-18-0-3-530**	4.02 MPa at 28 Days Strength Ready Mix Concrete	4.0	28	18	Pavimento
32	**P-045-5-A-03-13-0-3-000**	4.41 MPa at 03 Days Strength Ready Mix Concrete	4.4	3	13	Pavimento
33	**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
34	**R-030-0-A-28-20-0-3-000**	2.94 MPa at 28 Days Strength Ready Mix Concrete	2.9	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**
35	**1-175-3-A-28-20-1-3-0AC**	17.16 MPa at 28 Days Strength Ready Mix Concrete	17.2	28	20	Convencional
36	**1-175-5-A-28-10-0-3-000**	17.16 MPa at 28 Days Strength Ready Mix Concrete	17.2	28	10	Convencional
37	**1-175-5-A-28-15-1-3-000**	17.16 MPa at 28 Days Strength Ready Mix Concrete	17.2	28	15	Convencional
38	**M-175-0-A-28-15-1-3-060**	17.16 MPa at 28 Days Strength Ready Mix Concrete	17.2	28	15	Mortero
39	**M-175-0-A-28-15-1-3-061**	17.16 MPa at 28 Days Strength Ready Mix Concrete	17.2	28	15	Mortero
40	**M-175-0-A-28-20-1-3-000**	17.16 MPa at 28 Days Strength Ready Mix Concrete	17.2	28	20	Mortero

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**
41	**1-210-3-A-03-13-1-3-000**	20.59 MPa at 03 Days Strength Ready Mix Concrete	20.6	3	13	Acelerado
42	**1-210-3-A-03-15-1-3-000**	20.59 MPa at 03 Days Strength Ready Mix Concrete	20.6	3	15	Acelerado
43	**1-210-3-A-28-13-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	13	Convencional
44	**1-210-3-A-28-13-1-3-001**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	13	Convencional
45	**1-210-3-A-28-13-1-3-020**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	13	Convencional
46	**1-210-3-A-28-15-1-3-000**	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**
47	**1-210-3-A-28-15-1-3-060**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	15	Convencional
48	**1-210-3-A-28-20-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	20	Convencional
49	**1-210-5-A-03-13-1-3-000**	20.59 MPa at 03 Days Strength Ready Mix Concrete	20.6	3	13	Acelerado
50	**1-210-5-A-03-13-1-3-001**	20.59 MPa at 03 Days Strength Ready Mix Concrete	20.6	3	13	Acelerado
51	**1-210-5-A-03-15-1-3-000**	20.59 MPa at 03 Days Strength Ready Mix Concrete	20.6	3	15	Acelerado
52	**1-210-5-A-07-13-1-3-000**	20.59 MPa at 07 Days Strength Ready Mix Concrete	20.6	7	13	Acelerado
53	**1-210-5-A-07-15-1-3-000**	20.59 MPa at 07 Days Strength Ready Mix Concrete	20.6	7	15	Acelerado
54	**1-210-5-A-14-15-1-3-000**	20.59 MPa at 14 Days Strength Ready Mix Concrete	20.6	14	15	Acelerado
55	**1-210-5-A-14-20-1-3-000**	20.59 MPa at 14 Days Strength Ready Mix Concrete	20.6	14	20	Acelerado
56	**1-210-5-A-28-10-0-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	10	Convencional
57	**1-210-5-A-28-13-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	13	Convencional
58	**1-210-5-A-28-15-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	15	Convencional
59	**1-210-5-A-28-15-1-3-001**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	15	Convencional
60	**1-210-5-A-28-15-1-3-004**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	15	Convencional
61	**1-210-5-A-28-15-1-3-025**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	15	Convencional
62	**1-210-5-A-28-20-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	20	Convencional
63	**1-210-5-A-28-20-1-3-001**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	20	Convencional
64	**1-210-5-A-28-20-1-3-061**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	20	Convencional
65	**1-245-3-A-03-15-1-3-000**	24.03 MPa at 03 Days Strength Ready Mix Concrete	24.0	3	15	Acelerado
66	**1-245-3-A-03-20-1-3-000**	24.03 MPa at 03 Days Strength Ready Mix Concrete	24.0	3	20	Acelerado
67	**1-245-3-A-07-15-1-3-000**	24.03 MPa at 07 Days Strength Ready Mix Concrete	24.0	7	15	Acelerado
68	**1-245-3-A-28-13-1-3-000**	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	13	Convencional
69	**1-245-3-A-28-15-1-3-000**	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	15	Convencional
70	**1-245-3-A-28-20-1-3-000**	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	20	Convencional

Table 3. Declared products considered in this Environmental Product Declaration						
N°	**Ready-mix**	**Description**	**Strength (MPa)**	**Age (Days)**	**Slump (cm)**	**Category**
71	**1-245-5-A-03-13-1-3-000**	24.03 MPa at 03 Days Strength Ready Mix Concrete	24.0	3	13	Acelerado
72	**1-245-5-A-03-15-1-3-000**	24.03 MPa at 03 Days Strength Ready Mix Concrete	24.0	3	15	Acelerado
73	**1-245-5-A-07-15-1-3-000**	24.03 MPa at 07 Days Strength Ready Mix Concrete	24.0	7	15	Acelerado
74	**1-245-5-A-14-20-1-3-060**	24.03 MPa at 14 Days Strength Ready Mix Concrete	24.0	14	20	Acelerado
75	**1-245-5-A-28-13-1-3-000**	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	13	Convencional
76	**1-245-5-A-28-15-1-3-000**	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	15	Convencional
77	**1-280-3-A-03-15-1-3-000**	27.46 MPa at 03 Days Strength Ready Mix Concrete	27.5	3	15	Acelerado
78	**1-280-3-A-03-20-1-3-000**	27.46 MPa at 03 Days Strength Ready Mix Concrete	27.5	3	20	Acelerado
79	**1-280-3-A-07-15-1-3-001**	27.46 MPa at 07 Days Strength Ready Mix Concrete	27.5	7	15	Acelerado
80	**1-280-3-A-07-20-1-3-000**	27.46 MPa at 07 Days Strength Ready Mix Concrete	27.5	7	20	Acelerado
81	**1-280-3-A-14-15-1-3-000**	27.46 MPa at 14 Days Strength Ready Mix Concrete	27.5	14	15	Acelerado
82	**1-280-3-A-28-10-0-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	10	Convencional
83	**1-280-3-A-28-13-1-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	13	Convencional
84	**1-280-3-A-28-13-1-3-001**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	13	Convencional
85	**1-280-3-A-28-13-1-3-072**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	13	Convencional
86	**1-280-3-A-28-15-1-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Convencional
87	**1-280-3-A-28-15-1-3-001**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Convencional
88	**1-280-3-A-28-15-1-3-060**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Convencional
89	**1-280-3-A-28-20-1-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Convencional
90	**1-280-3-A-28-20-1-3-001**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Convencional
91	**1-280-3-A-28-20-1-3-061**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Convencional
92	**1-280-5-A-03-13-1-3-000**	27.46 MPa at 03 Days Strength Ready Mix Concrete	27.5	3	13	Acelerado
93	**1-280-5-A-03-15-1-3-000**	27.46 MPa at 03 Days Strength Ready Mix Concrete	27.5	3	15	Acelerado
94	**1-280-5-A-07-15-1-3-000**	27.46 MPa at 07 Days Strength Ready Mix Concrete	27.5	7	15	Acelerado

Table 3. Declared products considered in this Environmental Product Declaration						
N°	**Ready-mix**	**Description**	**Strength (MPa)**	**Age (Days)**	**Slump (cm)**	**Category**
95	**1-280-5-A-14-13-1-3-000**	27.46 MPa at 14 Days Strength Ready Mix Concrete	27.5	14	13	Acelerado
96	**1-280-5-A-14-15-1-3-000**	27.46 MPa at 14 Days Strength Ready Mix Concrete	27.5	14	15	Acelerado
97	**1-280-5-A-14-15-1-3-001**	27.46 MPa at 14 Days Strength Ready Mix Concrete	27.5	14	15	Acelerado
98	**1-280-5-A-28-10-0-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	10	Convencional
99	**1-280-5-A-28-13-1-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	13	Convencional
100	**1-280-5-A-28-13-1-3-001**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	13	Convencional
101	**1-280-5-A-28-13-1-3-024**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	13	Convencional
102	**1-280-5-A-28-15-1-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Convencional
103	**1-280-5-A-28-15-1-3-001**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Convencional
104	**1-280-5-A-28-15-1-3-002**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Convencional
105	**1-280-5-A-28-15-1-3-004**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Convencional
106	**1-280-5-A-28-15-1-3-009**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Convencional
107	**1-280-5-A-28-15-1-3-02T**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Convencional
108	**1-280-5-A-28-20-1-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Convencional
109	**1-280-5-A-28-20-1-3-001**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Convencional
110	**1-315-5-A-03-15-1-3-000**	30.89 MPa at 03 Days Strength Ready Mix Concrete	30.9	3	15	Acelerado
111	**1-315-5-A-03-15-1-3-004**	30.89 MPa at 03 Days Strength Ready Mix Concrete	30.9	3	15	Acelerado
112	**1-315-5-A-07-15-1-3-000**	30.89 MPa at 07 Days Strength Ready Mix Concrete	30.9	7	15	Acelerado
113	**1-315-5-A-28-15-1-3-000**	30.89 MPa at 28 Days Strength Ready Mix Concrete	30.9	28	15	Convencional
114	**1-315-5-A-28-15-1-3-004**	30.89 MPa at 28 Days Strength Ready Mix Concrete	30.9	28	15	Convencional
115	**1-315-5-A-28-15-1-3-009**	30.89 MPa at 28 Days Strength Ready Mix Concrete	30.9	28	15	Convencional
116	**1-350-3-A-03-15-1-3-000**	34.32 MPa at 03 Days Strength Ready Mix Concrete	34.3	3	15	Acelerado
117	**1-350-3-A-03-15-1-3-004**	34.32 MPa at 03 Days Strength Ready Mix Concrete	34.3	3	15	Acelerado
118	**1-350-3-A-03-20-1-3-000**	34.32 MPa at 03 Days Strength Ready Mix Concrete	34.3	3	20	Acelerado

Table 3. Declared products considered in this Environmental Product Declaration

N°	Ready-mix	Description	Strength (MPa)	Age (Days)	Slump (cm)	Category
119	1-350-3-A-03-20-1-3-004	34.32 MPa at 03 Days Strength Ready Mix Concrete	34.3	3	20	Acelerado
120	1-350-3-A-28-15-1-3-000	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	15	Convencional
121	1-350-3-A-28-15-1-3-004	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	15	Convencional
122	1-350-3-A-28-20-1-3-000	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	20	Convencional
123	1-350-3-A-28-20-1-3-060	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	20	Convencional
124	1-350-3-A-28-20-1-3-061	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	20	Convencional
125	1-350-5-A-03-15-1-3-000	34.32 MPa at 03 Days Strength Ready Mix Concrete	34.3	3	15	Acelerado
126	1-350-5-A-07-15-1-3-000	34.32 MPa at 07 Days Strength Ready Mix Concrete	34.3	7	15	Acelerado
127	1-350-5-A-28-13-1-3-000	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	13	Convencional
128	1-350-5-A-28-15-1-3-000	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	15	Convencional
129	1-350-5-A-28-20-1-3-000	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	20	Convencional
130	3-280-3-A-28-13-1-3-001	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	13	Durabilidad
131	3-280-3-A-28-15-1-3-000	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Durabilidad
132	3-280-3-A-28-15-1-3-001	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Durabilidad
133	3-280-3-A-28-20-1-3-000	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Durabilidad
134	3-280-3-A-28-20-1-3-01X	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Durabilidad
135	3-280-5-A-28-15-1-3-000	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Durabilidad
136	3-280-5-A-28-20-1-3-01X	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Durabilidad
137	8-280-3-A-28-15-1-3-000	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Especial
138	8-280-5-A-28-15-1-3-000	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Especial
139	8-315-5-A-28-15-1-3-000	30.89 MPa at 28 Days Strength Ready Mix Concrete	30.9	28	15	Especial
140	8-315-5-A-28-20-1-3-000	30.89 MPa at 28 Days Strength Ready Mix Concrete	30.9	28	20	Especial
141	C-245-3-A-28-25-1-3-000	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	25	Especial
142	C-280-3-A-28-25-1-3-000	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	25	Especial

Table 3. Declared products considered in this Environmental Product Declaration						
N°	**Ready-mix**	**Description**	**Strength (MPa)**	**Age (Days)**	**Slump (cm)**	**Category**
143	**F-210-3-A-18-65-1-3-000**	20.59 MPa at 18 Days Strength Ready Mix Concrete	20.6	18	65	Especial
144	**F-280-3-A-18-65-1-3-000**	27.46 MPa at 18 Days Strength Ready Mix Concrete	27.5	18	65	Especial
145	**F-350-3-A-18-65-1-3-000**	34.32 MPa at 18 Days Strength Ready Mix Concrete	34.3	18	65	Especial
146	**F-350-3-A-18-65-1-3-001**	34.32 MPa at 18 Days Strength Ready Mix Concrete	34.3	18	65	Especial
147	**I-280-5-A-28-13-1-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	13	Especial
148	**J-210-3-A-28-65-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	65	Especial
149	**J-280-3-A-28-65-1-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	65	Especial
150	**M-210-0-A-28-13-1-3-061**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	13	Mortero
151	**O-210-3-A-18-13-1-3-000**	20.59 MPa at 18 Days Strength Ready Mix Concrete	20.6	18	13	Industrializado
152	**O-210-3-A-18-15-1-3-000**	20.59 MPa at 18 Days Strength Ready Mix Concrete	20.6	18	15	Industrializado
153	**O-210-3-A-18-18-1-3-000**	20.59 MPa at 18 Days Strength Ready Mix Concrete	20.6	18	18	Industrializado
154	**O-210-3-A-18-20-1-3-000**	20.59 MPa at 18 Days Strength Ready Mix Concrete	20.6	18	20	Industrializado
155	**O-210-3-A-18-23-1-3-000**	20.59 MPa at 18 Days Strength Ready Mix Concrete	20.6	18	23	Industrializado
156	**O-210-5-A-18-13-1-3-000**	20.59 MPa at 18 Days Strength Ready Mix Concrete	20.6	18	13	Industrializado
157	**O-210-5-A-18-13-1-3-001**	20.59 MPa at 18 Days Strength Ready Mix Concrete	20.6	18	13	Industrializado
158	**O-210-5-A-18-13-1-3-009**	20.59 MPa at 18 Days Strength Ready Mix Concrete	20.6	18	13	Industrializado
159	**O-210-5-A-18-13-1-3-072**	20.59 MPa at 18 Days Strength Ready Mix Concrete	20.6	18	13	Industrializado
160	**O-210-5-A-18-15-1-3-000**	20.59 MPa at 18 Days Strength Ready Mix Concrete	20.6	18	15	Industrializado
161	**O-210-5-A-20-13-1-3-000**	20.59 MPa at 20 Days Strength Ready Mix Concrete	20.6	20	13	Industrializado
162	**O-280-3-A-18-13-1-3-000**	27.46 MPa at 18 Days Strength Ready Mix Concrete	27.5	18	13	Industrializado
163	**O-280-3-A-18-15-1-3-000**	27.46 MPa at 18 Days Strength Ready Mix Concrete	27.5	18	15	Industrializado
164	**O-280-3-A-18-18-1-3-000**	27.46 MPa at 18 Days Strength Ready Mix Concrete	27.5	18	18	Industrializado
165	**O-280-3-A-18-20-1-3-000**	27.46 MPa at 18 Days Strength Ready Mix Concrete	27.5	18	20	Industrializado
166	**O-280-5-A-18-13-1-3-000**	27.46 MPa at 18 Days Strength Ready Mix Concrete	27.5	18	13	Industrializado

Table 3. Declared products considered in this Environmental Product Declaration						
N°	**Ready-mix**	**Description**	**Strength (MPa)**	**Age (Days)**	**Slump (cm)**	**Category**
167	**O-280-5-A-18-15-1-3-000**	27.46 MPa at 18 Days Strength Ready Mix Concrete	27.5	18	15	Industrializado
168	**O-350-3-A-18-13-1-3-000**	34.32 MPa at 18 Days Strength Ready Mix Concrete	34.3	18	13	Industrializado
169	**O-350-3-A-18-18-1-3-000**	34.32 MPa at 18 Days Strength Ready Mix Concrete	34.3	18	18	Industrializado
170	**O-350-3-A-18-20-1-3-000**	34.32 MPa at 18 Days Strength Ready Mix Concrete	34.3	18	20	Industrializado
171	**O-350-5-A-18-13-1-3-000**	34.32 MPa at 18 Days Strength Ready Mix Concrete	34.3	18	13	Industrializado
172	**Q-280-3-A-28-13-1-3-63M**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	13	Especial
173	**Q-280-3-A-28-15-1-3-63M**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	15	Especial
174	**T-210-3-A-28-20-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	20	Tremie
175	**T-210-5-A-28-20-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	20	Tremie
176	**T-245-3-A-28-20-1-3-000**	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	20	Tremie
177	**T-245-5-A-28-20-1-3-000**	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	20	Tremie
178	**T-280-3-A-28-20-1-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Tremie
179	**T-280-5-A-28-18-1-3-665**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	18	Tremie
180	**T-280-5-A-28-20-1-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Tremie
181	**T-280-5-A-28-20-1-3-200**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	20	Tremie
182	**T-350-5-A-28-20-1-3-000**	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	20	Tremie
183	**V-210-3-A-28-65-1-3-000**	20.59 MPa at 28 Days Strength Ready Mix Concrete	20.6	28	65	Especial
184	**V-245-3-A-28-65-1-3-000**	24.03 MPa at 28 Days Strength Ready Mix Concrete	24.0	28	65	Especial
185	**V-280-3-A-03-65-1-3-000**	27.46 MPa at 03 Days Strength Ready Mix Concrete	27.5	3	65	Especial
186	**V-280-3-A-28-65-1-3-000**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	65	Especial
187	**V-280-3-A-28-65-1-3-001**	27.46 MPa at 28 Days Strength Ready Mix Concrete	27.5	28	65	Especial
188	**V-350-3-A-03-65-1-3-000**	34.32 MPa at 03 Days Strength Ready Mix Concrete	34.3	3	65	Especial
189	**V-350-3-A-28-65-1-3-000**	34.32 MPa at 28 Days Strength Ready Mix Concrete	34.3	28	65	Especial
190	**V-350-3-A-28-65-1-3-012**	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						
Nº	**Ready-mix**	**Description**	**Strength (MPa)**	**Age (Days)**	**Slump (cm)**	**Category**
191	**1-420-3-A-03-20-1-3-000**	41.19 MPa at 03 Days Strength Ready Mix Concrete	41.2	3	20	Acelerado
192	**1-420-3-A-28-13-1-3-000**	41.19 MPa at 28 Days Strength Ready Mix Concrete	41.2	28	13	Convencional
193	**1-420-3-A-28-15-1-3-000**	41.19 MPa at 28 Days Strength Ready Mix Concrete	41.2	28	15	Convencional
194	**1-420-3-A-28-20-1-3-000**	41.19 MPa at 28 Days Strength Ready Mix Concrete	41.2	28	20	Convencional
195	**1-420-5-A-28-13-1-3-000**	41.19 MPa at 28 Days Strength Ready Mix Concrete	41.2	28	13	Convencional
196	**1-420-5-A-28-15-1-3-000**	41.19 MPa at 28 Days Strength Ready Mix Concrete	41.2	28	15	Convencional
197	**A-490-3-A-28-20-1-3-551**	48.05 MPa at 28 Days Strength Ready Mix Concrete	48.1	28	20	Alta resistencia
198	**A-560-3-A-28-20-1-3-551**	54.92 MPa at 28 Days Strength Ready Mix Concrete	54.9	28	20	Alta resistencia
199	**F-420-3-A-18-65-1-3-000**	41.19 MPa at 18 Days Strength Ready Mix Concrete	41.2	18	65	Especial
200	**O-420-3-A-18-18-1-3-000**	41.19 MPa at 18 Days Strength Ready Mix Concrete	41.2	18	18	Industrializado
201	**O-420-3-A-18-18-1-3-009**	41.19 MPa at 18 Days Strength Ready Mix Concrete	41.2	18	18	Industrializado
202	**V-420-3-A-03-65-1-3-000**	41.19 MPa at 03 Days Strength Ready Mix Concrete	41.2	3	65	Especial
203	**V-420-3-A-28-65-1-3-000**	41.19 MPa at 28 Days Strength Ready Mix Concrete	41.2	28	65	Especial

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.

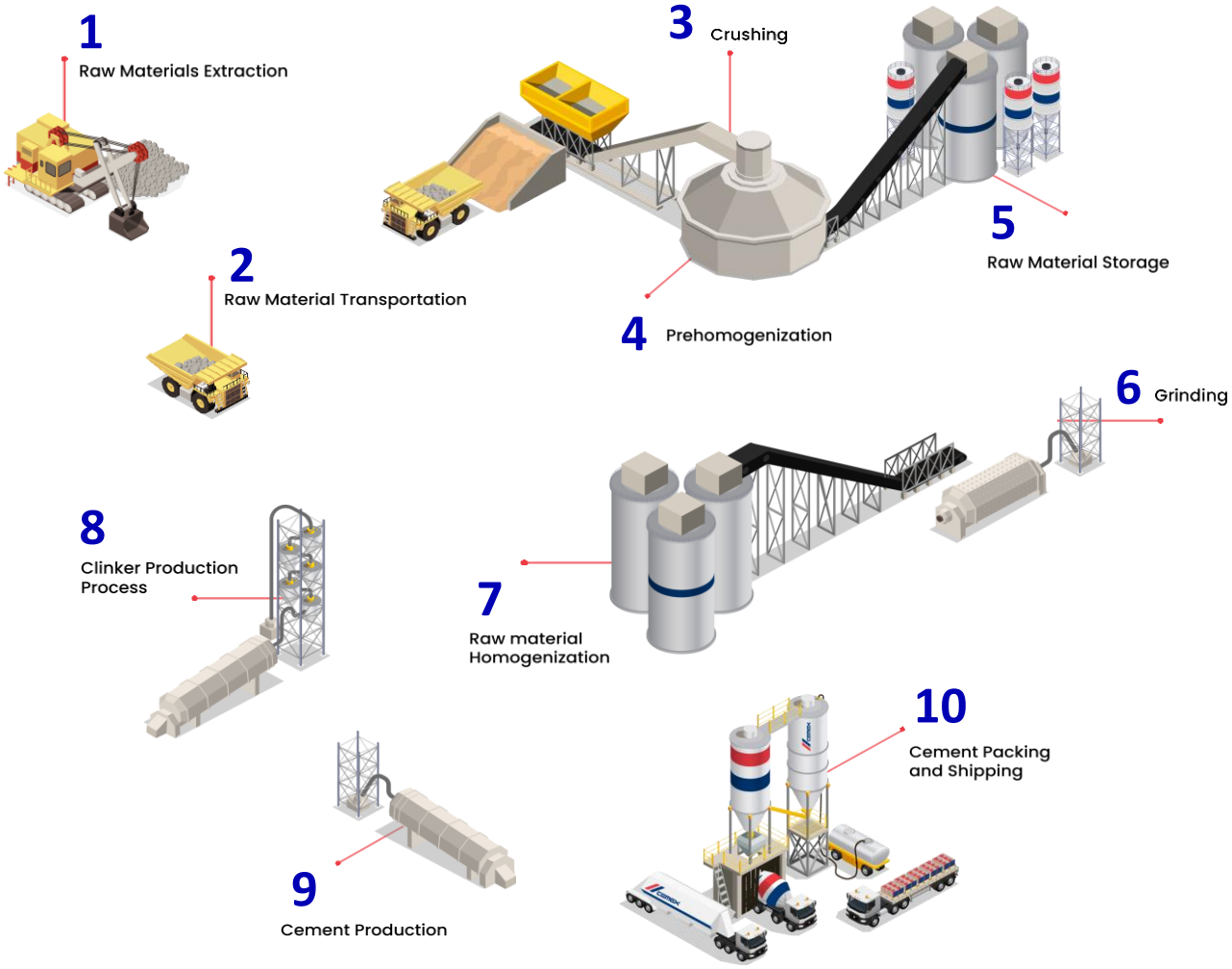

Figure 2. Cement Production

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

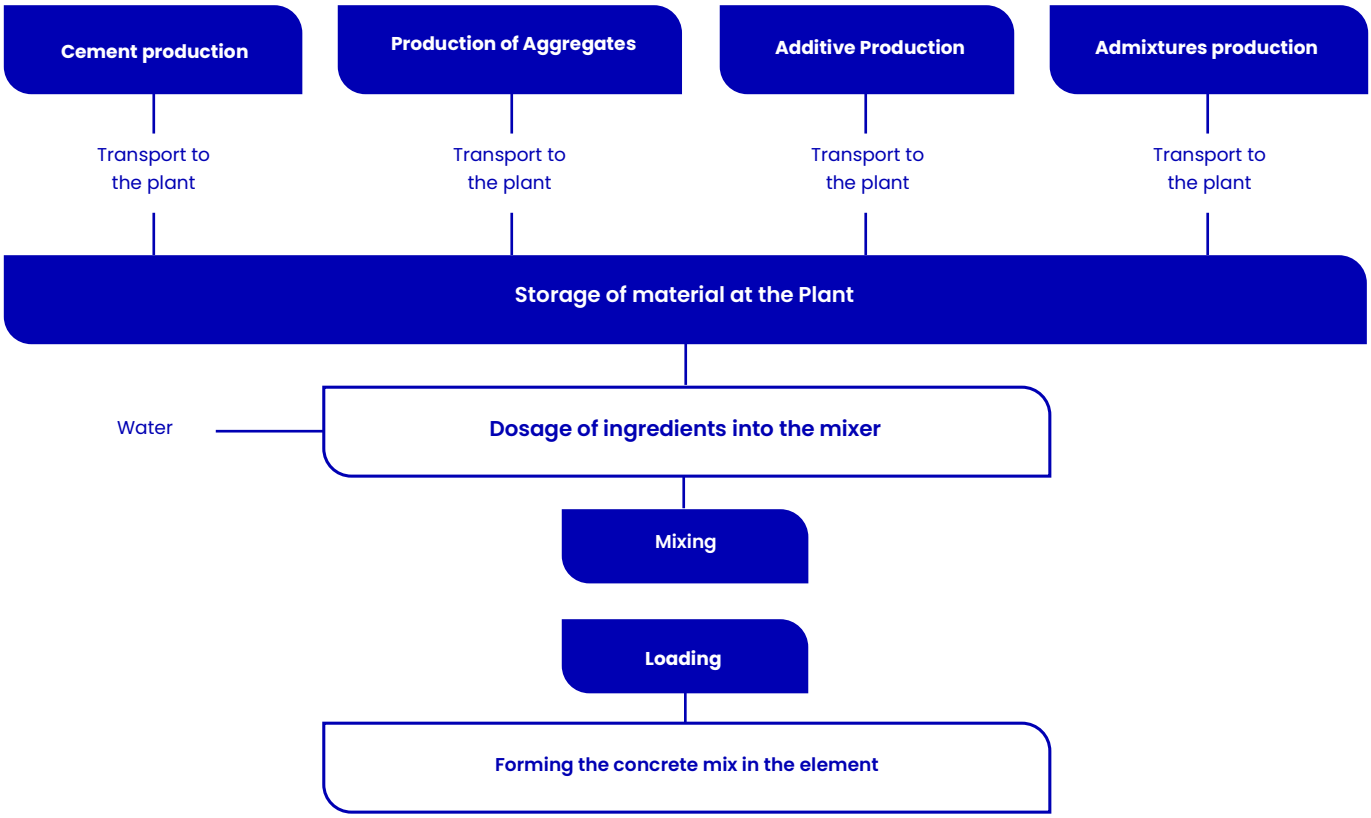

Figure 3. Concrete Production - Inputs and Processes System

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-28-15-1-3-000	209	0.07	7.56E-06	1.05	0.22	21.99	1.47E-004	1218.38
1-105-5-A-28-10-0-3-000	193	0.06	7.21E-06	0.99	0.20	20.85	9.89E-005	1167.28
1-105-5-A-28-13-1-3-000	201	0.06	7.36E-06	1.02	0.21	21.47	1.00E-004	1197.25
1-105-5-A-28-13-1-3-061	194	0.06	7.41E-06	1.00	0.21	21.04	1.14E-004	1187.22
1-105-5-A-28-15-1-3-000	196	0.06	7.41E-06	1.00	0.20	21.04	9.97E-005	1184.42
1-105-5-A-28-15-1-3-060	200	0.06	7.63E-06	1.02	0.21	21.40	1.07E-004	1214.61
1-140-5-A-28-10-0-3-000	209	0.06	7.55E-06	1.05	0.22	22.20	1.01E-004	1235.31
1-140-5-A-28-13-1-3-000	216	0.06	7.60E-06	1.08	0.22	22.63	9.99E-005	1252.33
1-140-5-A-28-13-1-3-061	247	0.07	8.37E-06	1.20	0.26	24.96	1.21E-004	1375.53
1-140-5-A-28-15-1-3-000	220	0.06	7.73E-06	1.09	0.23	22.91	1.00E-004	1270.29
1-140-5-A-28-15-1-3-060	215	0.06	7.63E-06	1.07	0.22	22.41	1.07E-004	1245.28
1-140-5-A-28-20-1-3-000	220	0.06	7.73E-06	1.10	0.23	22.98	1.00E-004	1273.13
M-105-0-A-28-13-1-3-020	242	0.07	9.10E-06	1.26	0.25	26.45	1.17E-004	1528.38
M-105-0-A-28-15-1-3-000	244	0.07	9.08E-06	1.28	0.26	26.79	1.17E-004	1541.79
M-105-0-A-28-15-1-3-020	240	0.07	9.00E-06	1.25	0.25	26.27	1.15E-004	1517.22
M-105-0-A-28-15-1-3-04J	239	0.07	9.03E-06	1.24	0.25	25.96	1.22E-004	1506.99
M-105-0-A-28-20-1-3-000	246	0.07	9.12E-06	1.28	0.26	26.81	1.16E-004	1542.89
M-105-0-A-28-20-1-3-073	269	0.08	9.58E-06	1.37	0.28	28.46	1.30E-004	1670.97
M-105-0-A-28-20-1-3-074	256	0.08	9.60E-06	1.33	0.27	27.51	1.38E-004	1640.48
M-125-0-A-28-13-1-3-020	264	0.07	9.60E-06	1.36	0.28	28.45	1.22E-004	1630.93
M-125-0-A-28-15-1-3-061	265	0.08	9.56E-06	1.36	0.28	28.46	1.40E-004	1627.25
M-140-0-A-28-13-1-3-000	279	0.08	9.70E-06	1.42	0.29	29.60	1.22E-004	1673.72
M-140-0-A-28-15-1-3-000	280	0.08	9.74E-06	1.42	0.29	29.55	1.22E-004	1673.37

ENVIRONMENTAL IMPACTS: 1 M³ 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**
M-140-0-A-28-15-1-3-060	290	0.08	1.01E-05	1.46	0.30	30.27	1.33E-004	1718.82
P-041-5-A-03-13-0-3-000	383	0.09	1.23E-05	1.74	0.39	34.92	1.13E-004	1943.64
P-041-5-A-07-13-0-3-000	358	0.09	1.21E-05	1.65	0.36	33.30	1.17E-004	1878.36
P-041-5-A-28-10-0-3-000	303	0.08	9.10E-06	1.41	0.30	29.01	1.08E-004	1544.60
P-041-5-A-28-13-0-3-000	307	0.08	9.11E-06	1.43	0.31	29.48	1.07E-004	1567.21
P-041-5-A-28-15-1-3-000	327	0.08	9.67E-06	1.51	0.33	31.07	1.10E-004	1657.91
P-041-5-A-28-15-1-3-01Z	357	0.09	1.04E-05	1.63	0.36	33.18	1.13E-004	1774.14
P-041-5-A-28-18-0-3-530	414	0.10	1.31E-05	1.85	0.42	36.92	1.15E-004	2050.09
P-045-5-A-03-13-0-3-000	406	0.10	1.28E-05	1.83	0.41	36.53	1.14E-004	2031.85
R-010-0-A-28-20-0-3-000	141	0.05	6.42E-06	0.80	0.15	17.38	8.83E-005	1043.85
R-030-0-A-28-20-0-3-000	166	0.05	7.01E-06	0.92	0.18	19.60	9.20E-005	1158.87
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 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**	**m^3**
1-105-3-A-28-15-1-3-000	61.19	0.00	61.19	1270.45	0.00	1270.45	27.93	18.04	219.15	2.06
1-105-5-A-28-10-0-3-000	55.17	0.00	55.17	1203.98	0.00	1203.98	23.56	16.30	198.06	2.92
1-105-5-A-28-13-1-3-000	57.03	0.00	57.03	1233.59	0.00	1233.59	17.74	17.15	208.37	2.93
1-105-5-A-28-13-1-3-061	56.57	0.00	56.57	1223.82	0.00	1223.82	24.93	16.27	197.65	2.95
1-105-5-A-28-15-1-3-000	55.79	0.00	55.79	1220.89	0.00	1220.89	23.19	16.58	201.39	2.91
1-105-5-A-28-15-1-3-060	56.87	0.00	56.87	1250.28	0.00	1250.28	27.36	16.75	203.48	2.94
1-140-5-A-28-10-0-3-000	58.94	0.00	58.94	1271.81	0.00	1271.81	24.89	18.01	218.86	2.93
1-140-5-A-28-13-1-3-000	60.57	0.00	60.57	1288.65	0.00	1288.65	30.44	18.90	229.68	2.89
1-140-5-A-28-13-1-3-061	69.40	0.00	69.40	1412.04	0.00	1412.04	0.54	22.19	269.60	2.97
1-140-5-A-28-15-1-3-000	61.39	0.00	61.39	1306.36	0.00	1306.36	27.35	19.29	234.31	2.89
1-140-5-A-28-15-1-3-060	60.90	0.00	60.90	1281.08	0.00	1281.08	29.03	18.78	228.16	2.88

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**
1-140-5-A-28-20-1-3-000	61.42	0.00	61.42	1308.17	0.00	1308.17	29.66	19.34	234.96	2.88
M-105-0-A-28-13-1-3-020	62.91	0.00	62.91	1528.38	0.00	1528.38	19.80	19.97	242.59	2.62
M-105-0-A-28-15-1-3-000	63.52	0.00	63.52	1541.79	0.00	1541.79	33.74	20.28	246.36	2.60
M-105-0-A-28-15-1-3-020	62.43	0.00	62.43	1517.22	0.00	1517.22	29.93	19.86	241.27	2.59
M-105-0-A-28-15-1-3-04J	62.69	0.00	62.69	1506.99	0.00	1506.99	30.19	19.68	239.14	2.57
M-105-0-A-28-20-1-3-000	63.90	0.00	63.90	1542.89	0.00	1542.89	32.50	20.50	249.04	2.59
M-105-0-A-28-20-1-3-073	71.80	0.00	71.80	1649.25	21.71	1670.97	34.97	22.76	276.51	2.62
M-105-0-A-28-20-1-3-074	69.35	0.00	69.35	1618.76	21.71	1640.48	32.59	21.22	257.77	2.60
M-125-0-A-28-13-1-3-020	68.12	0.00	68.12	1630.93	0.00	1630.93	13.99	22.23	270.04	2.68
M-125-0-A-28-15-1-3-061	70.28	0.00	70.28	1627.25	0.00	1627.25	34.52	22.50	273.42	2.70
M-140-0-A-28-13-1-3-000	72.14	0.00	72.14	1673.72	0.00	1673.72	0.59	24.16	293.52	2.66
M-140-0-A-28-15-1-3-000	72.23	0.00	72.23	1673.37	0.00	1673.37	0.59	24.24	294.51	2.65
M-140-0-A-28-15-1-3-060	75.24	0.00	75.24	1718.82	0.00	1718.82	0.62	25.18	305.87	2.67
P-041-5-A-03-13-0-3-000	98.98	0.00	98.98	1989.14	0.00	1989.14	22.90	36.55	444.07	2.93
P-041-5-A-07-13-0-3-000	93.00	0.00	93.00	1923.99	0.00	1923.99	17.44	33.38	405.56	3.10
P-041-5-A-28-10-0-3-000	82.13	0.00	82.13	1591.07	0.00	1591.07	35.29	28.77	349.56	2.96
P-041-5-A-28-13-0-3-000	82.78	0.00	82.78	1611.64	0.00	1611.64	44.65	29.18	354.49	2.93
P-041-5-A-28-15-1-3-000	87.15	0.00	87.15	1699.83	0.00	1699.83	20.97	31.17	378.71	2.94
P-041-5-A-28-15-1-3-01Z	93.77	0.00	93.77	1816.53	0.00	1816.53	0.84	34.21	415.61	2.96
P-041-5-A-28-18-0-3-530	106.38	0.00	106.38	2098.23	0.00	2098.23	0.98	39.99	485.90	2.94
P-045-5-A-03-13-0-3-000	104.03	0.00	104.03	2075.39	0.00	2075.39	13.48	39.03	474.25	2.86
R-010-0-A-28-20-0-3-000	39.10	0.00	39.10	1043.85	0.00	1043.85	9.47	10.02	121.78	2.29
R-030-0-A-28-20-0-3-000	44.80	0.00	44.80	1158.87	0.00	1158.87	19.83	12.58	152.81	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 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-28-20-1-3-0AC	280	0.09	9.34E-06	1.34	0.29	27.15	1.81E-004	1546.82
1-175-5-A-28-10-0-3-000	227	0.07	7.87E-06	1.12	0.23	23.49	1.03E-004	1295.20
1-175-5-A-28-15-1-3-000	232	0.07	8.01E-06	1.15	0.24	23.95	1.02E-004	1325.16
M-175-0-A-28-15-1-3-060	313	0.09	1.07E-05	1.56	0.33	32.23	1.49E-004	1822.24
M-175-0-A-28-15-1-3-061	315	0.08	1.07E-05	1.55	0.33	31.91	1.46E-004	1810.91
M-175-0-A-28-20-1-3-000	309	0.08	1.03E-05	1.53	0.32	31.50	1.23E-004	1768.09
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-28-20-1-3-0AC	81.46	0.00	81.46	1573.48	21.71	1595.20	32.87	25.40	308.57	2.11
1-175-5-A-28-10-0-3-000	63.37	0.00	63.37	1331.84	0.00	1331.84	24.46	20.13	244.61	2.91
1-175-5-A-28-15-1-3-000	63.93	0.00	63.93	1360.89	0.00	1360.89	32.96	20.42	248.09	2.90
M-175-0-A-28-15-1-3-060	81.82	0.00	81.82	1822.24	0.00	1822.24	0.68	27.63	335.74	2.71
M-175-0-A-28-15-1-3-061	81.75	0.00	81.75	1810.91	0.00	1810.91	0.68	27.78	337.46	2.65
M-175-0-A-28-20-1-3-000	79.21	0.00	79.21	1768.09	0.00	1768.09	0.68	27.65	335.89	2.57
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	335	0.09	1.15E-05	1.57	0.34	31.64	1.58E-004	1791.54
1-210-3-A-03-15-1-3-000	336	0.09	1.15E-05	1.57	0.35	31.64	1.57E-004	1789.41
1-210-3-A-28-13-1-3-000	280	0.08	8.90E-06	1.34	0.29	27.70	1.51E-004	1498.86
1-210-3-A-28-13-1-3-001	309	0.08	9.40E-06	1.44	0.31	29.57	1.54E-004	1587.64
1-210-3-A-28-13-1-3-020	280	0.08	8.89E-06	1.32	0.28	27.28	1.49E-004	1480.44
1-210-3-A-28-15-1-3-000	294	0.08	9.18E-06	1.39	0.30	28.71	1.55E-004	1547.63
1-210-3-A-28-15-1-3-060	297	0.08	9.45E-06	1.41	0.31	28.96	1.67E-004	1573.27
1-210-3-A-28-20-1-3-000	295	0.08	9.20E-06	1.39	0.30	28.60	1.51E-004	1543.68
1-210-5-A-03-13-1-3-000	317	0.08	1.10E-05	1.49	0.32	30.34	1.10E-004	1724.33
1-210-5-A-03-13-1-3-001	325	0.08	1.11E-05	1.52	0.33	30.83	1.08E-004	1747.94
1-210-5-A-03-15-1-3-000	313	0.08	1.10E-05	1.47	0.32	29.89	1.11E-004	1701.85
1-210-5-A-07-13-1-3-000	287	0.08	1.03E-05	1.37	0.30	28.02	1.09E-004	1599.15
1-210-5-A-07-15-1-3-000	271	0.07	9.90E-06	1.30	0.28	26.65	1.05E-004	1528.63
1-210-5-A-14-15-1-3-000	257	0.07	8.41E-06	1.24	0.26	25.85	1.04E-004	1410.72
1-210-5-A-14-20-1-3-000	266	0.07	8.65E-06	1.29	0.27	26.60	1.04E-004	1452.64
1-210-5-A-28-10-0-3-000	247	0.07	8.19E-06	1.20	0.25	25.04	1.03E-004	1370.03
1-210-5-A-28-13-1-3-000	259	0.07	8.39E-06	1.25	0.26	25.98	1.04E-004	1415.18
1-210-5-A-28-15-1-3-000	261	0.07	8.50E-06	1.26	0.26	26.20	1.04E-004	1429.69
1-210-5-A-28-15-1-3-001	264	0.07	8.34E-06	1.27	0.27	26.31	1.02E-004	1423.28
1-210-5-A-28-15-1-3-004	316	0.08	9.60E-06	1.48	0.32	30.25	1.11E-004	1677.49
1-210-5-A-28-15-1-3-025	304	0.09	1.02E-05	1.45	0.32	29.37	1.78E-004	1642.47
1-210-5-A-28-20-1-3-000	285	0.08	9.05E-06	1.36	0.29	28.17	1.08E-004	1529.53
1-210-5-A-28-20-1-3-001	275	0.07	8.70E-06	1.32	0.28	27.16	1.03E-004	1473.88
1-210-5-A-28-20-1-3-061	279	0.08	9.26E-06	1.35	0.29	27.65	1.30E-004	1525.21
1-245-3-A-03-15-1-3-000	390	0.10	1.30E-05	1.79	0.40	36.01	1.66E-004	2028.68
1-245-3-A-03-20-1-3-000	417	0.10	1.37E-05	1.91	0.42	38.09	1.62E-004	2146.79

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**
1-245-3-A-07-15-1-3-000	300	0.08	1.08E-05	1.43	0.31	29.09	1.56E-004	1663.42
1-245-3-A-28-13-1-3-000	278	0.08	8.90E-06	1.34	0.28	27.62	1.55E-004	1493.08
1-245-3-A-28-15-1-3-000	294	0.08	9.35E-06	1.40	0.30	28.72	1.57E-004	1555.84
1-245-3-A-28-20-1-3-000	308	0.08	9.77E-06	1.45	0.31	29.77	1.59E-004	1618.70
1-245-5-A-03-13-1-3-000	369	0.09	1.23E-05	1.70	0.37	34.35	1.14E-004	1941.78
1-245-5-A-03-15-1-3-000	359	0.09	1.22E-05	1.68	0.37	33.95	1.15E-004	1922.66
1-245-5-A-07-15-1-3-000	289	0.08	1.04E-05	1.38	0.30	28.03	1.06E-004	1609.31
1-245-5-A-14-20-1-3-060	281	0.08	9.08E-06	1.35	0.29	27.73	1.17E-004	1515.73
1-245-5-A-28-13-1-3-000	263	0.07	8.50E-06	1.27	0.27	26.42	1.05E-004	1436.43
1-245-5-A-28-15-1-3-000	267	0.07	8.68E-06	1.29	0.27	26.72	1.06E-004	1458.24
1-280-3-A-03-15-1-3-000	412	0.10	1.36E-05	1.89	0.42	37.80	1.66E-004	2130.08
1-280-3-A-03-20-1-3-000	416	0.10	1.40E-05	1.91	0.43	38.06	1.66E-004	2157.69
1-280-3-A-07-15-1-3-001	358	0.09	1.22E-05	1.66	0.37	33.44	1.58E-004	1891.20
1-280-3-A-07-20-1-3-000	344	0.09	1.20E-05	1.62	0.35	32.58	1.55E-004	1860.00
1-280-3-A-14-15-1-3-000	315	0.09	9.65E-06	1.49	0.32	30.60	1.56E-004	1643.48
1-280-3-A-28-10-0-3-000	300	0.08	9.29E-06	1.42	0.30	29.23	1.55E-004	1572.51
1-280-3-A-28-13-1-3-000	311	0.08	9.55E-06	1.46	0.31	30.10	1.57E-004	1618.18
1-280-3-A-28-13-1-3-001	308	0.08	9.57E-06	1.45	0.31	29.70	1.56E-004	1601.12
1-280-3-A-28-13-1-3-072	323	0.09	9.95E-06	1.51	0.33	30.86	1.62E-004	1661.98
1-280-3-A-28-15-1-3-000	310	0.08	9.63E-06	1.47	0.32	30.14	1.58E-004	1623.43
1-280-3-A-28-15-1-3-001	308	0.08	9.47E-06	1.45	0.31	29.76	1.52E-004	1601.86
1-280-3-A-28-15-1-3-060	311	0.09	9.76E-06	1.47	0.32	30.12	1.69E-004	1631.46
1-280-3-A-28-20-1-3-000	317	0.09	9.84E-06	1.49	0.32	30.53	1.56E-004	1650.26
1-280-3-A-28-20-1-3-001	296	0.08	9.60E-06	1.40	0.30	28.57	1.56E-004	1559.49
1-280-3-A-28-20-1-3-061	298	0.09	9.75E-06	1.42	0.31	28.98	1.77E-004	1593.32
1-280-5-A-03-13-1-3-000	375	0.09	1.23E-05	1.73	0.38	34.81	1.15E-004	1955.80
1-280-5-A-03-15-1-3-000	371	0.09	1.23E-05	1.72	0.38	34.67	1.15E-004	1953.36
1-280-5-A-07-15-1-3-000	347	0.09	1.17E-05	1.62	0.35	32.66	1.12E-004	1846.03

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-14-13-1-3-000	315	0.08	9.53E-06	1.47	0.32	30.10	1.09E-004	1621.43
1-280-5-A-14-15-1-3-000	306	0.08	9.40E-06	1.45	0.31	29.77	1.09E-004	1606.70
1-280-5-A-14-15-1-3-001	304	0.08	9.20E-06	1.43	0.30	29.40	1.05E-004	1580.67
1-280-5-A-28-10-0-3-000	275	0.07	8.81E-06	1.32	0.28	27.46	1.08E-004	1491.20
1-280-5-A-28-13-1-3-000	281	0.07	8.89E-06	1.34	0.28	27.84	1.06E-004	1510.78
1-280-5-A-28-13-1-3-001	307	0.08	9.34E-06	1.45	0.31	29.83	1.09E-004	1603.39
1-280-5-A-28-13-1-3-024	311	0.09	9.97E-06	1.48	0.32	30.11	1.54E-004	1652.67
1-280-5-A-28-15-1-3-000	288	0.08	9.09E-06	1.37	0.29	28.38	1.07E-004	1540.16
1-280-5-A-28-15-1-3-001	290	0.08	9.06E-06	1.38	0.29	28.36	1.05E-004	1537.21
1-280-5-A-28-15-1-3-002	304	0.08	9.95E-06	1.44	0.31	29.50	1.11E-004	1629.57
1-280-5-A-28-15-1-3-004	298	0.08	9.23E-06	1.41	0.30	28.99	1.08E-004	1615.28
1-280-5-A-28-15-1-3-009	320	0.09	9.80E-06	1.49	0.32	30.53	1.12E-004	1699.84
1-280-5-A-28-15-1-3-02T	285	0.08	9.34E-06	1.37	0.29	28.09	1.29E-004	1547.32
1-280-5-A-28-20-1-3-000	290	0.08	9.36E-06	1.38	0.29	28.47	1.07E-004	1562.21
1-280-5-A-28-20-1-3-001	294	0.08	9.22E-06	1.40	0.30	28.91	1.07E-004	1568.26
1-315-5-A-03-15-1-3-000	454	0.10	1.46E-05	2.06	0.46	40.96	1.21E-004	2308.28
1-315-5-A-03-15-1-3-004	469	0.11	1.51E-05	2.12	0.47	41.98	1.23E-004	2419.75
1-315-5-A-07-15-1-3-000	349	0.09	1.21E-05	1.63	0.36	32.69	1.14E-004	1862.21
1-315-5-A-28-15-1-3-000	312	0.08	9.57E-06	1.47	0.31	30.21	1.10E-004	1630.60
1-315-5-A-28-15-1-3-004	340	0.09	1.00E-05	1.58	0.34	32.42	1.12E-004	1781.72
1-315-5-A-28-15-1-3-009	342	0.09	1.02E-05	1.58	0.34	32.25	1.13E-004	1785.41
1-350-3-A-03-15-1-3-000	513	0.12	1.59E-05	2.30	0.52	45.71	1.72E-004	2541.67
1-350-3-A-03-15-1-3-004	507	0.12	1.55E-05	2.28	0.51	45.13	1.69E-004	2544.71
1-350-3-A-03-20-1-3-000	561	0.13	1.73E-05	2.53	0.57	50.34	1.97E-004	2788.54
1-350-3-A-03-20-1-3-004	537	0.13	1.70E-05	2.39	0.54	47.07	1.70E-004	2695.10
1-350-3-A-28-15-1-3-000	336	0.09	1.02E-05	1.57	0.34	32.14	1.59E-004	1726.04
1-350-3-A-28-15-1-3-004	366	0.10	1.07E-05	1.69	0.37	34.32	1.58E-004	1879.00
1-350-3-A-28-20-1-3-000	333	0.09	1.02E-05	1.57	0.34	31.96	1.56E-004	1723.49

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**
1-350-3-A-28-20-1-3-060	332	0.09	1.02E-05	1.56	0.34	31.72	1.69E-004	1715.13
1-350-3-A-28-20-1-3-061	324	0.09	1.03E-05	1.54	0.34	31.20	1.83E-004	1706.33
1-350-5-A-03-15-1-3-000	493	0.11	1.56E-05	2.23	0.50	44.33	1.26E-004	2488.53
1-350-5-A-07-15-1-3-000	409	0.10	1.34E-05	1.88	0.41	37.63	1.18E-004	2123.03
1-350-5-A-28-13-1-3-000	320	0.08	9.72E-06	1.51	0.32	30.93	1.11E-004	1665.69
1-350-5-A-28-15-1-3-000	313	0.08	9.62E-06	1.47	0.31	30.26	1.09E-004	1636.61
1-350-5-A-28-20-1-3-000	330	0.08	1.01E-05	1.55	0.33	31.62	1.12E-004	1712.14
3-280-3-A-28-13-1-3-001	351	0.09	1.03E-05	1.63	0.35	33.12	1.56E-004	1767.99
3-280-3-A-28-15-1-3-000	359	0.09	1.06E-05	1.66	0.36	33.78	1.60E-004	1808.15
3-280-3-A-28-15-1-3-001	343	0.09	1.04E-05	1.60	0.35	32.57	1.57E-004	1753.16
3-280-3-A-28-20-1-3-000	330	0.09	9.95E-06	1.55	0.33	31.53	1.53E-004	1692.90
3-280-3-A-28-20-1-3-01X	321	0.11	1.14E-05	1.55	0.36	30.73	2.75E-004	1753.91
3-280-5-A-28-15-1-3-000	321	0.08	9.77E-06	1.51	0.32	30.89	1.09E-004	1666.51
3-280-5-A-28-20-1-3-01X	307	0.10	1.10E-05	1.49	0.34	29.69	2.21E-004	1700.25
8-280-3-A-28-15-1-3-000	317	0.09	9.65E-06	1.49	0.32	30.53	1.56E-004	1638.46
8-280-5-A-28-15-1-3-000	303	0.08	9.31E-06	1.44	0.30	29.71	1.08E-004	1601.19
8-315-5-A-28-15-1-3-000	329	0.08	9.81E-06	1.54	0.33	31.55	1.07E-004	1696.54
8-315-5-A-28-20-1-3-000	352	0.09	1.06E-05	1.63	0.35	33.40	1.16E-004	1801.55
C-245-3-A-28-25-1-3-000	392	0.10	1.20E-05	1.81	0.40	36.57	1.87E-004	1995.74
C-280-3-A-28-25-1-3-000	343	0.09	1.08E-05	1.59	0.35	32.08	1.76E-004	1762.18
F-210-3-A-18-65-1-3-000	341	0.09	1.23E-05	1.62	0.36	32.39	1.65E-004	1872.71
F-280-3-A-18-65-1-3-000	361	0.09	1.27E-05	1.70	0.38	33.93	1.66E-004	1947.99
F-350-3-A-18-65-1-3-000	395	0.10	1.35E-05	1.84	0.41	36.65	1.59E-004	2091.39
F-350-3-A-18-65-1-3-001	420	0.10	1.45E-05	1.94	0.43	38.55	1.56E-004	2216.90
I-280-5-A-28-13-1-3-000	296	0.08	9.06E-06	1.39	0.30	28.61	1.07E-004	1536.86
J-210-3-A-28-65-1-3-000	351	0.10	1.15E-05	1.65	0.37	33.19	2.04E-004	1855.31
J-280-3-A-28-65-1-3-000	327	0.09	1.11E-05	1.56	0.35	31.37	2.00E-004	1769.99
M-210-0-A-28-13-1-3-061	305	0.08	1.05E-05	1.53	0.32	31.52	1.49E-004	1788.50

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**
O-210-3-A-18-13-1-3-000	303	0.08	1.05E-05	1.42	0.31	28.80	1.50E-004	1630.23
O-210-3-A-18-15-1-3-000	289	0.08	1.02E-05	1.37	0.30	27.89	1.52E-004	1584.07
O-210-3-A-18-18-1-3-000	298	0.08	1.07E-05	1.42	0.31	28.82	1.52E-004	1645.71
O-210-3-A-18-20-1-3-000	294	0.08	1.05E-05	1.40	0.30	28.31	1.48E-004	1617.96
O-210-3-A-18-23-1-3-000	302	0.08	1.08E-05	1.44	0.31	29.06	1.50E-004	1664.04
O-210-5-A-18-13-1-3-000	273	0.07	9.89E-06	1.32	0.28	26.95	1.06E-004	1539.85
O-210-5-A-18-13-1-3-001	272	0.07	9.75E-06	1.30	0.28	26.54	1.04E-004	1514.49
O-210-5-A-18-13-1-3-009	283	0.08	1.01E-05	1.34	0.29	27.33	1.05E-004	1612.98
O-210-5-A-18-13-1-3-072	283	0.08	1.02E-05	1.35	0.29	27.44	1.08E-004	1573.66
O-210-5-A-18-15-1-3-000	280	0.07	1.01E-05	1.33	0.29	27.27	1.06E-004	1563.71
O-210-5-A-20-13-1-3-000	276	0.07	9.11E-06	1.33	0.28	27.55	1.08E-004	1513.94
O-280-3-A-18-13-1-3-000	337	0.09	1.14E-05	1.57	0.35	31.80	1.60E-004	1787.42
O-280-3-A-18-15-1-3-000	339	0.09	1.16E-05	1.59	0.35	32.02	1.59E-004	1810.70
O-280-3-A-18-18-1-3-000	340	0.09	1.18E-05	1.60	0.35	32.18	1.58E-004	1830.44
O-280-3-A-18-20-1-3-000	334	0.09	1.17E-05	1.58	0.34	31.77	1.54E-004	1813.11
O-280-5-A-18-13-1-3-000	315	0.08	1.10E-05	1.49	0.32	30.14	1.10E-004	1717.83
O-280-5-A-18-15-1-3-000	312	0.08	1.09E-05	1.48	0.32	30.02	1.10E-004	1707.99
O-350-3-A-18-13-1-3-000	372	0.09	1.18E-05	1.72	0.38	34.62	1.60E-004	1910.92
O-350-3-A-18-18-1-3-000	389	0.10	1.25E-05	1.79	0.40	36.03	1.61E-004	2001.83
O-350-3-A-18-20-1-3-000	385	0.10	1.24E-05	1.78	0.39	35.80	1.61E-004	1988.62
O-350-5-A-18-13-1-3-000	366	0.09	1.17E-05	1.70	0.37	34.37	1.15E-004	1904.53
Q-280-3-A-28-13-1-3-63M	331	0.09	1.01E-05	1.53	0.34	31.00	1.78E-004	1665.68
Q-280-3-A-28-15-1-3-63M	338	0.09	1.03E-05	1.55	0.34	31.35	1.76E-004	1689.39
T-210-3-A-28-20-1-3-000	306	0.09	9.55E-06	1.44	0.31	29.59	1.66E-004	1599.25
T-210-5-A-28-20-1-3-000	280	0.08	8.99E-06	1.34	0.29	27.59	1.17E-004	1505.25
T-245-3-A-28-20-1-3-000	302	0.08	9.72E-06	1.43	0.31	29.24	1.67E-004	1596.25
T-245-5-A-28-20-1-3-000	261	0.07	8.83E-06	1.27	0.27	26.21	1.15E-004	1452.49
T-280-3-A-28-20-1-3-000	327	0.09	1.02E-05	1.54	0.34	31.29	1.69E-004	1701.22

ENVIRONMENTAL IMPACTS: 1 M³ 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-28-18-1-3-665	259	0.07	8.56E-06	1.25	0.27	25.69	1.12E-004	1413.65
T-280-5-A-28-20-1-3-000	312	0.08	9.88E-06	1.47	0.32	30.12	1.22E-004	1646.90
T-280-5-A-28-20-1-3-200	328	0.09	1.03E-05	1.53	0.33	31.18	1.23E-004	1703.55
T-350-5-A-28-20-1-3-000	350	0.09	1.08E-05	1.63	0.36	33.02	1.30E-004	1799.66
V-210-3-A-28-65-1-3-000	335	0.09	1.07E-05	1.59	0.34	32.18	1.64E-004	1767.00
V-245-3-A-28-65-1-3-000	355	0.09	1.10E-05	1.66	0.36	33.53	1.64E-004	1832.79
V-280-3-A-03-65-1-3-000	512	0.12	1.68E-05	2.32	0.53	45.58	1.82E-004	2600.19
V-280-3-A-28-65-1-3-000	366	0.10	1.13E-05	1.71	0.37	34.44	1.70E-004	1885.68
V-280-3-A-28-65-1-3-001	361	0.09	1.12E-05	1.71	0.37	34.53	1.63E-004	1888.15
V-350-3-A-03-65-1-3-000	505	0.12	1.65E-05	2.30	0.52	45.19	1.83E-004	2569.41
V-350-3-A-28-65-1-3-000	364	0.09	1.14E-05	1.72	0.37	34.59	1.67E-004	1898.14
V-350-3-A-28-65-1-3-012	437	0.13	1.43E-05	2.04	0.47	40.20	2.78E-004	2258.89
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 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**	**m^3**
1-210-3-A-03-13-1-3-000	89.00	0.00	89.00	1843.03	0.00	1843.03	17.62	30.82	374.40	2.07
1-210-3-A-03-15-1-3-000	89.31	0.00	89.31	1840.26	0.00	1840.26	15.11	31.05	377.29	2.07
1-210-3-A-28-13-1-3-000	77.41	0.00	77.41	1548.10	0.00	1548.10	38.67	25.72	312.44	2.07
1-210-3-A-28-13-1-3-001	84.48	0.00	84.48	1638.29	0.00	1638.29	0.71	29.03	352.71	2.01
1-210-3-A-28-13-1-3-020	77.23	0.00	77.23	1531.11	0.00	1531.11	39.66	25.75	312.84	2.00
1-210-3-A-28-15-1-3-000	80.92	0.00	80.92	1599.48	0.00	1599.48	34.75	27.24	331.00	2.05
1-210-3-A-28-15-1-3-060	82.48	0.00	82.48	1625.19	0.00	1625.19	34.73	27.43	333.23	2.07
1-210-3-A-28-20-1-3-000	81.05	0.00	81.05	1593.79	0.00	1593.79	36.56	27.51	334.26	2.00

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**
1-210-5-A-03-13-1-3-000	82.72	0.00	82.72	1760.64	0.00	1760.64	15.20	28.99	352.19	2.92
1-210-5-A-03-13-1-3-001	84.56	0.00	84.56	1782.92	0.00	1782.92	19.10	30.05	365.05	2.83
1-210-5-A-03-15-1-3-000	81.83	0.00	81.83	1738.22	0.00	1738.22	8.93	28.56	346.97	2.92
1-210-5-A-07-13-1-3-000	75.84	0.00	75.84	1636.30	0.00	1636.30	3.69	25.69	312.18	2.95
1-210-5-A-07-15-1-3-000	72.18	0.00	72.18	1564.90	0.00	1564.90	15.50	24.17	293.62	2.90
1-210-5-A-14-15-1-3-000	70.18	0.00	70.18	1447.38	0.00	1447.38	22.70	23.33	283.50	2.91
1-210-5-A-14-20-1-3-000	72.12	0.00	72.12	1488.58	0.00	1488.58	37.52	24.30	295.18	2.88
1-210-5-A-28-10-0-3-000	67.68	0.00	67.68	1406.65	0.00	1406.65	36.30	22.21	269.84	2.88
1-210-5-A-28-13-1-3-000	70.52	0.00	70.52	1451.35	0.00	1451.35	35.23	23.56	286.26	2.87
1-210-5-A-28-15-1-3-000	70.87	0.00	70.87	1465.71	0.00	1465.71	40.77	23.70	288.01	2.88
1-210-5-A-28-15-1-3-001	71.84	0.00	71.84	1458.19	0.00	1458.19	39.55	24.37	296.03	2.80
1-210-5-A-28-15-1-3-004	85.51	0.00	85.51	1691.18	21.71	1712.90	0.72	29.54	358.91	2.92
1-210-5-A-28-15-1-3-025	86.00	0.00	86.00	1676.15	0.00	1676.15	6.78	27.69	336.43	3.03
1-210-5-A-28-20-1-3-000	76.76	0.00	76.76	1566.36	0.00	1566.36	28.05	26.32	319.83	2.95
1-210-5-A-28-20-1-3-001	74.26	0.00	74.26	1508.16	0.00	1508.16	39.51	25.52	310.10	2.77
1-210-5-A-28-20-1-3-061	76.82	0.00	76.82	1560.57	0.00	1560.57	31.14	25.42	308.84	2.94
1-245-3-A-03-15-1-3-000	101.47	0.00	101.47	2081.05	0.00	2081.05	12.88	36.44	442.69	2.12
1-245-3-A-03-20-1-3-000	107.19	0.00	107.19	2195.11	0.00	2195.11	24.63	39.39	478.62	2.06
1-245-3-A-07-15-1-3-000	80.94	0.00	80.94	1715.58	0.00	1715.58	33.65	27.01	328.17	2.06
1-245-3-A-28-13-1-3-000	77.53	0.00	77.53	1546.29	0.00	1546.29	39.58	25.56	310.54	2.05
1-245-3-A-28-15-1-3-000	81.19	0.00	81.19	1608.65	0.00	1608.65	17.17	27.23	330.88	2.07
1-245-3-A-28-20-1-3-000	84.08	0.00	84.08	1671.19	0.00	1671.19	0.70	28.51	346.44	2.08
1-245-5-A-03-13-1-3-000	94.29	0.00	94.29	1977.14	0.00	1977.14	21.68	34.43	418.30	2.88
1-245-5-A-03-15-1-3-000	92.12	0.00	92.12	1958.62	0.00	1958.62	41.18	33.28	404.28	2.95
1-245-5-A-07-15-1-3-000	76.12	0.00	76.12	1645.61	0.00	1645.61	21.05	26.00	315.95	2.89
1-245-5-A-14-20-1-3-060	76.61	0.00	76.61	1552.20	0.00	1552.20	39.69	25.90	314.71	2.88
1-245-5-A-28-13-1-3-000	71.59	0.00	71.59	1473.51	0.00	1473.51	37.17	23.99	291.46	2.90
1-245-5-A-28-15-1-3-000	72.35	0.00	72.35	1494.78	0.00	1494.78	35.70	24.33	295.63	2.89
1-280-3-A-03-15-1-3-000	106.46	0.00	106.46	2180.89	0.00	2180.89	18.86	38.86	472.13	2.09
1-280-3-A-03-20-1-3-000	107.14	0.00	107.14	2207.80	0.00	2207.80	30.08	39.18	476.03	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**
1-280-3-A-07-15-1-3-001	94.13	0.00	94.13	1940.91	0.00	1940.91	16.83	33.31	404.73	2.04
1-280-3-A-07-20-1-3-000	90.22	0.00	90.22	1907.66	0.00	1907.66	39.64	31.49	382.65	2.09
1-280-3-A-14-15-1-3-000	85.75	0.00	85.75	1694.11	0.00	1694.11	45.33	29.50	358.43	2.06
1-280-3-A-28-10-0-3-000	82.34	0.00	82.34	1625.03	0.00	1625.03	45.88	27.90	338.97	2.02
1-280-3-A-28-13-1-3-000	84.92	0.00	84.92	1670.04	0.00	1670.04	28.67	29.06	353.02	2.07
1-280-3-A-28-13-1-3-001	84.26	0.00	84.26	1651.63	0.00	1651.63	29.54	28.83	350.30	2.02
1-280-3-A-28-13-1-3-072	88.39	0.00	88.39	1712.73	0.00	1712.73	28.25	30.56	371.35	2.05
1-280-3-A-28-15-1-3-000	84.87	0.00	84.87	1676.02	0.00	1676.02	38.35	28.96	351.86	2.07
1-280-3-A-28-15-1-3-001	83.94	0.00	83.94	1651.62	0.00	1651.62	48.58	28.86	350.58	1.99
1-280-3-A-28-15-1-3-060	85.87	0.00	85.87	1683.27	0.00	1683.27	36.33	28.97	352.01	2.07
1-280-3-A-28-20-1-3-000	86.12	0.00	86.12	1701.38	0.00	1701.38	35.79	29.68	360.56	2.05
1-280-3-A-28-20-1-3-001	81.41	0.00	81.41	1609.87	0.00	1609.87	25.72	27.49	334.02	2.01
1-280-3-A-28-20-1-3-061	83.29	0.00	83.29	1643.33	0.00	1643.33	63.18	27.40	332.88	2.06
1-280-5-A-03-13-1-3-000	95.91	0.00	95.91	1991.28	0.00	1991.28	15.18	35.19	427.53	2.89
1-280-5-A-03-15-1-3-000	95.17	0.00	95.17	1989.70	0.00	1989.70	20.68	34.75	422.18	2.93
1-280-5-A-07-15-1-3-000	89.65	0.00	89.65	1881.74	0.00	1881.74	13.00	32.26	391.97	2.89
1-280-5-A-14-13-1-3-000	83.69	0.00	83.69	1657.92	0.00	1657.92	0.73	29.70	360.88	2.88
1-280-5-A-14-15-1-3-000	81.51	0.00	81.51	1642.89	0.00	1642.89	27.82	28.62	347.69	2.88
1-280-5-A-14-15-1-3-001	80.91	0.00	80.91	1615.24	0.00	1615.24	44.14	28.63	347.82	2.77
1-280-5-A-28-10-0-3-000	74.42	0.00	74.42	1527.96	0.00	1527.96	33.45	25.22	306.38	2.92
1-280-5-A-28-13-1-3-000	75.54	0.00	75.54	1546.27	0.00	1546.27	40.76	25.90	314.67	2.86
1-280-5-A-28-13-1-3-001	81.83	0.00	81.83	1639.13	0.00	1639.13	33.88	28.83	350.26	2.83
1-280-5-A-28-13-1-3-024	86.06	0.00	86.06	1688.07	0.00	1688.07	45.11	28.83	350.24	2.95
1-280-5-A-28-15-1-3-000	77.27	0.00	77.27	1576.27	0.00	1576.27	38.17	26.66	323.89	2.88
1-280-5-A-28-15-1-3-001	77.61	0.00	77.61	1572.41	0.00	1572.41	35.64	26.96	327.60	2.81
1-280-5-A-28-15-1-3-002	80.54	0.00	80.54	1667.40	0.00	1667.40	0.68	27.90	338.96	2.96
1-280-5-A-28-15-1-3-004	80.90	0.00	80.90	1628.59	21.71	1650.30	42.86	27.47	333.71	2.88
1-280-5-A-28-15-1-3-009	86.02	0.00	86.02	1713.90	21.71	1735.61	0.73	29.71	361.02	2.91
1-280-5-A-28-15-1-3-02T	77.89	0.00	77.89	1582.55	0.00	1582.55	41.62	25.96	315.39	2.93
1-280-5-A-28-20-1-3-000	77.04	0.00	77.04	1598.05	0.00	1598.05	41.05	26.52	322.18	2.88

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**
1-280-5-A-28-20-1-3-001	78.46	0.00	78.46	1602.79	0.00	1602.79	42.01	27.29	331.53	2.83
1-315-5-A-03-15-1-3-000	113.34	0.00	113.34	2342.04	0.00	2342.04	26.72	43.33	526.41	2.83
1-315-5-A-03-15-1-3-004	118.13	0.00	118.13	2431.48	21.71	2453.20	27.35	44.57	541.55	2.85
1-315-5-A-07-15-1-3-000	90.11	0.00	90.11	1898.35	0.00	1898.35	14.12	32.40	393.62	2.91
1-315-5-A-28-15-1-3-000	82.91	0.00	82.91	1666.14	0.00	1666.14	33.03	29.30	356.01	2.87
1-315-5-A-28-15-1-3-004	90.85	0.00	90.85	1794.19	21.71	1815.90	49.86	32.15	390.64	2.85
1-315-5-A-28-15-1-3-009	91.20	0.00	91.20	1798.78	21.71	1820.49	0.79	32.18	390.99	2.89
1-350-3-A-03-15-1-3-000	129.38	0.00	129.38	2590.75	0.00	2590.75	33.44	49.62	602.88	2.10
1-350-3-A-03-15-1-3-004	129.52	0.00	129.52	2569.53	21.71	2591.25	42.05	48.97	594.98	2.05
1-350-3-A-03-20-1-3-000	141.65	0.00	141.65	2848.13	0.00	2848.13	17.74	54.14	657.73	2.39
1-350-3-A-03-20-1-3-004	135.70	0.00	135.70	2718.71	21.71	2740.43	1.27	51.79	629.28	2.11
1-350-3-A-28-15-1-3-000	90.61	0.00	90.61	1777.87	0.00	1777.87	39.79	31.69	385.02	2.06
1-350-3-A-28-15-1-3-004	98.86	0.00	98.86	1906.23	21.71	1927.94	53.14	34.83	423.20	2.05
1-350-3-A-28-20-1-3-000	89.64	0.00	89.64	1774.23	0.00	1774.23	64.05	31.38	381.21	2.03
1-350-3-A-28-20-1-3-060	90.67	0.00	90.67	1765.29	0.00	1765.29	47.31	31.31	380.41	2.06
1-350-3-A-28-20-1-3-061	89.54	0.00	89.54	1756.51	0.00	1756.51	70.48	30.11	365.84	2.08
1-350-5-A-03-15-1-3-000	122.13	0.00	122.13	2521.85	0.00	2521.85	51.27	47.32	574.98	2.88
1-350-5-A-07-15-1-3-000	103.38	0.00	103.38	2157.87	0.00	2157.87	23.80	38.59	468.89	2.87
1-350-5-A-28-13-1-3-000	84.65	0.00	84.65	1701.96	0.00	1701.96	38.00	30.06	365.18	2.89
1-350-5-A-28-15-1-3-000	82.90	0.00	82.90	1672.10	0.00	1672.10	37.66	29.33	356.36	2.84
1-350-5-A-28-20-1-3-000	86.94	0.00	86.94	1748.14	0.00	1748.14	19.72	31.08	377.56	2.91
3-280-3-A-28-13-1-3-001	93.80	0.00	93.80	1818.60	0.00	1818.60	65.11	33.48	406.83	1.95
3-280-3-A-28-15-1-3-000	95.85	0.00	95.85	1860.40	0.00	1860.40	43.30	34.20	415.58	2.01
3-280-3-A-28-15-1-3-001	91.91	0.00	91.91	1804.24	0.00	1804.24	56.76	32.47	394.51	1.98
3-280-3-A-28-20-1-3-000	88.84	0.00	88.84	1743.56	0.00	1743.56	87.32	31.22	379.33	1.94
3-280-3-A-28-20-1-3-01X	95.64	0.00	95.64	1805.95	0.00	1805.95	80.16	28.87	350.79	2.25
3-280-5-A-28-15-1-3-000	84.79	0.00	84.79	1703.56	0.00	1703.56	47.62	30.19	366.82	2.87
3-280-5-A-28-20-1-3-01X	89.67	0.00	89.67	1736.16	0.00	1736.16	76.47	27.51	334.21	3.07
8-280-3-A-28-15-1-3-000	86.24	0.00	86.24	1689.78	0.00	1689.78	38.41	29.77	361.73	2.04
8-280-5-A-28-15-1-3-000	80.81	0.00	80.81	1636.59	0.00	1636.59	43.41	28.33	344.16	2.88

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**
8-315-5-A-28-15-1-3-000	86.18	0.00	86.18	1730.70	0.00	1730.70	79.64	31.08	377.57	2.77
8-315-5-A-28-20-1-3-000	92.05	0.00	92.05	1837.92	0.00	1837.92	0.82	33.34	405.10	2.94
C-245-3-A-28-25-1-3-000	104.46	0.00	104.46	2038.54	0.00	2038.54	0.91	37.03	449.90	2.23
C-280-3-A-28-25-1-3-000	93.03	0.00	93.03	1806.94	0.00	1806.94	38.81	32.20	391.19	2.01
F-210-3-A-18-65-1-3-000	90.18	0.00	90.18	1915.29	0.00	1915.29	15.79	31.02	376.88	2.20
F-280-3-A-18-65-1-3-000	94.84	0.00	94.84	1990.01	0.00	1990.01	16.26	33.21	403.54	2.18
F-350-3-A-18-65-1-3-000	101.56	0.00	101.56	2135.28	0.00	2135.28	6.11	36.73	446.31	2.17
F-350-3-A-18-65-1-3-001	106.56	0.00	106.56	2255.45	0.00	2255.45	11.73	39.29	477.38	2.16
I-280-5-A-28-13-1-3-000	79.86	0.00	79.86	1578.35	0.00	1578.35	22.09	27.83	338.07	2.92
J-210-3-A-28-65-1-3-000	96.25	0.00	96.25	1892.67	0.00	1892.67	69.93	32.42	393.92	2.20
J-280-3-A-28-65-1-3-000	90.34	0.00	90.34	1808.71	0.00	1808.71	71.85	29.72	361.05	2.21
M-210-0-A-28-13-1-3-061	79.84	0.00	79.84	1788.50	0.00	1788.50	41.13	26.76	325.09	2.64
O-210-3-A-18-13-1-3-000	81.66	0.00	81.66	1679.99	0.00	1679.99	16.84	27.73	336.88	2.02
O-210-3-A-18-15-1-3-000	78.50	0.00	78.50	1634.78	0.00	1634.78	17.52	26.10	317.15	2.04
O-210-3-A-18-18-1-3-000	80.21	0.00	80.21	1694.68	0.00	1694.68	20.13	26.84	326.07	2.09
O-210-3-A-18-20-1-3-000	79.09	0.00	79.09	1665.06	0.00	1665.06	24.09	26.56	322.66	2.05
O-210-3-A-18-23-1-3-000	80.80	0.00	80.80	1710.80	0.00	1710.80	17.26	27.25	331.04	2.10
O-210-5-A-18-13-1-3-000	72.84	0.00	72.84	1576.24	0.00	1576.24	12.71	24.41	296.55	2.92
O-210-5-A-18-13-1-3-001	72.50	0.00	72.50	1549.53	0.00	1549.53	9.28	24.46	297.20	2.84
O-210-5-A-18-13-1-3-009	76.15	0.00	76.15	1625.59	21.71	1647.31	16.23	25.19	306.05	2.85
O-210-5-A-18-13-1-3-072	75.10	0.00	75.10	1608.03	0.00	1608.03	12.55	25.48	309.59	2.83
O-210-5-A-18-15-1-3-000	73.98	0.00	73.98	1599.51	0.00	1599.51	0.61	24.96	303.27	2.92
O-210-5-A-20-13-1-3-000	74.54	0.00	74.54	1551.66	0.00	1551.66	18.54	25.17	305.76	2.93
O-280-3-A-18-13-1-3-000	89.73	0.00	89.73	1840.09	0.00	1840.09	6.69	31.08	377.59	2.07
O-280-3-A-18-15-1-3-000	90.01	0.00	90.01	1862.39	0.00	1862.39	17.89	31.26	379.77	2.08
O-280-3-A-18-18-1-3-000	89.80	0.00	89.80	1879.68	0.00	1879.68	20.09	31.21	379.16	2.10
O-280-3-A-18-20-1-3-000	88.09	0.00	88.09	1859.52	0.00	1859.52	18.83	30.53	370.92	2.13
O-280-5-A-18-13-1-3-000	82.11	0.00	82.11	1753.84	0.00	1753.84	18.27	28.74	349.13	2.90
O-280-5-A-18-15-1-3-000	81.63	0.00	81.63	1745.04	0.00	1745.04	13.19	28.42	345.28	2.93
O-350-3-A-18-13-1-3-000	98.00	0.00	98.00	1961.60	0.00	1961.60	27.90	35.16	427.21	2.05

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-350-3-A-18-18-1-3-000	101.30	0.00	101.30	2050.26	0.00	2050.26	18.45	36.65	445.28	2.10
O-350-3-A-18-20-1-3-000	100.70	0.00	100.70	2037.32	0.00	2037.32	20.35	36.38	441.95	2.09
O-350-5-A-18-13-1-3-000	94.49	0.00	94.49	1940.38	0.00	1940.38	17.04	34.49	419.07	2.91
Q-280-3-A-28-13-1-3-63M	92.39	0.00	92.39	1735.98	0.00	1735.98	0.77	31.36	381.04	1.92
Q-280-3-A-28-15-1-3-63M	93.50	0.00	93.50	1758.18	0.00	1758.18	0.78	31.99	388.70	1.92
T-210-3-A-28-20-1-3-000	84.67	0.00	84.67	1649.11	0.00	1649.11	35.16	28.58	347.23	2.06
T-210-5-A-28-20-1-3-000	76.31	0.00	76.31	1540.52	0.00	1540.52	39.53	25.81	313.60	2.86
T-245-3-A-28-20-1-3-000	83.71	0.00	83.71	1648.32	0.00	1648.32	29.81	28.02	340.44	2.05
T-245-5-A-28-20-1-3-000	71.23	0.00	71.23	1487.73	0.00	1487.73	56.59	23.42	284.49	2.88
T-280-3-A-28-20-1-3-000	89.32	0.00	89.32	1751.79	0.00	1751.79	57.02	30.67	372.63	2.03
T-280-5-A-28-18-1-3-665	71.19	0.00	71.19	1452.11	0.00	1452.11	65.08	23.52	285.70	2.85
T-280-5-A-28-20-1-3-000	83.44	0.00	83.44	1682.88	0.00	1682.88	32.12	28.97	351.98	2.90
T-280-5-A-28-20-1-3-200	87.44	0.00	87.44	1741.16	0.00	1741.16	0.75	30.75	373.58	2.97
T-350-5-A-28-20-1-3-000	92.73	0.00	92.73	1835.18	0.00	1835.18	16.75	33.14	402.64	2.92
V-210-3-A-28-65-1-3-000	90.18	0.00	90.18	1809.45	0.00	1809.45	20.13	31.22	379.32	2.18
V-245-3-A-28-65-1-3-000	94.73	0.00	94.73	1874.37	0.00	1874.37	0.82	33.41	405.98	2.18
V-280-3-A-03-65-1-3-000	128.99	0.00	128.99	2639.71	0.00	2639.71	18.18	48.90	594.16	2.20
V-280-3-A-28-65-1-3-000	97.42	0.00	97.42	1926.82	0.00	1926.82	39.20	34.48	418.94	2.15
V-280-3-A-28-65-1-3-001	95.79	0.00	95.79	1926.50	0.00	1926.50	67.99	33.97	412.73	2.19
V-350-3-A-03-65-1-3-000	127.62	0.00	127.62	2608.49	0.00	2608.49	3.46	48.21	585.74	2.26
V-350-3-A-28-65-1-3-000	96.57	0.00	96.57	1939.65	0.00	1939.65	67.02	34.20	415.49	2.14
V-350-3-A-28-65-1-3-012	121.24	0.00	121.24	2302.06	0.00	2302.06	1.00	40.91	497.02	2.51

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-03-20-1-3-000	616	0.14	1.89E-05	2.72	0.62	53.39	1.70E-004	2987.24
1-420-3-A-28-13-1-3-000	394	0.10	1.11E-05	1.80	0.39	36.59	1.58E-004	1935.53
1-420-3-A-28-15-1-3-000	391	0.10	1.12E-05	1.80	0.39	36.46	1.60E-004	1935.28
1-420-3-A-28-20-1-3-000	381	0.10	1.11E-05	1.76	0.38	35.71	1.59E-004	1908.27
1-420-5-A-28-13-1-3-000	368	0.09	1.07E-05	1.70	0.37	34.79	1.14E-004	1856.39
1-420-5-A-28-15-1-3-000	364	0.09	1.07E-05	1.69	0.36	34.46	1.15E-004	1844.61
A-490-3-A-28-20-1-3-551	419	0.10	1.22E-05	1.91	0.42	38.32	1.75E-004	2059.74
A-560-3-A-28-20-1-3-551	488	0.12	1.45E-05	2.18	0.50	43.33	2.19E-004	2364.73
F-420-3-A-18-65-1-3-000	457	0.11	1.53E-05	2.09	0.47	41.36	1.58E-004	2362.58
O-420-3-A-18-18-1-3-000	444	0.11	1.36E-05	2.02	0.45	40.32	1.63E-004	2219.79
O-420-3-A-18-18-1-3-009	440	0.11	1.34E-05	1.99	0.44	39.66	1.58E-004	2226.74
V-420-3-A-03-65-1-3-000	564	0.13	1.83E-05	2.56	0.58	50.34	1.95E-004	2866.23
V-420-3-A-28-65-1-3-000	443	0.11	1.32E-05	2.04	0.45	40.80	1.78E-004	2220.12
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-03-20-1-3-000	151.68	0.00	151.68	3028.39	0.00	3028.39	36.92	60.54	735.53	2.01
1-420-3-A-28-13-1-3-000	103.89	0.00	103.89	1984.17	0.00	1984.17	58.57	38.24	464.58	2.00
1-420-3-A-28-15-1-3-000	103.30	0.00	103.30	1984.95	0.00	1984.95	56.23	37.84	459.78	2.00
1-420-3-A-28-20-1-3-000	100.66	0.00	100.66	1957.35	0.00	1957.35	56.04	36.58	444.44	2.03

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-28-13-1-3-000	95.85	0.00	95.85	1891.18	0.00	1891.18	39.12	35.35	429.45	2.86
1-420-5-A-28-15-1-3-000	94.84	0.00	94.84	1879.10	0.00	1879.10	44.02	34.86	423.56	2.85
A-490-3-A-28-20-1-3-551	110.07	0.00	110.07	2119.80	0.00	2119.80	42.39	40.37	490.44	2.01
A-560-3-A-28-20-1-3-551	128.04	0.00	128.04	2420.09	0.00	2420.09	42.87	47.10	572.23	2.09
F-420-3-A-18-65-1-3-000	115.02	0.00	115.02	2402.94	0.00	2402.94	34.82	43.31	526.22	2.12
O-420-3-A-18-18-1-3-000	113.94	0.00	113.94	2266.34	0.00	2266.34	29.48	42.71	518.97	2.07
O-420-3-A-18-18-1-3-009	114.43	0.00	114.43	2249.53	21.71	2271.24	36.09	42.28	513.63	2.02
V-420-3-A-03-65-1-3-000	141.10	0.00	141.10	2905.65	0.00	2905.65	32.16	54.05	656.71	2.33
V-420-3-A-28-65-1-3-000	115.06	0.00	115.06	2261.25	0.00	2261.25	54.52	42.60	517.58	2.19
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-28-15-1-3-000	187	0.07	0.02	-	0	0.76	0	0
1-105-5-A-28-10-0-3-000	174	0.07	0.03	-	0	0.76	0	0
1-105-5-A-28-13-1-3-000	180	0.07	0.04	-	0	0.76	0	0
1-105-5-A-28-13-1-3-061	175	0.07	0.02	-	0	0.76	0	0
1-105-5-A-28-15-1-3-000	176	0.07	0.05	-	0	0.76	0	0
1-105-5-A-28-15-1-3-060	180	0.07	0.02	-	0	0.76	0	0
1-140-5-A-28-10-0-3-000	188	0.07	0.04	-	0	0.76	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	194	0.07	0.03	-	0	0.77	0	0
1-140-5-A-28-13-1-3-061	221	0.07	0.03	-	0	0.77	0	0
1-140-5-A-28-15-1-3-000	197	0.07	0.03	-	0	0.77	0	0
1-140-5-A-28-15-1-3-060	192	0.07	0.03	-	0	0.77	0	0
1-140-5-A-28-20-1-3-000	197	0.07	0.03	-	0	0.77	0	0
M-105-0-A-28-13-1-3-020	218	0.07	0.05	-	0	0.77	0	0
M-105-0-A-28-15-1-3-000	220	0.07	0.03	-	0	0.77	0	0
M-105-0-A-28-15-1-3-020	217	0.07	0.03	-	0	0.77	0	0
M-105-0-A-28-15-1-3-04J	215	0.07	0.03	-	0	0.77	0	0
M-105-0-A-28-20-1-3-000	221	0.07	0.03	-	0	0.77	0	0
M-105-0-A-28-20-1-3-073	242	0.07	0.03	-	0	0.78	0	0
M-105-0-A-28-20-1-3-074	231	0.07	0.03	-	0	0.77	0	0
M-125-0-A-28-13-1-3-020	238	0.07	0.03	-	0	0.78	0	0
M-125-0-A-28-15-1-3-061	239	0.07	0.03	-	0	0.78	0	0
M-140-0-A-28-13-1-3-000	250	0.07	0.03	-	0	0.78	0	0
M-140-0-A-28-15-1-3-000	251	0.07	0.03	-	0	0.78	0	0
M-140-0-A-28-15-1-3-060	260	0.08	0.03	-	0	0.78	0	0
P-041-5-A-03-13-0-3-000	340	0.09	0.03	-	0	0.82	0	0
P-041-5-A-07-13-0-3-000	318	0.08	0.08	-	0	0.81	0	0
P-041-5-A-28-10-0-3-000	269	0.08	0.07	-	0	0.79	0	0
P-041-5-A-28-13-0-3-000	272	0.08	0.03	-	0	0.79	0	0
P-041-5-A-28-15-1-3-000	290	0.08	0.04	-	0	0.80	0	0
P-041-5-A-28-15-1-3-01Z	317	0.08	0.03	-	0	0.81	0	0
P-041-5-A-28-18-0-3-530	366	0.09	0.03	-	0	0.83	0	0
P-045-5-A-03-13-0-3-000	360	0.09	0.03	-	0	0.82	0	0
R-010-0-A-28-20-0-3-000	129	0.06	0.02	-	0	0.74	0	0
R-030-0-A-28-20-0-3-000	151	0.06	0.02	-	0	0.75	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)							

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**
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-28-20-1-3-0AC	250	0.08	0.03	-	0	0.78	0	0
1-175-5-A-28-10-0-3-000	203	0.07	0.06	-	0	0.77	0	0
1-175-5-A-28-15-1-3-000	208	0.07	0.03	-	0	0.77	0	0
M-175-0-A-28-15-1-3-060	281	0.08	0.03	-	0	0.79	0	0
M-175-0-A-28-15-1-3-061	282	0.08	0.03	-	0	0.79	0	0
M-175-0-A-28-20-1-3-000	276	0.08	0.03	-	0	0.79	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 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**
1-210-3-A-03-13-1-3-000	298	0.08	0.03	-	0	0.80	0	0
1-210-3-A-03-15-1-3-000	299	0.08	0.03	-	0	0.80	0	0
1-210-3-A-28-13-1-3-000	249	0.08	0.03	-	0	0.78	0	0
1-210-3-A-28-13-1-3-001	275	0.08	0.03	-	0	0.79	0	0
1-210-3-A-28-13-1-3-020	249	0.08	0.03	-	0	0.78	0	0
1-210-3-A-28-15-1-3-000	261	0.08	0.03	-	0	0.79	0	0
1-210-3-A-28-15-1-3-060	265	0.08	0.03	-	0	0.79	0	0
1-210-3-A-28-20-1-3-000	262	0.08	0.04	-	0	0.79	0	0
1-210-5-A-03-13-1-3-000	282	0.08	0.03	-	0	0.79	0	0
1-210-5-A-03-13-1-3-001	290	0.08	0.03	-	0	0.80	0	0
1-210-5-A-03-15-1-3-000	279	0.08	0.06	-	0	0.79	0	0
1-210-5-A-07-13-1-3-000	256	0.08	0.03	-	0	0.78	0	0
1-210-5-A-07-15-1-3-000	242	0.07	0.03	-	0	0.78	0	0
1-210-5-A-14-15-1-3-000	229	0.07	0.03	-	0	0.78	0	0
1-210-5-A-14-20-1-3-000	237	0.07	0.03	-	0	0.78	0	0
1-210-5-A-28-10-0-3-000	220	0.07	0.04	-	0	0.77	0	0
1-210-5-A-28-13-1-3-000	231	0.07	0.04	-	0	0.78	0	0
1-210-5-A-28-15-1-3-000	233	0.07	0.04	-	0	0.78	0	0
1-210-5-A-28-15-1-3-001	236	0.07	0.03	-	0	0.78	0	0
1-210-5-A-28-15-1-3-004	281	0.08	0.03	-	0	0.80	0	0
1-210-5-A-28-15-1-3-025	271	0.08	0.05	-	0	0.79	0	0
1-210-5-A-28-20-1-3-000	254	0.08	0.04	-	0	0.79	0	0
1-210-5-A-28-20-1-3-001	245	0.08	0.03	-	0	0.78	0	0
1-210-5-A-28-20-1-3-061	249	0.08	0.04	-	0	0.78	0	0
1-245-3-A-03-15-1-3-000	346	0.09	0.03	-	0	0.82	0	0
1-245-3-A-03-20-1-3-000	370	0.09	0.03	-	0	0.82	0	0
1-245-3-A-07-15-1-3-000	268	0.08	0.03	-	0	0.79	0	0
1-245-3-A-28-13-1-3-000	248	0.08	0.03	-	0	0.78	0	0
1-245-3-A-28-15-1-3-000	262	0.08	0.04	-	0	0.79	0	0
1-245-3-A-28-20-1-3-000	274	0.08	0.03	-	0	0.79	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-03-13-1-3-000	328	0.09	0.03	-	0	0.81	0	0
1-245-5-A-03-15-1-3-000	320	0.08	0.03	-	0	0.81	0	0
1-245-5-A-07-15-1-3-000	258	0.08	0.03	-	0	0.79	0	0
1-245-5-A-14-20-1-3-060	250	0.08	0.03	-	0	0.79	0	0
1-245-5-A-28-13-1-3-000	234	0.07	0.03	-	0	0.78	0	0
1-245-5-A-28-15-1-3-000	238	0.07	0.03	-	0	0.78	0	0
1-280-3-A-03-15-1-3-000	366	0.09	0.03	-	0	0.82	0	0
1-280-3-A-03-20-1-3-000	370	0.09	0.07	-	0	0.82	0	0
1-280-3-A-07-15-1-3-001	319	0.08	0.03	-	0	0.81	0	0
1-280-3-A-07-20-1-3-000	306	0.08	0.03	-	0	0.80	0	0
1-280-3-A-14-15-1-3-000	280	0.08	0.03	-	0	0.80	0	0
1-280-3-A-28-10-0-3-000	267	0.08	0.03	-	0	0.79	0	0
1-280-3-A-28-13-1-3-000	276	0.08	0.03	-	0	0.79	0	0
1-280-3-A-28-13-1-3-001	274	0.08	0.09	-	0	0.79	0	0
1-280-3-A-28-13-1-3-072	287	0.08	0.15	-	0	0.80	0	0
1-280-3-A-28-15-1-3-000	276	0.08	0.04	-	0	0.79	0	0
1-280-3-A-28-15-1-3-001	274	0.08	0.04	-	0	0.79	0	0
1-280-3-A-28-15-1-3-060	277	0.08	0.03	-	0	0.79	0	0
1-280-3-A-28-20-1-3-000	282	0.08	0.03	-	0	0.80	0	0
1-280-3-A-28-20-1-3-001	264	0.08	0.14	-	0	0.79	0	0
1-280-3-A-28-20-1-3-061	266	0.08	0.03	-	0	0.79	0	0
1-280-5-A-03-13-1-3-000	333	0.09	0.03	-	0	0.81	0	0
1-280-5-A-03-15-1-3-000	330	0.09	0.03	-	0	0.81	0	0
1-280-5-A-07-15-1-3-000	309	0.08	0.03	-	0	0.80	0	0
1-280-5-A-14-13-1-3-000	280	0.08	0.03	-	0	0.80	0	0
1-280-5-A-14-15-1-3-000	272	0.08	0.03	-	0	0.79	0	0
1-280-5-A-14-15-1-3-001	270	0.08	0.03	-	0	0.79	0	0
1-280-5-A-28-10-0-3-000	245	0.08	0.05	-	0	0.78	0	0
1-280-5-A-28-13-1-3-000	250	0.08	0.03	-	0	0.79	0	0
1-280-5-A-28-13-1-3-001	273	0.08	0.05	-	0	0.79	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-28-13-1-3-024	277	0.08	0.03	-	0	0.79	0	0
1-280-5-A-28-15-1-3-000	257	0.08	0.04	-	0	0.79	0	0
1-280-5-A-28-15-1-3-001	258	0.08	0.03	-	0	0.79	0	0
1-280-5-A-28-15-1-3-002	271	0.08	0.03	-	0	0.79	0	0
1-280-5-A-28-15-1-3-004	265	0.08	0.03	-	0	0.79	0	0
1-280-5-A-28-15-1-3-009	284	0.08	0.03	-	0	0.80	0	0
1-280-5-A-28-15-1-3-02T	254	0.08	0.03	-	0	0.79	0	0
1-280-5-A-28-20-1-3-000	258	0.08	0.03	-	0	0.79	0	0
1-280-5-A-28-20-1-3-001	261	0.08	0.03	-	0	0.79	0	0
1-315-5-A-03-15-1-3-000	402	0.09	0.03	-	0	0.83	0	0
1-315-5-A-03-15-1-3-004	416	0.10	0.03	-	0	0.84	0	0
1-315-5-A-07-15-1-3-000	310	0.08	0.09	-	0	0.80	0	0
1-315-5-A-28-15-1-3-000	278	0.08	0.05	-	0	0.79	0	0
1-315-5-A-28-15-1-3-004	302	0.08	0.03	-	0	0.80	0	0
1-315-5-A-28-15-1-3-009	304	0.08	0.03	-	0	0.80	0	0
1-350-3-A-03-15-1-3-000	454	0.10	0.03	-	0	0.85	0	0
1-350-3-A-03-15-1-3-004	449	0.10	0.03	-	0	0.85	0	0
1-350-3-A-03-20-1-3-000	497	0.11	0.03	-	0	0.86	0	0
1-350-3-A-03-20-1-3-004	476	0.10	0.03	-	0	0.86	0	0
1-350-3-A-28-15-1-3-000	298	0.08	0.03	-	0	0.80	0	0
1-350-3-A-28-15-1-3-004	324	0.09	0.03	-	0	0.81	0	0
1-350-3-A-28-20-1-3-000	296	0.08	0.03	-	0	0.80	0	0
1-350-3-A-28-20-1-3-060	295	0.08	0.03	-	0	0.80	0	0
1-350-3-A-28-20-1-3-061	289	0.08	0.03	-	0	0.80	0	0
1-350-5-A-03-15-1-3-000	437	0.10	0.03	-	0	0.85	0	0
1-350-5-A-07-15-1-3-000	363	0.09	0.03	-	0	0.82	0	0
1-350-5-A-28-13-1-3-000	284	0.08	0.03	-	0	0.80	0	0
1-350-5-A-28-15-1-3-000	278	0.08	0.04	-	0	0.80	0	0
1-350-5-A-28-20-1-3-000	293	0.08	0.04	-	0	0.80	0	0
3-280-3-A-28-13-1-3-001	311	0.08	0.03	-	0	0.81	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**
3-280-3-A-28-15-1-3-000	318	0.08	0.03	-	0	0.81	0	0
3-280-3-A-28-15-1-3-001	305	0.08	0.03	-	0	0.80	0	0
3-280-3-A-28-20-1-3-000	293	0.08	0.03	-	0	0.80	0	0
3-280-3-A-28-20-1-3-01X	287	0.08	0.03	-	0	0.79	0	0
3-280-5-A-28-15-1-3-000	285	0.08	0.03	-	0	0.80	0	0
3-280-5-A-28-20-1-3-01X	275	0.08	0.03	-	0	0.79	0	0
8-280-3-A-28-15-1-3-000	281	0.08	0.03	-	0	0.80	0	0
8-280-5-A-28-15-1-3-000	270	0.08	0.03	-	0	0.79	0	0
8-315-5-A-28-15-1-3-000	292	0.08	0.03	-	0	0.80	0	0
8-315-5-A-28-20-1-3-000	313	0.08	0.03	-	0	0.81	0	0
C-245-3-A-28-25-1-3-000	348	0.09	0.03	-	0	0.82	0	0
C-280-3-A-28-25-1-3-000	305	0.08	0.03	-	0	0.80	0	0
F-210-3-A-18-65-1-3-000	304	0.08	0.04	-	0	0.80	0	0
F-280-3-A-18-65-1-3-000	322	0.08	0.04	-	0	0.81	0	0
F-350-3-A-18-65-1-3-000	352	0.09	0.04	-	0	0.82	0	0
F-350-3-A-18-65-1-3-001	374	0.09	0.08	-	0	0.82	0	0
I-280-5-A-28-13-1-3-000	263	0.08	0.03	-	0	0.79	0	0
J-210-3-A-28-65-1-3-000	313	0.08	0.03	-	0	0.80	0	0
J-280-3-A-28-65-1-3-000	292	0.08	0.03	-	0	0.80	0	0
M-210-0-A-28-13-1-3-061	273	0.08	0.03	-	0	0.79	0	0
O-210-3-A-18-13-1-3-000	270	0.08	0.03	-	0	0.79	0	0
O-210-3-A-18-15-1-3-000	258	0.08	0.03	-	0	0.79	0	0
O-210-3-A-18-18-1-3-000	266	0.08	0.03	-	0	0.79	0	0
O-210-3-A-18-20-1-3-000	262	0.08	0.03	-	0	0.79	0	0
O-210-3-A-18-23-1-3-000	269	0.08	0.03	-	0	0.79	0	0
O-210-5-A-18-13-1-3-000	244	0.07	0.03	-	0	0.78	0	0
O-210-5-A-18-13-1-3-001	243	0.07	0.04	-	0	0.78	0	0
O-210-5-A-18-13-1-3-009	253	0.08	0.03	-	0	0.78	0	0
O-210-5-A-18-13-1-3-072	252	0.08	0.08	-	0	0.78	0	0
O-210-5-A-18-15-1-3-000	250	0.08	0.03	-	0	0.78	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
O-210-5-A-20-13-1-3-000	246	0.08	0.03	-	0	0.78	0	0
O-280-3-A-18-13-1-3-000	300	0.08	0.03	-	0	0.80	0	0
O-280-3-A-18-15-1-3-000	302	0.08	0.03	-	0	0.80	0	0
O-280-3-A-18-18-1-3-000	303	0.08	0.03	-	0	0.80	0	0
O-280-3-A-18-20-1-3-000	297	0.08	0.03	-	0	0.80	0	0
O-280-5-A-18-13-1-3-000	281	0.08	0.03	-	0	0.79	0	0
O-280-5-A-18-15-1-3-000	278	0.08	0.03	-	0	0.79	0	0
O-350-3-A-18-13-1-3-000	330	0.09	0.03	-	0	0.81	0	0
O-350-3-A-18-18-1-3-000	345	0.09	0.03	-	0	0.82	0	0
O-350-3-A-18-20-1-3-000	342	0.09	0.03	-	0	0.81	0	0
O-350-5-A-18-13-1-3-000	325	0.09	0.03	-	0	0.81	0	0
Q-280-3-A-28-13-1-3-63M	294	0.08	0.03	-	0	0.80	0	0
Q-280-3-A-28-15-1-3-63M	300	0.08	0.03	-	0	0.80	0	0
T-210-3-A-28-20-1-3-000	272	0.08	0.05	-	0	0.79	0	0
T-210-5-A-28-20-1-3-000	250	0.08	0.05	-	0	0.79	0	0
T-245-3-A-28-20-1-3-000	269	0.08	0.03	-	0	0.79	0	0
T-245-5-A-28-20-1-3-000	233	0.07	0.03	-	0	0.78	0	0
T-280-3-A-28-20-1-3-000	291	0.08	0.03	-	0	0.80	0	0
T-280-5-A-28-18-1-3-665	231	0.07	0.03	-	0	0.78	0	0
T-280-5-A-28-20-1-3-000	277	0.08	0.03	-	0	0.79	0	0
T-280-5-A-28-20-1-3-200	292	0.08	0.03	-	0	0.80	0	0
T-350-5-A-28-20-1-3-000	311	0.09	0.10	-	0	0.81	0	0
V-210-3-A-28-65-1-3-000	298	0.08	0.03	-	0	0.80	0	0
V-245-3-A-28-65-1-3-000	315	0.08	0.03	-	0	0.81	0	0
V-280-3-A-03-65-1-3-000	454	0.10	0.03	-	0	0.85	0	0
V-280-3-A-28-65-1-3-000	325	0.09	0.04	-	0	0.81	0	0
V-280-3-A-28-65-1-3-001	321	0.08	0.03	-	0	0.81	0	0
V-350-3-A-03-65-1-3-000	447	0.10	0.04	-	0	0.85	0	0
V-350-3-A-28-65-1-3-000	323	0.08	0.03	-	0	0.81	0	0
V-350-3-A-28-65-1-3-012	388	0.09	0.03	-	0	0.83	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**
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	**GWP Net**	**HWD**	**NHWD**	**RWD**	**MER**	**MFR**	**EE**	**CRU**
Unit	**kgCO_2 eq**	**kg**	**kg**	**kg**	**kg**	**kg**	**MJ**	**kg**
1-420-3-A-03-20-1-3-000	544	0.11	0.03	-	0	0.88	0	0
1-420-3-A-28-13-1-3-000	348	0.09	0.03	-	0	0.82	0	0
1-420-3-A-28-15-1-3-000	346	0.09	0.03	-	0	0.82	0	0
1-420-3-A-28-20-1-3-000	338	0.09	0.03	-	0	0.82	0	0
1-420-5-A-28-13-1-3-000	326	0.09	0.03	-	0	0.81	0	0
1-420-5-A-28-15-1-3-000	323	0.09	0.05	-	0	0.81	0	0
A-490-3-A-28-20-1-3-551	371	0.09	0.03	-	0	0.83	0	0
A-560-3-A-28-20-1-3-551	432	0.10	0.10	-	0	0.85	0	0
F-420-3-A-18-65-1-3-000	405	0.09	0.04	-	0	0.83	0	0
O-420-3-A-18-18-1-3-000	393	0.09	0.03	-	0	0.83	0	0
O-420-3-A-18-18-1-3-009	390	0.09	0.03	-	0	0.83	0	0
V-420-3-A-03-65-1-3-000	500	0.11	0.04	-	0	0.86	0	0
V-420-3-A-28-65-1-3-000	392	0.09	0.04	-	0	0.83	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.							

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**
	• 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