ENVIRONMENTAL PRODUCT DECLARATION (EPD)

Environmental Product Declaration for concrete products produced by Cementos Moctezuma, S. A. de C.V. at their Zapopan facility in Jalisco, México

MOCTEZUMA®

ADMINISTRATIVE INFORMATION

International Certified Environmental Product Declaration

Declared Product:	This Environmental Product Declaration (EPD) covers ready mix concrete products produced by Cementos Moctezuma S.A. de C.V. Declared unit: 1 m3 of concrete
Declaration Owner:	Cementos Moctezuma S.A. de C.V. 134 PH Monte Elbruz, Col. Lomas de Chapultepec Ciudad de México, México www.cmoctezuma.com.mx Jair Juan Manuel Martínez Miguel, martinez.jair@cmoctezuma.com.mx
Program Operator:	Labeling Sustainability 700 S. Rosemary West Palm Beach, FL www.labelingsustainability.com
Product Category Rule:	ISO 21930:2017 Sustainability in Building Construction – Environmental Declaration of Building Products: serves as the core PCR Product Category Rule of Environmental Product Declarations PCR for Concrete serves as the sub-category PCR. PCR Program Operator: NSF International Sub-category PCR review was conducted by: Thomas P. Gloria, Ph. D. of Industrial Ecology Consultants: 35 Bracebridge, Rd., Newton, MA 02459-1728, t.gloria@industrial-ecology.com. Dr. Michael Overcash of Environmental Clarity: 2908 Chipmunk Lane, Raleigh, NC 27607-3117, mrovercash@earthlink.net. Mr. Bill Stough of Sustainable Research Group: PO Box 1684, Grand Rapids, MI 49501-1684, bstough@sustainableresearchgroup.com.
Independent LCA Reviewer and EPD Verifier:	This EPD was independently verified in accordance with ISO 14025 and ISO 21930. The life cycle assessment was independently reviewed in accordance ISO 14044 and the referenced PCR. Independent verification of the declaration, according to ISO 14025:2006 External Third Party Verifier Denice V. Staaf, Certified 3rd Party Verifier under Labeling Sustainability (www.labelingsustainability.com)
Date of Issue:	23 April 2025
Period of Validity:	5 years; valid until 23 April 2030
EPD Number:	CECOMO04232501

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COMPANY DESCRIPTION

Cementos Moctezuma is a prominent Mexican company established in 1943, specializing in the production, distribution, and marketing of cement, concrete, and aggregates under the well-known brands Cementos Moctezuma and Concretos Moctezuma. Listed on the Mexican Stock Exchange since 1988, the company maintains a strong financial position characterized by discipline and zero debt.

With three cement plants boasting an annual capacity of eight million tons and 30 concrete plants producing over 590 types of concrete, Cementos Moctezuma has an extensive distribution network of more than 530 centers, covering 95% of Mexico. The company also offers value-added services, including specialized technical advice, mobile laboratories, construction supervision, and training.

Cementos Moctezuma is committed to sustainable development, aligning its operations with the United Nations' Sustainable Development Goals through a strategy focused on five pillars: Safety and health, Energy and climate change, Corporate social responsibility, Environment and biodiversity, and Circular economy. The company emphasizes technological innovation and operational efficiency to produce high-quality products while minimizing environmental impact, including reducing CO_2 emissions and optimizing water use.

A qualified team of 1,303 passionate collaborators drives Cementos Moctezuma's mission to promote the construction of a better country for families and future generations while being committed to environmental stewardship. The company also champions equity and inclusion in the construction industry through initiatives like Casco Rosa, which recognizes the contributions of women in the sector. Additionally, Cementos Moctezuma actively engages in social responsibility programs to enhance the quality of life in the communities it serves, reinforcing its status as a consolidated company with deep Mexican roots.

STUDY GOAL

The intended application of this life cycle assessment (LCA) is to comply with the procedures for creating a Type III environmental product declaration (EPD) and publish the EPD for public review on the website, http://labelingsustainability.com/ . This level of study is in accordance with EPD Product Category Rule (PCR) for Ready Mix Concrete published by NSF International (2019) and is a sub-PCR of International Standards Organization (ISO) 21930:2017 Sustainability in buildings and civil works - Core rules for EPDs of construction products and services; International Standards Organization (ISO) 14025:2006 Environmental labels and declarations, Type III environmental declarations-Principles and procedures; ISO 14044:2006 Environmental management, Life cycle assessment- Requirements and guidelines; and ISO 14040:2006 Environmental management, Life cycle assessment-Principles and framework. 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 Cementos Moctezuma 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 Cementos Moctezuma 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 Cementos Moctezuma's license to operate in the community. The intended audience for this LCA report is Cementos Moctezuma's employees, their suppliers, project specifiers of their products, architects, and engineers. The EPD report is also available for policy makers, government officials interested in sustainability, academic professors, and LCA professionals. This LCA report does not include product comparisons from other facilities.

DESCRIPTION OF PRODUCT AND SCOPE

This EPD reports on 142 concrete mixes manufactured at Cementos Moctezuma concrete facility in Jalisco, Mexico.

This LCA assumes the impacts from products manufactured in accordance with the standards outlined in this report. This LCA is a cradle-to-gate study, and therefore, stages extending beyond the plant gate are not included in this LCA. Excluded stages include transportation of the manufactured material to the construction site; on-site construction processes and components; building (infrastructure) use and maintenance; and "end-of-life" effects.

READY MIX CONCRETE DESIGN SUMMARY

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

Mix Designs: 0 to 15 MPa

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

Mix#	Unique name/ID	Short description	Product type	Resistance strength, MPa	H2O to cement ratio
1	Convencional - f´c 100 - 7 dias	9.80 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	9.80	Proprietary
2	Convencional - f´c 100 - 3 dias	9.80 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	9.80	Proprietary
3	Convencional - f´c 100 - 28 dias	9.80 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	9.80	Proprietary
4	Convencional - f´c 100 - 14 dias	9.80 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	9.80	Proprietary
5	Convencional - f´c 150 - 7 dias	14.70 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	14.70	Proprietary
6	Convencional - f´c 150 - 3 dias	14.70 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	14.70	Proprietary
7	Convencional - f´c 150 - 28 dias	14.70 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	14.70	Proprietary

8	Convencional - f´c 150 - 14 dias	14.70 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	14.70	Proprietary
57	Relleno Fluido - f´c 30 - 7 dias	2.94 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	2.94	Proprietary
58	Relleno Fluido - f´c 30 - 3 dias	2.94 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	2.94	Proprietary
59	Relleno Fluido - f´c 30 - 28 dias	2.94 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	2.94	Proprietary
60	Relleno Fluido - f´c 30 - 14 dias	2.94 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	2.94	Proprietary
61	Relleno Fluido - f´c 15 - 7 dias	1.47 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	1.47	Proprietary
62	Relleno Fluido - f´c 15 - 3 dias	1.47 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	1.47	Proprietary
63	Relleno Fluido - f´c 15 - 28 dias	1.47 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	1.47	Proprietary
64	Relleno Fluido - f´c 15 - 14 dias	1.47 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	1.47	Proprietary
65	Relleno Fluido - f´c 20 - 7 dias	1.96 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	1.96	Proprietary
66	Relleno Fluido - f´c 20 - 3 dias	1.96 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	1.96	Proprietary
67	Relleno Fluido - f´c 20 - 28 dias	1.96 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	1.96	Proprietary
68	Relleno Fluido - f´c 20 - 14 dias	1.96 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	1.96	Proprietary
69	Relleno Fluido - f´c 25 - 7 dias	2.45 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	2.45	Proprietary
70	Relleno Fluido - f´c 25 - 3 dias	2.45 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	2.45	Proprietary
71	Relleno Fluido - f´c 25 - 28 dias	2.45 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	2.45	Proprietary
72	Relleno Fluido - f´c 25 - 14 dias	2.45 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	2.45	Proprietary

73	Relleno Fluido - f´c 40 - 7 dias	3.92 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	3.92	Proprietary
74	Relleno Fluido - f´c 40 - 3 dias	3.92 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	3.92	Proprietary
75	Relleno Fluido - f´c 40 - 28 dias	3.92 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	3.92	Proprietary
76	Relleno Fluido - f´c 40 - 14 dias	3.92 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	3.92	Proprietary
77	Relleno Fluido - f´c 50 - 7 dias	4.90 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	4.90	Proprietary
78	Relleno Fluido - f´c 50 - 3 dias	4.90 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	4.90	Proprietary
79	Relleno Fluido - f´c 50 - 28 dias	4.90 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	4.90	Proprietary
80	Relleno Fluido - f´c 50 - 14 dias	4.90 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	4.90	Proprietary
81	Relleno Fluido - f´c 60 - 7 dias	5.88 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	5.88	Proprietary
82	Relleno Fluido - f´c 60 - 3 dias	5.88 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	5.88	Proprietary
83	Relleno Fluido - f´c 60 - 28 dias	5.88 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	5.88	Proprietary
84	Relleno Fluido - f´c 60 - 14 dias	5.88 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	5.88	Proprietary
85	Relleno Fluido - f´c 70 - 7 dias	6.86 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	6.86	Proprietary
86	Relleno Fluido - f´c 70 - 3 dias	6.86 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	6.86	Proprietary
87	Relleno Fluido - f´c 70 - 28 dias	6.86 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	6.86	Proprietary
88	Relleno Fluido - f´c 70 - 14 dias	6.86 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	6.86	Proprietary

Mix Designs: 15 to 20 MPa

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

Mix#	Unique name/ID	Short description	Product type	Resistance strength, MPa	H2O to cement ratio
9	Convencional - f´c 200 - 7 dias	19.60 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	19.6	Proprietary
10	Convencional - f´c 200 - 3 dias	19.60 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	19.6	Proprietary
11	Convencional - f´c 200 - 28 dias	19.60 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	19.6	Proprietary
12	Convencional - f´c 200 - 14 dias	19.60 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	19.6	Proprietary
127	Lanzado - f´c 200 - 7 dias	19.60 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	19.6	Proprietary
128	Lanzado - f´c 200 - 3 dias	19.60 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	19.6	Proprietary
129	Lanzado - f´c 200 - 28 dias	19.60 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	19.6	Proprietary
130	Lanzado - f´c 200 - 14 dias	19.60 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	19.6	Proprietary

Mix Designs: 21 to 25 MPa

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

Mix#	Unique name/ID	Short description	Product type	Resistance strength, MPa	H2O to cement ratio
13	Convencional - f´c 250 - 7 dias	24.50 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	24.5	Proprietary

14	Convencional - f´c 250 - 3 dias	24.50 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	24.5	Proprietary
15	Convencional - f´c 250 - 28 dias	24.50 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.5	Proprietary
16	Convencional - f´c 250 - 14 dias	24.50 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	24.5	Proprietary
25	Estructural - f´c 250 - 7 dias	24.50 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	24.5	Proprietary
26	Estructural - f´c 250 - 3 dias	24.50 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	24.5	Proprietary
27	Estructural - f´c 250 - 28 dias	24.50 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.5	Proprietary
28	Estructural - f´c 250 - 14 dias	24.50 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	24.5	Proprietary
89	Modulo de ruptura - MR 35 - 7 dias	24.50 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	24.5	Proprietary
90	Modulo de ruptura - MR 35 - 3 dias	24.50 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	24.5	Proprietary
91	Modulo de ruptura - MR 35 - 28 dias	24.50 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.5	Proprietary
92	Modulo de ruptura - MR 35 - 14 dias	24.50 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	24.5	Proprietary
131	Lanzado - f´c 250 - 7 dias	24.50 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	24.5	Proprietary
132	Lanzado - f´c 250 - 3 dias	24.50 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	24.5	Proprietary
133	Lanzado - f´c 250 - 28 dias	24.50 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	24.5	Proprietary
134	Lanzado - f´c 250 - 14 dias	24.50 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	24.5	Proprietary

Mix Designs: 26 to 30 MPa

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

Mix#	Unique name/ID	Short description	Product type	Resistance strength, MPa	H2O to cement ratio
17	Convencional - f´c 300 - 7 dias	29.40 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary
18	Convencional - f´c 300 - 3 dias	29.40 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary
19	Convencional - f´c 300 - 28 dias	29.40 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary
20	Convencional - f´c 300 - 14 dias	29.40 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary
29	Estructural - f´c 300 - 7 dias	29.40 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary
30	Estructural - f´c 300 - 3 dias	29.40 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary
31	Estructural - f´c 300 - 28 dias	29.40 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary
32	Estructural - f´c 300 - 14 dias	29.40 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary
93	Modulo de ruptura - MR 38 - 7 dias	26.60 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	26.6	Proprietary
94	Modulo de ruptura - MR 38 - 3 dias	26.60 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	26.6	Proprietary
95	Modulo de ruptura - MR 38 - 28 dias	26.60 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	26.6	Proprietary
96	Modulo de ruptura - MR 38 - 14 dias	26.60 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	26.6	Proprietary
97	Modulo de ruptura - MR 40 - 7 dias	28.00 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	28.0	Proprietary
98	Modulo de ruptura - MR 40 - 3 dias	28.00 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	28.0	Proprietary
99	Modulo de ruptura - MR 40 - 28 dias	28.00 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	28.0	Proprietary

100	Modulo de ruptura - MR 40 - 14 dias	28.00 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	28.0	Proprietary
101	Modulo de ruptura - MR 42 - 7 dias	29.40 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary
102	Modulo de ruptura - MR 42 - 3 dias	29.40 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary
103	Modulo de ruptura - MR 42 - 28 dias	29.40 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary
104	Modulo de ruptura - MR 42 - 14 dias	29.40 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary
113	Modulo de ruptura - MR 36 - 7 dias	25.20 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	25.2	Proprietary
114	Modulo de ruptura - MR 36 - 3 dias	25.20 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	25.2	Proprietary
115	Modulo de ruptura - MR 36 - 28 dias	25.20 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	25.2	Proprietary
116	Modulo de ruptura - MR 36 - 14 dias	25.20 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	25.2	Proprietary
117	Baja contracción - MR 38 - 28 dias	26.60 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	26.6	Proprietary
118	Baja contracción - MR 38 - 14 dias	26.60 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	26.6	Proprietary
119	Baja contracción - MR 40 - 28 dias	28.00 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	28.0	Proprietary
120	Baja contracción - MR 40 - 14 dias	28.00 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	28.0	Proprietary
121	Baja contracción - MR 42 - 28 dias	29.40 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary
122	Baja contracción - MR 42 - 14 dias	29.40 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary
135	Lanzado - f´c 300 - 7 dias	29.40 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary
136	Lanzado - f´c 300 - 3 dias	29.40 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary

137	Lanzado - f´c 300 - 28 dias	29.40 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary
138	Lanzado - f´c 300 - 14 dias	29.40 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	29.4	Proprietary

Mix Designs: 31 to 35 MPa

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

Mix#	Unique name/ID	Short description	Product type	Resistance strength, MPa	H2O to cement ratio
21	Convencional - f´c 350 - 7 dias	34.30 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	34.3	Proprietary
22	Convencional - f´c 350 - 3 dias	34.30 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	34.3	Proprietary
23	Convencional - f´c 350 - 28 dias	34.30 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	34.3	Proprietary
24	Convencional - f´c 350 - 14 dias	34.30 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	34.3	Proprietary
33	Estructural - f´c 350 - 7 dias	34.30 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	34.3	Proprietary
34	Estructural - f´c 350 - 3 dias	34.30 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	34.3	Proprietary
35	Estructural - f´c 350 - 28 dias	34.30 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	34.3	Proprietary
36	Estructural - f´c 350 - 14 dias	34.30 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	34.3	Proprietary
105	Modulo de ruptura - MR 45 - 7 dias	31.50 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	31.5	Proprietary
106	Modulo de ruptura - MR 45 - 3 dias	31.50 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	31.5	Proprietary
107	Modulo de ruptura - MR 45 - 28 dias	31.50 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	31.5	Proprietary
108	Modulo de ruptura - MR 45 - 14 dias	31.50 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	31.5	Proprietary

109	Modulo de ruptura - MR 48 - 7 dias	33.60 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	33.6	Proprietary
110	Modulo de ruptura - MR 48 - 3 dias	33.60 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	33.6	Proprietary
111	Modulo de ruptura - MR 48 - 28 dias	33.60 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	33.6	Proprietary
112	Modulo de ruptura - MR 48 - 14 dias	33.60 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	33.6	Proprietary
123	Baja contracción - MR 45 - 28 dias	31.50 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	31.5	Proprietary
124	Baja contracción - MR 45 - 14 dias	31.50 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	31.5	Proprietary
125	Baja contracción - MR 48 - 28 dias	33.60 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	33.6	Proprietary
126	Baja contracción - MR 48 - 14 dias	33.60 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	33.6	Proprietary
139	Lanzado - f´c 350 - 7 dias	34.30 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	34.3	Proprietary
140	Lanzado - f´c 350 - 3 dias	34.30 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	34.3	Proprietary
141	Lanzado - f´c 350 - 28 dias	34.30 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	34.3	Proprietary
142	Lanzado - f´c 350 - 14 dias	34.30 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	34.3	Proprietary

Mix Designs: 36 to 40 MPa

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

Mix#	Unique name/ID	Short description	Product type	Resistance strength, MPa	H2O to cement ratio
37	Alta resistencia - f´c 400 - 7 dias	39.20 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	39.2	Proprietary
38	Alta resistencia - f´c 400 - 3 dias	39.20 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	39.2	Proprietary
39	Alta resistencia - f´c 400 - 28 dias	39.20 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	39.2	Proprietary

40	Alta resistencia - f´c 400 - 14 dias	39.20 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	39.2	Proprietary

Mix Designs: 41 to 45 MPa

Table 7: **Declared products with Mix designs: 41 to 45MPa considered in this environmental product declaration**

Mix#	Unique name/ID	Short description	Product type	Resistance strength, MPa	H2O to cement ratio
41	Alta resistencia - f´c 450 - 7 dias	44.10 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	44.1	Proprietary
42	Alta resistencia - f´c 450 - 3 dias	44.10 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	44.1	Proprietary
43	Alta resistencia - f´c 450 - 28 dias	44.10 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	44.1	Proprietary
44	Alta resistencia - f´c 450 - 14 dias	44.10 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	44.1	Proprietary

Mix Designs: 46 to 50 MPa

Table 7: **Declared products with Mix designs: 46 to 50MPa considered in this environmental product declaration**

Mix#	Unique name/ID	Short description	Product type	Resistance strength, MPa	H2O to cement ratio
45	Alta resistencia - f´c 500 - 7 dias	49.00 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	49	Proprietary
46	Alta resistencia - f´c 500 - 3 dias	49.00 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	49	Proprietary
47	Alta resistencia - f´c 500 - 28 dias	49.00 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	49	Proprietary
48	Alta resistencia - f´c 500 - 14 dias	49.00 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	49	Proprietary

Mix Designs: 51 to 55 MPa

Table 7: **Declared products with Mix designs: 51 to 55MPa considered in this environmental product declaration**

Mix#	Unique name/ID	Short description	Product type	Resistance strength, MPa	H2O to cement ratio
49	Alta resistencia - f´c 550 - 7 dias	53.90 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	53.9	Proprietary
50	Alta resistencia - f´c 550 - 3 dias	53.90 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	53.9	Proprietary
51	Alta resistencia - f´c 550 - 28 dias	53.90 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	53.9	Proprietary
52	Alta resistencia - f´c 550 - 14 dias	53.90 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	53.9	Proprietary

Mix Designs: 56 to 60 MPa

Table 7: **Declared products with Mix designs: 56 to 60MPa considered in this environmental product declaration**

Mix#	Unique name/ID	Short description	Product type	Resistance strength, MPa	H2O to cement ratio
53	Alta resistencia - f´c 600 - 7 dias	58.80 MPa 7d strength Ready Mix Concrete	Ready Mix Concrete	58.8	Proprietary
54	Alta resistencia - f´c 600 - 3 dias	58.80 MPa 3d strength Ready Mix Concrete	Ready Mix Concrete	58.8	Proprietary
55	Alta resistencia - f´c 600 - 28 dias	58.80 MPa 28d strength Ready Mix Concrete	Ready Mix Concrete	58.8	Proprietary
56	Alta resistencia - f´c 600 - 14 dias	58.80 MPa 14d strength Ready Mix Concrete	Ready Mix Concrete	58.8	Proprietary

READY MIX CONCRETE DESIGN COMPOSITION

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

Table 8: **Ready mix concrete composition.**

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

SYSTEM BOUNDARIES

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

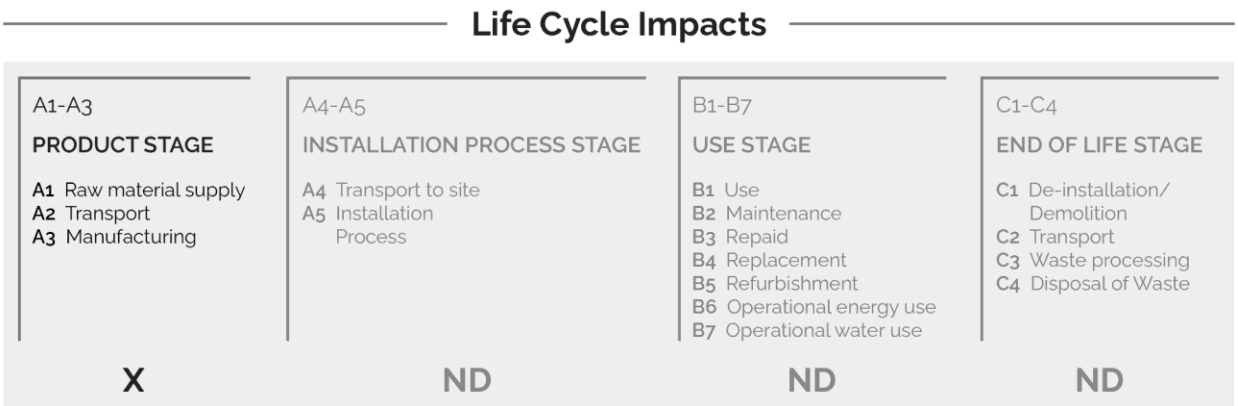

Figure 1: **General life cycle phases for consideration in a construction works system**

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

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

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

System Boundary

Raw Material Supply (A1)	Transport (A2)	Manufacturing (A3)
Cements & SCMs Aggregates Admixtures Batch Water Fibers & Pigments	Truck, Rail, Ship Energy Carriers (fuels)	Energy Carriers (electricity and fuels) Ancillary Materials (lubricants, motor oil, cleaning chemicals, other consumables) Water (manufacturing water, including wash water for cement trucks, but excluding batch water) Waste (end of life treatment of ancillary materials and any packaging) 30% total fleet energy transit mix plants only

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

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 steel production equipment, steel delivery vehicles, earth-moving equipment, and laboratory equipment.
- Personnel-related activities (travel, furniture, office supplies);
- Energy use is related to company management and sales activities.

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

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

CUT-OFF CRITERIA

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

DATA SOURCES AND DATA QUALITY ASSESSMENT

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

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

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

Waste generation: No High-level radioactive waste is generated on-site at this facility.

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

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

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

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

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

Product transport requirements: Truck-related fuel requirements were determined from direct Moctezuma information for the reference year 2023.

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

Table 9: **LCI inputs assumed for module A1 (i.e., raw material supply)** ***Data Quality Assessment Key Fair=1, Good=2, Very Good =3.***

Input	LCI.activity	Data.source	Geo	Year	Technology	Time	Geography	Reliability	Completeness
Andesite Sand	basalt quarry operation/basalt/RoW/ kg; Note: modifications made (see ecoinvent activity changes table)	ecoinvent v3.10 in 2024	Jalisco	2024	2	3	1	3	3
Water	tap water production, conventional treatment/tap water/RoW/kg	ecoinvent v3.10 in 2024	Jalisco	2024	2	3	2	3	3

Limestone Gravel	limestone quarry operation/limestone, unprocessed/RoW/kg; Note: modifications made (see ecoinvent activity changes table)	ecoinvent v3.10 in 2024	Jalisco	2024	2	3	1	3	3
Additives	chemical production, organic/chemical, organic/GLO/kg	ecoinvent v3.10 in 2024	Estado de México	2024	2	3	1	3	3
Cement	Gris CPC 40RS/cement/MX/tonne	Program Operator: Labeling Sustainability - EPD ID: bb72e77d-c6d2-4caa-ba9e-18cce10c7824	Veracruz	23 November 2024	3	3	3	3	3
River Sand	sand quarry operation, extraction from river bed/sand/BR/kg; Note: modifications made (see ecoinvent activity changes table)	ecoinvent v3.10 in 2024	Colima	2024	2	3	2	3	3

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 a study serving as a data source) and representativeness (geographical, temporal, and technological).

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

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

Consistency: To ensure consistency, the same modeling structure across the respective product systems was utilized for all inputs, which consisted of raw material inputs and ancillary material, energy flows, water resource inputs, product and co-products outputs, returned and recovered Ready Mix Concrete materials, emissions to air, water and soil, and waste recycling and treatment. The same background LCI datasets from the ecoinvent v3.10 database were used across all product systems. Crosschecks concerning the plausibility of mass and energy flows were continuously conducted. The

LCA team conducted mass and energy balances at the plant and selected process level to maintain a high level of consistency.

Reproducibility: Internal reproducibility is possible since the data and the models are stored and available in a machine-readable project file for all foreground and background processes, and in EPD Express proprietary Concrete and Cement EPD generator from LCA.no for all production facility and product-specific calculations. A considerable level of transparency is provided throughout the detailed LCA report as the specifications and material quantity make-up for the declared products are presented and key primary and secondary LCI data sources are summarized. The provision of more detailed publicly accessible data to allow full external reproducibility was not possible due to reasons of confidentiality.

EPD Express has developed a proprietary tool that allows the calculation of PCR-compliant LCA results for Ready Mix Concrete product designs. The tool auto-calculates results by scaling base-unit technosphere inputs (i.e. 1 kg sand, 1 kWh electricity, etc.) to replicate the reference flow conversions in openLCA.

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

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

ENVIRONMENTAL INDICATORS AND INVENTORY METRICS

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

Table 10: **Life cycle impact categories and life cycle inventory metrics**

ID	LCIA.indicators	Abbreviations	Units
1	Climate change: global warming potential (GWP100)	GWP100	kg CO2-eq
2	Ozone depletion: ozone depletion potential (ODP)	ODP	kg CFC-11-eq
3	Acidification: acidification potential (AP)	AP	kg SO2-eq
4	Eutrophication: eutrophication potential	EP	kg N-eq
5	Smog formation potential	SFP	kg O3-eq
6	Energy resources: non-renewable: abiotic depletion potential (ADP): fossil fuels	ADPfossil	MJ
Inventory metrics			

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

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

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

- Recovered energy exported from the product system.

LIMITATIONS

This EPD is a declaration of potential environmental impact and does not support or provide definitive comparisons of the environmental performance of specific products. Only EPDs prepared from cradle-to-grave life cycle results and based on the same function and reference service life and quantified by the same functional unit can be used to assist purchasers and users in making informed comparisons between products.

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

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

TOTAL IMPACT SUMMARY

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

Table 11: **Total life cycle (across modules in scope) impact results for all mix designs, assuming the geometric mean point values on a per 1 m3 of concrete basis.**

a) Midpoint Impact Categories:

Indicator/LCI Metric	GWP100	ODP	AP	EP	SFP	ADPfossil
Unit	**kg CO2-eq**	**kg CFC-11-eq**	**kg SO2-eq**	**kg N-eq**	**kg O3-eq**	**MJ**
Alta resistencia - f´c 400 - 14 dias	453.43	1.95E-06	0.434	256.61	10.076	1675.65
Alta resistencia - f´c 400 - 28 dias	430.48	1.90E-06	0.421	242.55	9.761	1633.65
Alta resistencia - f´c 400 - 3 dias	522.23	2.10E-06	0.472	298.81	11.010	1799.36
Alta resistencia - f´c 400 - 7 dias	480.95	2.01E-06	0.449	273.49	10.448	1724.91
Alta resistencia - f´c 450 - 14 dias	494.18	2.04E-06	0.456	281.37	10.620	1756.08
Alta resistencia - f´c 450 - 28 dias	471.23	1.99E-06	0.443	267.30	10.307	1714.57
Alta resistencia - f´c 450 - 3 dias	563.06	2.19E-06	0.495	323.56	11.554	1881.97
Alta resistencia - f´c 450 - 7 dias	521.73	2.10E-06	0.472	298.25	10.992	1806.32
Alta resistencia - f´c 500 - 14 dias	521.76	2.10E-06	0.472	298.25	10.998	1807.35

Alta resistencia - f´c 500 - 28 dias	498.78	2.05E-06	0.459	284.18	10.683	1765.01
Alta resistencia - f´c 500 - 3 dias	590.63	2.25E-06	0.511	340.44	11.928	1932.54
Alta resistencia - f´c 500 - 7 dias	549.31	2.16E-06	0.487	315.13	11.371	1857.59
Alta resistencia - f´c 550 - 14 dias	570.40	2.20E-06	0.499	327.50	11.650	1913.25
Alta resistencia - f´c 550 - 28 dias	547.37	2.15E-06	0.486	313.44	11.335	1869.61
Alta resistencia - f´c 550 - 3 dias	639.41	2.35E-06	0.538	369.70	12.580	2041.77
Alta resistencia - f´c 550 - 7 dias	598.01	2.26E-06	0.515	344.38	12.022	1964.92
Alta resistencia - f´c 600 - 14 dias	616.46	2.31E-06	0.525	355.63	12.273	2000.97
Alta resistencia - f´c 600 - 28 dias	593.43	2.26E-06	0.512	341.57	11.958	1957.34
Alta resistencia - f´c 600 - 3 dias	685.51	2.46E-06	0.564	397.83	13.205	2130.85
Alta resistencia - f´c 600 - 7 dias	644.09	2.37E-06	0.540	372.51	12.646	2053.16
Baja contracción - MR 38 - 14 dias	335.43	1.70E-06	0.373	182.91	8.620	1502.84
Baja contracción - MR 38 - 28 dias	324.51	1.65E-06	0.362	177.29	8.375	1443.97
Baja contracción - MR 40 - 14 dias	346.52	1.72E-06	0.379	189.67	8.770	1524.44
Baja contracción - MR 40 - 28 dias	327.98	1.68E-06	0.368	178.41	8.513	1486.96
Baja contracción - MR 42 - 14 dias	358.56	1.75E-06	0.386	196.98	8.933	1548.51
Baja contracción - MR 42 - 28 dias	340.01	1.71E-06	0.375	185.73	8.678	1510.83
Baja contracción - MR 45 - 14 dias	377.08	1.79E-06	0.396	208.23	9.182	1585.61
Baja contracción - MR 45 - 28 dias	358.56	1.75E-06	0.386	196.98	8.929	1548.80
Baja contracción - MR 48 - 14 dias	399.29	1.84E-06	0.409	221.73	9.483	1629.82
Baja contracción - MR 48 - 28 dias	380.73	1.80E-06	0.398	210.48	9.225	1591.82
Convencional - f´c 100 - 14 dias	235.62	1.22E-06	0.314	126.65	7.377	1055.19
Convencional - f´c 100 - 28 dias	212.63	1.17E-06	0.301	112.59	7.082	1009.42
Convencional - f´c 100 - 3 dias	299.96	1.38E-06	0.348	166.03	8.197	1182.14
Convencional - f´c 100 - 7 dias	267.85	1.22E-06	0.314	127.78	7.182	1168.29
Convencional - f´c 150 - 14 dias	260.48	1.28E-06	0.327	141.84	7.701	1105.15

Convencional - f´c 150 - 28 dias	237.49	1.23E-06	0.315	127.78	7.405	1059.40
Convencional - f´c 150 - 3 dias	324.83	1.44E-06	0.362	181.22	8.524	1232.03
Convencional - f´c 150 - 7 dias	292.66	1.36E-06	0.345	161.53	8.115	1168.29
Convencional - f´c 200 - 14 dias	295.60	1.36E-06	0.349	163.22	8.214	1172.03
Convencional - f´c 200 - 28 dias	273.01	1.31E-06	0.336	149.16	7.922	1134.49
Convencional - f´c 200 - 3 dias	359.92	1.52E-06	0.383	202.60	9.027	1298.81
Convencional - f´c 200 - 7 dias	327.78	1.44E-06	0.366	182.91	8.626	1235.24
Convencional - f´c 250 - 14 dias	327.81	1.44E-06	0.366	182.91	8.633	1236.25
Convencional - f´c 250 - 28 dias	304.81	1.38E-06	0.354	168.85	8.337	1190.12
Convencional - f´c 250 - 3 dias	392.14	1.59E-06	0.401	222.30	9.449	1362.93
Convencional - f´c 250 - 7 dias	359.99	1.52E-06	0.384	202.61	9.046	1299.44
Convencional - f´c 300 - 14 dias	381.09	1.56E-06	0.395	215.54	9.308	1338.32
Convencional - f´c 300 - 28 dias	358.10	1.51E-06	0.382	201.48	9.013	1292.55
Convencional - f´c 300 - 3 dias	445.43	1.72E-06	0.429	254.93	10.129	1465.22
Convencional - f´c 300 - 7 dias	413.27	1.64E-06	0.412	235.24	9.722	1401.46
Convencional - f´c 350 - 14 dias	426.16	1.67E-06	0.420	243.11	9.895	1426.97
Convencional - f´c 350 - 28 dias	403.17	1.61E-06	0.407	229.05	9.598	1381.24
Convencional - f´c 350 - 3 dias	490.52	1.82E-06	0.454	282.49	10.719	1553.81
Convencional - f´c 350 - 7 dias	458.35	1.75E-06	0.437	262.80	10.310	1490.09
Estructural - f´c 250 - 14 dias	318.96	1.64E-06	0.356	174.47	8.217	1414.62
Estructural - f´c 250 - 28 dias	295.98	1.59E-06	0.343	160.41	7.900	1372.41
Estructural - f´c 250 - 3 dias	383.26	1.78E-06	0.392	213.86	9.096	1531.99
Estructural - f´c 250 - 7 dias	351.14	1.71E-06	0.374	194.16	8.657	1474.45
Estructural - f´c 300 - 14 dias	370.39	1.75E-06	0.384	205.98	8.900	1507.82
Estructural - f´c 300 - 28 dias	347.42	1.70E-06	0.371	191.91	8.583	1465.64
Estructural - f´c 300 - 3 dias	434.69	1.89E-06	0.421	245.36	9.777	1625.33

Estructural - f´c 300 - 7 dias	402.59	1.82E-06	0.403	225.67	9.340	1568.17
Estructural - f´c 350 - 14 dias	406.27	1.83E-06	0.405	227.92	9.389	1574.89
Estructural - f´c 350 - 28 dias	383.27	1.78E-06	0.391	213.86	9.070	1531.86
Estructural - f´c 350 - 3 dias	470.61	1.97E-06	0.441	267.30	10.268	1693.78
Estructural - f´c 350 - 7 dias	438.48	1.90E-06	0.423	247.61	9.830	1635.76
Lanzado - f´c 200 - 14 dias	405.67	2.00E-06	0.400	225.12	9.087	1717.03
Lanzado - f´c 200 - 28 dias	378.69	1.96E-06	0.385	208.24	8.712	1683.29
Lanzado - f´c 200 - 3 dias	450.63	2.08E-06	0.425	253.25	9.712	1772.75
Lanzado - f´c 200 - 7 dias	432.70	2.05E-06	0.415	241.99	9.462	1752.35
Lanzado - f´c 250 - 14 dias	432.72	2.05E-06	0.415	241.99	9.464	1752.69
Lanzado - f´c 250 - 28 dias	405.71	2.00E-06	0.400	225.12	9.091	1718.26
Lanzado - f´c 250 - 3 dias	477.76	2.13E-06	0.440	270.12	10.090	1811.05
Lanzado - f´c 250 - 7 dias	459.78	2.10E-06	0.430	258.87	9.840	1789.05
Lanzado - f´c 300 - 14 dias	468.93	2.12E-06	0.436	264.50	9.965	1805.03
Lanzado - f´c 300 - 28 dias	441.87	2.07E-06	0.421	247.62	9.590	1768.67
Lanzado - f´c 300 - 3 dias	514.03	2.20E-06	0.461	292.63	10.591	1864.93
Lanzado - f´c 300 - 7 dias	496.03	2.17E-06	0.451	281.38	10.340	1842.42
Lanzado - f´c 350 - 14 dias	509.74	2.20E-06	0.459	289.81	10.527	1865.94
Lanzado - f´c 350 - 28 dias	482.65	2.15E-06	0.443	272.94	10.154	1828.87
Lanzado - f´c 350 - 3 dias	554.90	2.28E-06	0.484	317.94	11.153	1927.94
Lanzado - f´c 350 - 7 dias	536.87	2.25E-06	0.474	306.69	10.903	1904.39
Modulo de ruptura - MR 35 - 14 dias	373.96	1.75E-06	0.390	208.79	9.041	1492.15
Modulo de ruptura - MR 35 - 28 dias	355.58	1.71E-06	0.379	197.54	8.788	1458.27
Modulo de ruptura - MR 35 - 3 dias	465.76	1.96E-06	0.441	265.05	10.288	1660.78
Modulo de ruptura - MR 35 - 7 dias	401.54	1.82E-06	0.405	225.67	9.422	1543.84
Modulo de ruptura - MR 36 - 14 dias	377.62	1.76E-06	0.392	211.04	9.093	1498.54

Modulo de ruptura - MR 36 - 28 dias	359.23	1.72E-06	0.381	199.79	8.838	1464.32
Modulo de ruptura - MR 36 - 3 dias	469.44	1.97E-06	0.444	267.30	10.339	1667.71
Modulo de ruptura - MR 36 - 7 dias	405.18	1.82E-06	0.408	227.92	9.471	1549.89
Modulo de ruptura - MR 38 - 14 dias	384.93	1.78E-06	0.396	215.54	9.189	1510.84
Modulo de ruptura - MR 38 - 28 dias	366.54	1.74E-06	0.385	204.29	8.934	1476.64
Modulo de ruptura - MR 38 - 3 dias	476.75	1.98E-06	0.448	271.80	10.438	1680.33
Modulo de ruptura - MR 38 - 7 dias	412.50	1.84E-06	0.412	232.42	9.570	1562.53
Modulo de ruptura - MR 40 - 14 dias	396.87	1.80E-06	0.403	222.86	9.356	1533.32
Modulo de ruptura - MR 40 - 28 dias	378.48	1.76E-06	0.392	211.60	9.099	1498.79
Modulo de ruptura - MR 40 - 3 dias	488.67	2.01E-06	0.454	279.12	10.598	1701.79
Modulo de ruptura - MR 40 - 7 dias	424.43	1.87E-06	0.418	239.74	9.730	1584.01
Modulo de ruptura - MR 42 - 14 dias	409.72	1.83E-06	0.410	230.73	9.529	1556.57
Modulo de ruptura - MR 42 - 28 dias	391.33	1.79E-06	0.399	219.48	9.272	1522.04
Modulo de ruptura - MR 42 - 3 dias	501.52	2.04E-06	0.462	286.99	10.771	1725.02
Modulo de ruptura - MR 42 - 7 dias	437.28	1.89E-06	0.426	247.61	9.907	1607.91
Modulo de ruptura - MR 45 - 14 dias	438.17	1.90E-06	0.426	248.17	9.915	1608.96
Modulo de ruptura - MR 45 - 28 dias	419.79	1.85E-06	0.415	236.92	9.660	1574.77
Modulo de ruptura - MR 45 - 3 dias	529.99	2.10E-06	0.478	304.43	11.158	1777.94
Modulo de ruptura - MR 45 - 7 dias	465.72	1.96E-06	0.442	265.05	10.290	1659.64
Modulo de ruptura - MR 48 - 14 dias	471.24	1.97E-06	0.445	268.43	10.362	1670.39
Modulo de ruptura - MR 48 - 28 dias	452.83	1.93E-06	0.434	257.18	10.104	1635.33
Modulo de ruptura - MR 48 - 3 dias	563.06	2.17E-06	0.496	324.69	11.606	1839.67
Modulo de ruptura - MR 48 - 7 dias	498.80	2.03E-06	0.460	285.31	10.738	1721.38
Relleno Fluido - f´c 15 - 14 dias	184.15	9.07E-07	0.266	98.52	6.311	776.51
Relleno Fluido - f´c 15 - 28 dias	161.34	8.51E-07	0.253	84.46	6.007	734.92
Relleno Fluido - f´c 15 - 3 dias	257.00	1.08E-06	0.306	143.53	7.256	906.44

Relleno Fluido - f´c 15 - 7 dias	211.49	9.73E-07	0.281	115.40	6.670	825.79
Relleno Fluido - f´c 20 - 14 dias	188.71	9.18E-07	0.269	101.33	6.372	784.84
Relleno Fluido - f´c 20 - 28 dias	165.91	8.62E-07	0.256	87.27	6.068	743.24
Relleno Fluido - f´c 20 - 3 dias	261.56	1.09E-06	0.309	146.34	7.317	914.76
Relleno Fluido - f´c 20 - 7 dias	216.06	9.84E-07	0.284	118.21	6.731	834.12
Relleno Fluido - f´c 25 - 14 dias	194.16	9.30E-07	0.272	104.71	6.439	794.13
Relleno Fluido - f´c 25 - 28 dias	171.01	8.75E-07	0.259	90.65	6.137	745.28
Relleno Fluido - f´c 25 - 3 dias	267.02	1.11E-06	0.311	149.72	7.386	924.36
Relleno Fluido - f´c 25 - 7 dias	221.51	9.97E-07	0.287	121.59	6.798	843.41
Relleno Fluido - f´c 30 - 14 dias	200.55	9.46E-07	0.275	108.65	6.523	805.65
Relleno Fluido - f´c 30 - 28 dias	177.74	8.90E-07	0.262	94.58	6.219	764.05
Relleno Fluido - f´c 30 - 3 dias	273.39	1.12E-06	0.315	153.66	7.468	935.57
Relleno Fluido - f´c 30 - 7 dias	227.89	1.01E-06	0.290	125.53	6.882	854.93
Relleno Fluido - f´c 40 - 14 dias	213.29	9.76E-07	0.282	116.52	6.685	828.06
Relleno Fluido - f´c 40 - 28 dias	190.49	9.21E-07	0.269	102.46	6.384	786.78
Relleno Fluido - f´c 40 - 3 dias	286.14	1.15E-06	0.322	161.53	7.633	958.29
Relleno Fluido - f´c 40 - 7 dias	240.63	1.04E-06	0.297	133.40	7.044	877.34
Relleno Fluido - f´c 50 - 14 dias	229.67	1.02E-06	0.291	126.65	6.897	857.17
Relleno Fluido - f´c 50 - 28 dias	206.43	9.60E-07	0.278	112.59	6.595	806.50
Relleno Fluido - f´c 50 - 3 dias	302.52	1.19E-06	0.331	171.66	7.842	987.10
Relleno Fluido - f´c 50 - 7 dias	257.01	1.08E-06	0.306	143.53	7.256	906.45
Relleno Fluido - f´c 60 - 14 dias	247.86	1.06E-06	0.301	137.90	7.129	889.17
Relleno Fluido - f´c 60 - 28 dias	225.06	1.00E-06	0.288	123.84	6.828	847.89
Relleno Fluido - f´c 60 - 3 dias	320.72	1.24E-06	0.341	182.91	8.077	1019.41
Relleno Fluido - f´c 60 - 7 dias	275.20	1.13E-06	0.316	154.78	7.488	938.45
Relleno Fluido - f´c 70 - 14 dias	270.61	1.11E-06	0.313	151.97	7.422	929.49

Relleno Fluido - f´c 70 - 28 dias	247.27	1.06E-06	0.300	137.90	7.120	876.70
Relleno Fluido - f´c 70 - 3 dias	343.46	1.29E-06	0.353	196.98	8.367	1059.41
Relleno Fluido - f´c 70 - 7 dias	297.95	1.18E-06	0.328	168.85	7.781	978.76

b) Resource Inventory Metrics:

Indicator/LCI Metric	**RPRE**	**PRM**	**NRPRE**	**NRPRM**	**SM**	**RSF**	**RE**	**FW**
Unit	**MJ**	**MJ**	**MJ**	**kg**	**MJ**	**MJ**	**MJ**	**m3**
Alta resistencia - f´c 400 - 14 dias	1635.08	40.64	23.26	0.00736	0.00436	0.591	1635.08	40.64
Alta resistencia - f´c 400 - 28 dias	1595.28	38.43	22.00	0.00726	0.00412	0.584	1595.28	38.43
Alta resistencia - f´c 400 - 3 dias	1752.18	47.25	27.02	0.00764	0.00508	0.617	1752.18	47.25
Alta resistencia - f´c 400 - 7 dias	1681.70	43.28	24.76	0.00747	0.00465	0.602	1681.70	43.28
Alta resistencia - f´c 450 - 14 dias	1709.13	47.01	25.46	0.00753	0.00478	0.615	1709.13	47.01
Alta resistencia - f´c 450 - 28 dias	1669.95	44.68	24.21	0.00744	0.00454	0.606	1669.95	44.68
Alta resistencia - f´c 450 - 3 dias	1828.04	54.00	29.22	0.00783	0.00550	0.641	1828.04	54.00
Alta resistencia - f´c 450 - 7 dias	1756.58	49.81	26.97	0.00765	0.00507	0.626	1756.58	49.81
Alta resistencia - f´c 500 - 14 dias	1757.62	49.81	26.97	0.00765	0.00507	0.624	1757.62	49.81
Alta resistencia - f´c 500 - 28 dias	1717.60	47.48	25.71	0.00755	0.00483	0.616	1717.60	47.48
Alta resistencia - f´c 500 - 3 dias	1875.83	56.79	30.73	0.00794	0.00578	0.652	1875.83	56.79
Alta resistencia - f´c 500 - 7 dias	1805.06	52.60	28.47	0.00777	0.00535	0.635	1805.06	52.60
Alta resistencia - f´c 550 - 14 dias	1852.86	60.47	29.58	0.00788	0.00556	0.652	1852.86	60.47
Alta resistencia - f´c 550 - 28 dias	1811.79	57.89	28.32	0.00777	0.00532	0.645	1811.79	57.89
Alta resistencia - f´c 550 - 3 dias	1973.65	68.20	33.34	0.00818	0.00628	0.683	1973.65	68.20
Alta resistencia - f´c 550 - 7 dias	1901.44	63.56	31.08	0.00800	0.00585	0.664	1901.44	63.56
Alta resistencia - f´c 600 - 14 dias	1935.43	65.62	32.09	0.00809	0.00604	0.670	1935.43	65.62
Alta resistencia - f´c 600 - 28 dias	1894.37	63.05	30.83	0.00799	0.00580	0.661	1894.37	63.05
Alta resistencia - f´c 600 - 3 dias	2057.57	73.36	35.85	0.00839	0.00676	0.698	2057.57	73.36

Alta resistencia - f´c 600 - 7 dias	1984.52	68.72	33.59	0.00821	0.00633	0.682	1984.52	68.72
Baja contracción - MR 38 - 14 dias	1459.20	43.70	16.69	0.00691	0.00311	0.549	1459.20	43.70
Baja contracción - MR 38 - 28 dias	1407.95	36.07	16.18	0.00671	0.00301	0.538	1407.95	36.07
Baja contracción - MR 40 - 14 dias	1479.20	45.30	17.29	0.00695	0.00322	0.554	1479.20	45.30
Baja contracción - MR 40 - 28 dias	1444.38	42.63	16.29	0.00686	0.00303	0.546	1444.38	42.63
Baja contracción - MR 42 - 14 dias	1501.55	47.03	17.95	0.00701	0.00335	0.559	1501.55	47.03
Baja contracción - MR 42 - 28 dias	1466.53	44.36	16.94	0.00692	0.00315	0.550	1466.53	44.36
Baja contracción - MR 45 - 14 dias	1535.98	49.69	18.95	0.00710	0.00354	0.567	1535.98	49.69
Baja contracción - MR 45 - 28 dias	1501.83	47.03	17.95	0.00701	0.00335	0.557	1501.83	47.03
Baja contracción - MR 48 - 14 dias	1577.00	52.88	20.15	0.00720	0.00377	0.575	1577.00	52.88
Baja contracción - MR 48 - 28 dias	1541.66	50.22	19.15	0.00711	0.00358	0.567	1541.66	50.22
Convencional - f´c 100 - 14 dias	1037.21	18.02	11.56	0.00494	0.00215	0.435	1037.21	18.02
Convencional - f´c 100 - 28 dias	993.39	16.07	10.30	0.00481	0.00191	0.426	993.39	16.07
Convencional - f´c 100 - 3 dias	1158.69	23.49	15.07	0.00530	0.00282	0.463	1158.69	23.49
Convencional - f´c 100 - 7 dias	1041.27	18.18	11.66	0.00496	0.00215	0.435	1037.21	18.02
Convencional - f´c 150 - 14 dias	1085.06	20.13	12.91	0.00509	0.00241	0.446	1085.06	20.13
Convencional - f´c 150 - 28 dias	1041.27	18.18	11.66	0.00496	0.00217	0.436	1041.27	18.18
Convencional - f´c 150 - 3 dias	1206.47	25.60	16.43	0.00545	0.00308	0.473	1206.47	25.60
Convencional - f´c 150 - 7 dias	1145.47	22.87	14.67	0.00527	0.00274	0.459	1145.47	22.87
Convencional - f´c 200 - 14 dias	1148.97	23.10	14.82	0.00525	0.00277	0.459	1148.97	23.10
Convencional - f´c 200 - 28 dias	1110.74	23.80	13.57	0.00513	0.00253	0.454	1110.74	23.80
Convencional - f´c 200 - 3 dias	1270.28	28.58	18.34	0.00561	0.00344	0.488	1270.28	28.58
Convencional - f´c 200 - 7 dias	1209.45	25.84	16.58	0.00543	0.00311	0.473	1209.45	25.84
Convencional - f´c 250 - 14 dias	1210.46	25.84	16.58	0.00543	0.00311	0.472	1210.46	25.84
Convencional - f´c 250 - 28 dias	1166.28	23.88	15.32	0.00530	0.00287	0.463	1166.28	23.88
Convencional - f´c 250 - 3 dias	1331.67	31.31	20.10	0.00579	0.00378	0.502	1331.67	31.31

Convencional - f´c 250 - 7 dias	1270.91	28.58	18.34	0.00561	0.00344	0.486	1270.91	28.58
Convencional - f´c 300 - 14 dias	1308.00	30.37	19.49	0.00571	0.00366	0.504	1308.00	30.37
Convencional - f´c 300 - 28 dias	1264.18	28.42	18.24	0.00558	0.00342	0.495	1264.18	28.42
Convencional - f´c 300 - 3 dias	1429.44	35.85	23.01	0.00607	0.00433	0.532	1429.44	35.85
Convencional - f´c 300 - 7 dias	1368.41	33.11	21.25	0.00589	0.00400	0.519	1368.41	33.11
Convencional - f´c 350 - 14 dias	1392.82	34.20	21.95	0.00596	0.00413	0.523	1392.82	34.20
Convencional - f´c 350 - 28 dias	1349.05	32.25	20.70	0.00583	0.00389	0.513	1349.05	32.25
Convencional - f´c 350 - 3 dias	1514.19	39.68	25.47	0.00631	0.00480	0.551	1514.19	39.68
Convencional - f´c 350 - 7 dias	1453.21	36.94	23.71	0.00613	0.00446	0.537	1453.21	36.94
Estructural - f´c 250 - 14 dias	1385.36	29.31	15.93	0.00666	0.00296	0.552	1385.36	29.31
Estructural - f´c 250 - 28 dias	1345.48	26.98	14.67	0.00656	0.00272	0.544	1345.48	26.98
Estructural - f´c 250 - 3 dias	1496.22	35.83	19.44	0.00693	0.00363	0.577	1496.22	35.83
Estructural - f´c 250 - 7 dias	1441.94	32.57	17.68	0.00680	0.00330	0.565	1441.94	32.57
Estructural - f´c 300 - 14 dias	1473.35	34.53	18.73	0.00687	0.00350	0.582	1473.35	34.53
Estructural - f´c 300 - 28 dias	1433.49	32.20	17.48	0.00677	0.00326	0.573	1433.49	32.20
Estructural - f´c 300 - 3 dias	1584.34	41.05	22.24	0.00714	0.00417	0.607	1584.34	41.05
Estructural - f´c 300 - 7 dias	1530.44	37.79	20.49	0.00702	0.00383	0.594	1530.44	37.79
Estructural - f´c 350 - 14 dias	1536.79	38.16	20.69	0.00703	0.00387	0.595	1536.79	38.16
Estructural - f´c 350 - 28 dias	1496.08	35.83	19.44	0.00693	0.00363	0.587	1496.08	35.83
Estructural - f´c 350 - 3 dias	1649.16	44.68	24.20	0.00731	0.00454	0.620	1649.16	44.68
Estructural - f´c 350 - 7 dias	1594.40	41.42	22.45	0.00718	0.00421	0.608	1594.40	41.42
Lanzado - f´c 200 - 14 dias	1691.39	25.71	20.52	0.00798	0.00382	0.674	1691.39	25.71
Lanzado - f´c 200 - 28 dias	1659.54	23.81	19.02	0.00794	0.00354	0.673	1659.54	23.81
Lanzado - f´c 200 - 3 dias	1743.96	28.87	23.02	0.00804	0.00430	0.678	1743.96	28.87
Lanzado - f´c 200 - 7 dias	1724.82	27.60	22.02	0.00803	0.00411	0.676	1724.82	27.60
Lanzado - f´c 250 - 14 dias	1725.15	27.60	22.02	0.00803	0.00411	0.677	1725.15	27.60

Lanzado - f´c 250 - 28 dias	1692.62	25.71	20.52	0.00799	0.00382	0.676	1692.62	25.71
Lanzado - f´c 250 - 3 dias	1780.36	30.76	24.52	0.00811	0.00459	0.683	1780.36	30.76
Lanzado - f´c 250 - 7 dias	1759.62	29.50	23.52	0.00809	0.00440	0.681	1759.62	29.50
Lanzado - f´c 300 - 14 dias	1774.97	30.13	24.02	0.00812	0.00449	0.684	1774.97	30.13
Lanzado - f´c 300 - 28 dias	1740.50	28.24	22.52	0.00807	0.00421	0.682	1740.50	28.24
Lanzado - f´c 300 - 3 dias	1831.71	33.29	26.52	0.00821	0.00497	0.691	1831.71	33.29
Lanzado - f´c 300 - 7 dias	1810.47	32.03	25.52	0.00818	0.00478	0.688	1810.47	32.03
Lanzado - f´c 350 - 14 dias	1833.04	32.97	26.27	0.00824	0.00492	0.693	1833.04	32.97
Lanzado - f´c 350 - 28 dias	1797.86	31.08	24.77	0.00818	0.00464	0.689	1797.86	31.08
Lanzado - f´c 350 - 3 dias	1891.88	36.13	28.77	0.00834	0.00540	0.700	1891.88	36.13
Lanzado - f´c 350 - 7 dias	1869.59	34.87	27.77	0.00830	0.00521	0.697	1869.59	34.87
Modulo de ruptura - MR 35 - 14 dias	1462.77	29.44	18.98	0.00684	0.00355	0.552	1462.77	29.44
Modulo de ruptura - MR 35 - 28 dias	1430.45	27.87	17.98	0.00676	0.00336	0.543	1430.45	27.87
Modulo de ruptura - MR 35 - 3 dias	1623.59	37.25	24.00	0.00726	0.00450	0.585	1623.59	37.25
Modulo de ruptura - MR 35 - 7 dias	1512.12	31.78	20.49	0.00698	0.00383	0.561	1512.12	31.78
Modulo de ruptura - MR 36 - 14 dias	1468.86	29.75	19.18	0.00686	0.00358	0.552	1468.86	29.75
Modulo de ruptura - MR 36 - 28 dias	1436.20	28.18	18.18	0.00677	0.00339	0.544	1436.20	28.18
Modulo de ruptura - MR 36 - 3 dias	1630.21	37.57	24.20	0.00728	0.00454	0.586	1630.21	37.57
Modulo de ruptura - MR 36 - 7 dias	1517.86	32.09	20.69	0.00699	0.00387	0.562	1517.86	32.09
Modulo de ruptura - MR 38 - 14 dias	1480.53	30.37	19.58	0.00689	0.00366	0.556	1480.53	30.37
Modulo de ruptura - MR 38 - 28 dias	1447.89	28.81	18.58	0.00680	0.00347	0.549	1447.89	28.81

Modulo de ruptura - MR 38 - 3 dias	1642.20	38.19	24.60	0.00731	0.00462	0.588	1642.20	38.19
Modulo de ruptura - MR 38 - 7 dias	1529.87	32.72	21.09	0.00702	0.00395	0.565	1529.87	32.72
Modulo de ruptura - MR 40 - 14 dias	1501.99	31.39	20.23	0.00694	0.00379	0.558	1501.99	31.39
Modulo de ruptura - MR 40 - 28 dias	1469.03	29.83	19.23	0.00685	0.00359	0.552	1469.03	29.83
Modulo de ruptura - MR 40 - 3 dias	1662.66	39.21	25.25	0.00736	0.00474	0.594	1662.66	39.21
Modulo de ruptura - MR 40 - 7 dias	1550.34	33.73	21.74	0.00707	0.00407	0.570	1550.34	33.73
Modulo de ruptura - MR 42 - 14 dias	1524.14	32.48	20.94	0.00700	0.00392	0.564	1524.14	32.48
Modulo de ruptura - MR 42 - 28 dias	1491.18	30.92	19.93	0.00691	0.00373	0.558	1491.18	30.92
Modulo de ruptura - MR 42 - 3 dias	1684.79	40.30	25.95	0.00742	0.00488	0.600	1684.79	40.30
Modulo de ruptura - MR 42 - 7 dias	1573.15	34.83	22.44	0.00713	0.00421	0.574	1573.15	34.83
Modulo de ruptura - MR 45 - 14 dias	1574.12	34.91	22.49	0.00713	0.00422	0.572	1574.12	34.91
Modulo de ruptura - MR 45 - 28 dias	1541.49	33.34	21.49	0.00704	0.00402	0.565	1541.49	33.34
Modulo de ruptura - MR 45 - 3 dias	1735.28	42.72	27.51	0.00755	0.00517	0.609	1735.28	42.72
Modulo de ruptura - MR 45 - 7 dias	1622.45	37.25	24.00	0.00726	0.00450	0.584	1622.45	37.25
Modulo de ruptura - MR 48 - 14 dias	1632.73	37.72	24.30	0.00728	0.00456	0.585	1632.73	37.72
Modulo de ruptura - MR 48 - 28 dias	1599.23	36.16	23.29	0.00719	0.00437	0.578	1599.23	36.16
Modulo de ruptura - MR 48 - 3 dias	1794.20	45.54	29.31	0.00771	0.00552	0.620	1794.20	45.54

Modulo de ruptura - MR 48 - 7 dias	1681.38	40.07	25.80	0.00741	0.00485	0.596	1681.38	40.07
Relleno Fluido - f´c 15 - 14 dias	772.92	3.62	8.96	0.00356	0.00167	0.418	772.92	3.62
Relleno Fluido - f´c 15 - 28 dias	731.78	3.17	7.71	0.00343	0.00143	0.412	731.78	3.17
Relleno Fluido - f´c 15 - 3 dias	901.39	5.08	12.98	0.00395	0.00244	0.443	901.39	5.08
Relleno Fluido - f´c 15 - 7 dias	821.66	4.17	10.47	0.00371	0.00196	0.427	821.66	4.17
Relleno Fluido - f´c 20 - 14 dias	781.16	3.71	9.22	0.00358	0.00172	0.420	781.16	3.71
Relleno Fluido - f´c 20 - 28 dias	740.02	3.26	7.96	0.00345	0.00148	0.414	740.02	3.26
Relleno Fluido - f´c 20 - 3 dias	909.63	5.17	13.23	0.00398	0.00249	0.445	909.63	5.17
Relleno Fluido - f´c 20 - 7 dias	829.89	4.26	10.72	0.00373	0.00201	0.429	829.89	4.26
Relleno Fluido - f´c 25 - 14 dias	790.34	3.82	9.52	0.00361	0.00178	0.424	790.34	3.82
Relleno Fluido - f´c 25 - 28 dias	744.36	0.95	8.26	0.00348	0.00154	0.412	744.36	0.95
Relleno Fluido - f´c 25 - 3 dias	919.12	5.28	13.53	0.00400	0.00254	0.447	919.12	5.28
Relleno Fluido - f´c 25 - 7 dias	839.07	4.37	11.02	0.00376	0.00206	0.433	839.07	4.37
Relleno Fluido - f´c 30 - 14 dias	801.73	3.95	9.87	0.00365	0.00184	0.427	801.73	3.95
Relleno Fluido - f´c 30 - 28 dias	760.59	3.50	8.61	0.00352	0.00161	0.420	760.59	3.50
Relleno Fluido - f´c 30 - 3 dias	930.20	5.41	13.89	0.00404	0.00261	0.451	930.20	5.41
Relleno Fluido - f´c 30 - 7 dias	850.47	4.50	11.38	0.00380	0.00213	0.435	850.47	4.50
Relleno Fluido - f´c 40 - 14 dias	823.89	4.21	10.57	0.00371	0.00198	0.432	823.89	4.21
Relleno Fluido - f´c 40 - 28 dias	783.06	3.75	9.32	0.00359	0.00174	0.425	783.06	3.75
Relleno Fluido - f´c 40 - 3 dias	952.67	5.66	14.59	0.00411	0.00274	0.456	952.67	5.66
Relleno Fluido - f´c 40 - 7 dias	872.63	4.75	12.08	0.00386	0.00227	0.442	872.63	4.75
Relleno Fluido - f´c 50 - 14 dias	852.67	4.53	11.48	0.00380	0.00215	0.436	852.67	4.53
Relleno Fluido - f´c 50 - 28 dias	805.46	1.08	10.22	0.00366	0.00191	0.424	805.46	1.08
Relleno Fluido - f´c 50 - 3 dias	981.15	5.99	15.49	0.00419	0.00292	0.461	981.15	5.99
Relleno Fluido - f´c 50 - 7 dias	901.41	5.08	12.98	0.00395	0.00244	0.446	901.41	5.08

Relleno Fluido - f´c 60 - 14 dias	884.31	4.90	12.48	0.00390	0.00234	0.443	884.31	4.90
Relleno Fluido - f´c 60 - 28 dias	843.49	4.44	11.22	0.00377	0.00210	0.436	843.49	4.44
Relleno Fluido - f´c 60 - 3 dias	1013.09	6.36	16.50	0.00429	0.00311	0.466	1013.09	6.36
Relleno Fluido - f´c 60 - 7 dias	933.05	5.45	13.99	0.00405	0.00263	0.452	933.05	5.45
Relleno Fluido - f´c 70 - 14 dias	924.17	5.35	13.74	0.00402	0.00258	0.450	924.17	5.35
Relleno Fluido - f´c 70 - 28 dias	875.51	1.23	12.48	0.00388	0.00234	0.435	875.51	1.23
Relleno Fluido - f´c 70 - 3 dias	1052.64	6.81	17.75	0.00441	0.00335	0.474	1052.64	6.81
Relleno Fluido - f´c 70 - 7 dias	972.91	5.90	15.24	0.00417	0.00287	0.458	972.91	5.90

c) Waste/output Inventory Metrics:

Indicator/LCI Metric	**HWD**	**NHWD**	**HLRW**	**MR**	**MER**
Unit	**kg**	**kg**	**kg**	**kg**	**kg**
Alta resistencia - f´c 400 - 14 dias	3.314	70.86	0.0000774	0.0277	8.37E-05
Alta resistencia - f´c 400 - 28 dias	3.218	68.64	0.0000735	0.0266	8.29E-05
Alta resistencia - f´c 400 - 3 dias	3.597	77.45	0.0000892	0.0310	8.58E-05
Alta resistencia - f´c 400 - 7 dias	3.427	73.49	0.0000821	0.0290	8.45E-05
Alta resistencia - f´c 450 - 14 dias	3.487	74.96	0.0000865	0.0297	8.53E-05
Alta resistencia - f´c 450 - 28 dias	3.393	72.76	0.0000824	0.0286	8.46E-05
Alta resistencia - f´c 450 - 3 dias	3.773	81.62	0.0000986	0.0330	8.75E-05
Alta resistencia - f´c 450 - 7 dias	3.601	77.62	0.0000913	0.0310	8.61E-05
Alta resistencia - f´c 500 - 14 dias	3.603	77.66	0.0000913	0.0310	8.62E-05
Alta resistencia - f´c 500 - 28 dias	3.507	75.42	0.0000873	0.0299	8.55E-05
Alta resistencia - f´c 500 - 3 dias	3.887	84.29	0.0001034	0.0343	8.84E-05
Alta resistencia - f´c 500 - 7 dias	3.717	80.32	0.0000961	0.0323	8.71E-05
Alta resistencia - f´c 550 - 14 dias	3.819	82.83	0.0001046	0.0334	8.86E-05
Alta resistencia - f´c 550 - 28 dias	3.721	80.56	0.0001003	0.0322	8.77E-05
Alta resistencia - f´c 550 - 3 dias	4.107	89.57	0.0001174	0.0367	9.09E-05

Alta resistencia - f´c 550 - 7 dias	3.934	85.54	0.0001097	0.0347	8.95E-05
Alta resistencia - f´c 600 - 14 dias	4.014	87.38	0.0001131	0.0356	9.03E-05
Alta resistencia - f´c 600 - 28 dias	3.916	85.11	0.0001089	0.0345	8.94E-05
Alta resistencia - f´c 600 - 3 dias	4.304	94.16	0.0001259	0.0389	9.27E-05
Alta resistencia - f´c 600 - 7 dias	4.130	90.10	0.0001182	0.0369	9.13E-05
Baja contracción - MR 38 - 14 dias	2.867	60.77	0.0000684	0.0222	8.18E-05
Baja contracción - MR 38 - 28 dias	2.772	58.55	0.0000612	0.0215	7.90E-05
Baja contracción - MR 40 - 14 dias	2.914	61.88	0.0000707	0.0227	8.22E-05
Baja contracción - MR 40 - 28 dias	2.833	59.98	0.0000668	0.0218	8.14E-05
Baja contracción - MR 42 - 14 dias	2.966	63.10	0.0000732	0.0233	8.27E-05
Baja contracción - MR 42 - 28 dias	2.885	61.20	0.0000693	0.0224	8.19E-05
Baja contracción - MR 45 - 14 dias	3.046	64.98	0.0000772	0.0242	8.35E-05
Baja contracción - MR 45 - 28 dias	2.966	63.11	0.0000732	0.0233	8.28E-05
Baja contracción - MR 48 - 14 dias	3.141	67.23	0.0000818	0.0253	8.44E-05
Baja contracción - MR 48 - 28 dias	3.060	65.32	0.0000779	0.0244	8.36E-05
Convencional - f´c 100 - 14 dias	2.109	48.23	0.0001361	0.0174	5.78E-05
Convencional - f´c 100 - 28 dias	2.008	46.08	0.0001359	0.0163	5.66E-05
Convencional - f´c 100 - 3 dias	2.388	54.23	0.0001369	0.0204	6.08E-05
Convencional - f´c 100 - 7 dias	2.118	48.43	0.0001364	0.0163	5.66E-05
Convencional - f´c 150 - 14 dias	2.218	50.59	0.0001368	0.0185	5.90E-05
Convencional - f´c 150 - 28 dias	2.118	48.43	0.0001364	0.0175	5.79E-05
Convencional - f´c 150 - 3 dias	2.497	56.61	0.0001379	0.0215	6.21E-05
Convencional - f´c 150 - 7 dias	2.358	53.63	0.0001381	0.0200	6.05E-05
Convencional - f´c 200 - 14 dias	2.371	54.40	0.0001496	0.0203	6.03E-05
Convencional - f´c 200 - 28 dias	2.279	52.52	0.0001520	0.0193	5.95E-05
Convencional - f´c 200 - 3 dias	2.650	60.35	0.0001494	0.0233	6.34E-05

Convencional - f´c 200 - 7 dias	2.510	57.42	0.0001505	0.0218	6.18E-05
Convencional - f´c 250 - 14 dias	2.512	57.46	0.0001506	0.0219	6.19E-05
Convencional - f´c 250 - 28 dias	2.411	55.30	0.0001506	0.0208	6.07E-05
Convencional - f´c 250 - 3 dias	2.791	63.43	0.0001510	0.0248	6.49E-05
Convencional - f´c 250 - 7 dias	2.652	60.49	0.0001517	0.0234	6.34E-05
Convencional - f´c 300 - 14 dias	2.739	62.44	0.0001535	0.0244	6.42E-05
Convencional - f´c 300 - 28 dias	2.639	60.29	0.0001533	0.0233	6.30E-05
Convencional - f´c 300 - 3 dias	3.018	68.46	0.0001546	0.0274	6.72E-05
Convencional - f´c 300 - 7 dias	2.878	65.48	0.0001548	0.0259	6.56E-05
Convencional - f´c 350 - 14 dias	2.935	66.75	0.0001563	0.0265	6.62E-05
Convencional - f´c 350 - 28 dias	2.834	64.58	0.0001558	0.0254	6.51E-05
Convencional - f´c 350 - 3 dias	3.214	72.78	0.0001577	0.0295	6.93E-05
Convencional - f´c 350 - 7 dias	3.074	69.79	0.0001577	0.0280	6.77E-05
Estructural - f´c 250 - 14 dias	2.729	57.42	0.0000556	0.0211	7.79E-05
Estructural - f´c 250 - 28 dias	2.633	55.19	0.0000516	0.0200	7.71E-05
Estructural - f´c 250 - 3 dias	2.995	63.64	0.0000669	0.0242	8.00E-05
Estructural - f´c 250 - 7 dias	2.864	60.56	0.0000613	0.0227	7.90E-05
Estructural - f´c 300 - 14 dias	2.940	62.37	0.0000648	0.0236	7.95E-05
Estructural - f´c 300 - 28 dias	2.844	60.14	0.0000607	0.0225	7.87E-05
Estructural - f´c 300 - 3 dias	3.207	68.58	0.0000761	0.0267	8.16E-05
Estructural - f´c 300 - 7 dias	3.076	65.52	0.0000704	0.0252	8.07E-05
Estructural - f´c 350 - 14 dias	3.091	65.88	0.0000711	0.0253	8.08E-05
Estructural - f´c 350 - 28 dias	2.994	63.62	0.0000671	0.0242	8.00E-05
Estructural - f´c 350 - 3 dias	3.360	72.14	0.0000824	0.0284	8.30E-05
Estructural - f´c 350 - 7 dias	3.228	69.05	0.0000768	0.0269	8.20E-05
Lanzado - f´c 200 - 14 dias	3.308	69.66	0.0000643	0.0262	9.30E-05
Lanzado - f´c 200 - 28 dias	3.217	67.48	0.0000604	0.0250	9.33E-05
Lanzado - f´c 200 - 3 dias	3.459	73.27	0.0000706	0.0282	9.26E-05
Lanzado - f´c 200 - 7 dias	3.401	71.88	0.0000681	0.0274	9.29E-05
Lanzado - f´c 250 - 14 dias	3.402	71.89	0.0000681	0.0274	9.29E-05
Lanzado - f´c 250 - 28 dias	3.310	69.70	0.0000643	0.0262	9.31E-05
Lanzado - f´c 250 - 3 dias	3.557	75.58	0.0000746	0.0294	9.26E-05

Lanzado - f´c 250 - 7 dias	3.497	74.14	0.0000720	0.0286	9.28E-05
Lanzado - f´c 300 - 14 dias	3.534	75.00	0.0000734	0.0291	9.31E-05
Lanzado - f´c 300 - 28 dias	3.439	72.75	0.0000695	0.0278	9.32E-05
Lanzado - f´c 300 - 3 dias	3.691	78.74	0.0000798	0.0311	9.30E-05
Lanzado - f´c 300 - 7 dias	3.631	77.29	0.0000773	0.0303	9.31E-05
Lanzado - f´c 350 - 14 dias	3.686	78.57	0.0000793	0.0309	9.35E-05
Lanzado - f´c 350 - 28 dias	3.590	76.30	0.0000754	0.0297	9.35E-05
Lanzado - f´c 350 - 3 dias	3.847	82.36	0.0000858	0.0330	9.35E-05
Lanzado - f´c 350 - 7 dias	3.784	80.88	0.0000832	0.0322	9.36E-05
Modulo de ruptura - MR 35 - 14 dias	2.937	62.14	0.0000604	0.0237	7.85E-05
Modulo de ruptura - MR 35 - 28 dias	2.859	60.35	0.0000574	0.0228	7.79E-05
Modulo de ruptura - MR 35 - 3 dias	3.321	71.03	0.0000753	0.0281	8.17E-05
Modulo de ruptura - MR 35 - 7 dias	3.054	64.84	0.0000649	0.0250	7.95E-05
Modulo de ruptura - MR 36 - 14 dias	2.951	62.48	0.0000609	0.0239	7.86E-05
Modulo de ruptura - MR 36 - 28 dias	2.873	60.69	0.0000580	0.0230	7.79E-05
Modulo de ruptura - MR 36 - 3 dias	3.337	71.40	0.0000759	0.0283	8.18E-05
Modulo de ruptura - MR 36 - 7 dias	3.068	65.18	0.0000654	0.0252	7.96E-05
Modulo de ruptura - MR 38 - 14 dias	2.980	63.16	0.0000622	0.0242	7.88E-05
Modulo de ruptura - MR 38 - 28 dias	2.902	61.36	0.0000592	0.0233	7.81E-05
Modulo de ruptura - MR 38 - 3 dias	3.366	72.08	0.0000771	0.0286	8.20E-05
Modulo de ruptura - MR 38 - 7 dias	3.098	65.87	0.0000666	0.0256	7.98E-05
Modulo de ruptura - MR 40 - 14 dias	3.031	64.33	0.0000641	0.0248	7.92E-05
Modulo de ruptura - MR 40 - 28 dias	2.953	62.53	0.0000611	0.0239	7.85E-05
Modulo de ruptura - MR 40 - 3 dias	3.416	73.22	0.0000791	0.0292	8.24E-05
Modulo de ruptura - MR 40 - 7 dias	3.147	67.01	0.0000686	0.0261	8.02E-05
Modulo de ruptura - MR 42 - 14 dias	3.085	65.57	0.0000662	0.0254	7.97E-05
Modulo de ruptura - MR 42 - 28 dias	3.006	63.76	0.0000632	0.0245	7.89E-05
Modulo de ruptura - MR 42 - 3 dias	3.469	74.46	0.0000812	0.0298	8.28E-05
Modulo de ruptura - MR 42 - 7 dias	3.201	68.26	0.0000707	0.0267	8.07E-05
Modulo de ruptura - MR 45 - 14 dias	3.204	68.33	0.0000708	0.0268	8.06E-05

Modulo de ruptura - MR 45 - 28 dias	3.126	66.53	0.0000678	0.0259	8.00E-05
Modulo de ruptura - MR 45 - 3 dias	3.589	77.23	0.0000858	0.0312	8.39E-05
Modulo de ruptura - MR 45 - 7 dias	3.319	71.00	0.0000753	0.0281	8.16E-05
Modulo de ruptura - MR 48 - 14 dias	3.343	71.55	0.0000762	0.0284	8.18E-05
Modulo de ruptura - MR 48 - 28 dias	3.264	69.73	0.0000732	0.0275	8.11E-05
Modulo de ruptura - MR 48 - 3 dias	3.729	80.46	0.0000912	0.0328	8.51E-05
Modulo de ruptura - MR 48 - 7 dias	3.459	74.23	0.0000807	0.0297	8.28E-05
Relleno Fluido - f´c 15 - 14 dias	1.633	41.39	0.0001994	0.0149	4.09E-05
Relleno Fluido - f´c 15 - 28 dias	1.536	39.31	0.0001996	0.0139	4.00E-05
Relleno Fluido - f´c 15 - 3 dias	1.938	47.86	0.0001977	0.0183	4.38E-05
Relleno Fluido - f´c 15 - 7 dias	1.749	43.84	0.0001990	0.0162	4.20E-05
Relleno Fluido - f´c 20 - 14 dias	1.653	41.80	0.0001994	0.0151	4.11E-05
Relleno Fluido - f´c 20 - 28 dias	1.555	39.73	0.0001996	0.0141	4.02E-05
Relleno Fluido - f´c 20 - 3 dias	1.958	48.27	0.0001977	0.0185	4.40E-05
Relleno Fluido - f´c 20 - 7 dias	1.768	44.26	0.0001990	0.0164	4.22E-05
Relleno Fluido - f´c 25 - 14 dias	1.675	42.26	0.0001991	0.0154	4.13E-05
Relleno Fluido - f´c 25 - 28 dias	1.571	39.98	0.0001973	0.0143	4.00E-05
Relleno Fluido - f´c 25 - 3 dias	1.980	48.75	0.0001975	0.0188	4.42E-05
Relleno Fluido - f´c 25 - 7 dias	1.790	44.72	0.0001987	0.0167	4.24E-05
Relleno Fluido - f´c 30 - 14 dias	1.702	42.84	0.0001990	0.0157	4.16E-05
Relleno Fluido - f´c 30 - 28 dias	1.604	40.76	0.0001992	0.0146	4.06E-05
Relleno Fluido - f´c 30 - 3 dias	2.007	49.31	0.0001973	0.0191	4.44E-05
Relleno Fluido - f´c 30 - 7 dias	1.817	45.30	0.0001986	0.0170	4.27E-05
Relleno Fluido - f´c 40 - 14 dias	1.755	43.95	0.0001986	0.0163	4.20E-05
Relleno Fluido - f´c 40 - 28 dias	1.658	41.90	0.0001989	0.0152	4.11E-05
Relleno Fluido - f´c 40 - 3 dias	2.060	50.44	0.0001970	0.0197	4.49E-05

Relleno Fluido - f´c 40 - 7 dias	1.870	46.41	0.0001982	0.0176	4.31E-05
Relleno Fluido - f´c 50 - 14 dias	1.823	45.40	0.0001982	0.0170	4.27E-05
Relleno Fluido - f´c 50 - 28 dias	1.717	43.06	0.0001959	0.0159	4.13E-05
Relleno Fluido - f´c 50 - 3 dias	2.128	51.88	0.0001964	0.0204	4.55E-05
Relleno Fluido - f´c 50 - 7 dias	1.938	47.86	0.0001977	0.0183	4.38E-05
Relleno Fluido - f´c 60 - 14 dias	1.898	47.00	0.0001975	0.0179	4.33E-05
Relleno Fluido - f´c 60 - 28 dias	1.802	44.94	0.0001978	0.0168	4.24E-05
Relleno Fluido - f´c 60 - 3 dias	2.204	53.48	0.0001959	0.0213	4.62E-05
Relleno Fluido - f´c 60 - 7 dias	2.014	49.45	0.0001971	0.0192	4.44E-05
Relleno Fluido - f´c 70 - 14 dias	1.993	49.00	0.0001969	0.0189	4.42E-05
Relleno Fluido - f´c 70 - 28 dias	1.886	46.60	0.0001940	0.0178	4.28E-05
Relleno Fluido - f´c 70 - 3 dias	2.298	55.47	0.0001951	0.0223	4.71E-05
Relleno Fluido - f´c 70 - 7 dias	2.109	51.46	0.0001964	0.0202	4.53E-05

OTHER ENVIRONMENTAL INFO

- Certificado SIG Calidad
- Certificado SIG Medio Ambiente
- Certificado SIG Seguridad y Salud en el Trabajo
- ONNNCE
- EMA
- Industria Limpia
- Empresa Segura

REFERENCES

ASTM Standards:

- ASTM A36/A36M Standard Specification for Carbon Structural Steel
- ASTM A108 Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished
- ASTM A123/A123M Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- ASTM A153/A153M Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- ASTM A184 Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement

- ASTM A307 Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength
- ASTM A416/A416M Standard Specification for Steel Strand, Uncoated Seven-Wire for Prestressed Concrete
- ASTM A555/A555M Standard Specification for General Requirements for Stainless Steel Wire and Wire Rods
- ASTM A615/A615M Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
- ASTM A666 Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar
- ASTM A706/A706M Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement
- ASTM A767/A767M Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement
- ASTM A775/A775M Standard Specification for Epoxy-Coated Steel Reinforcing Bars
- ASTM A820/A820M Standard Specification for Steel Fibers for Fiber-Reinforced Concrete
- ASTM A884/A884M Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
- ASTM A934/A934M Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
- ASTM A1064/A1064M Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
- ASTM C33/C33M Standard Specification for Concrete Aggregates
- ASTM C94 Standard Specification for Ready-Mixed Concrete
- ASTM C150/C150M Standard Specification for Portland Cement
- ASTM C260/C260M Standard Specification for Air-Entraining Admixtures for Concrete
- ASTM C595 Standard Specification for Blended Hydraulic Cements
- ASTM C618 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
- ASTM C979/C979M Standard Specification for Pigments for Integrally Colored Concrete
- ASTM C989/C989M Standard Specification for Slag Cement for Use in Concrete and Mortars
- ASTM C1017/C1017M Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
- ASTM C1116/C1116M Standard Specification for Fiber-Reinforced Concrete
- ASTM C1157/C1157M Standard Performance Specification for Hydraulic Cement
- ASTM C1240 Standard Specification for Silica Fume Used in Cementitious Mixtures
- ASTM C1602/C1602M Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
- ASTM G109 Standard Test Method for Determining Effects of Chemical Admixtures on Corrosion of Embedded Steel Reinforcement in Concrete Exposed to Chloride Environments
- ASTM C330/C330M Standard Specification for Lightweight Aggregates for Structural Concrete
- ASTM C494/C494M Standard Specification for Chemical Admixtures for Concrete

ISO Standards:

- ISO 6707-1: 2014 Buildings and Civil Engineering Works - Vocabulary - Part 1: General Terms
- ISO 14021:1999 Environmental Labels and Declarations - Self-declared Environmental Claims (Type II Environmental Labeling)
- ISO 14025:2006 Environmental Labels and Declarations - Type III Environmental Declarations - Principles and Procedures
- ISO 14040:2006 Environmental Management - Life Cycle Assessment - Principles and Framework
- ISO 14044:2006 Environmental Management - Life Cycle Assessment - Requirements and Guidelines
- ISO 14067:2018 Greenhouse Gases - Carbon Footprint of Products - Requirements and Guidelines for Quantification
- ISO 14050:2009 Environmental Management - Vocabulary
- ISO 21930:2017 Sustainability in Building Construction - Environmental Declaration of Building Products