



Environmental
Product
Declaration



READY-MIXED CONCRETE

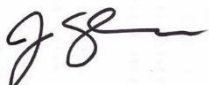


Environmental Product Declaration

NRMCA Certified Environmental Product Declaration

This environmental product declaration was conducted in accordance with ISO 14025:2006

Internal Verification External Verification X

Declared Product:	This Environmental Product Declaration (EPD) covers ready-mixed concrete produced by Graniterock.	
Declaration Owner:	Graniterock 350 Technology Drive; PO Box 50001 Watsonville, CA 95077-5001 http://www.graniterock.com/ 831.768.2000	 Graniterock
Program Operator:	National Ready Mix Concrete Association 900 Spring St. Silver Spring, MD 20910 301-587-1400 www.nrmca.org/sustainability  Lionel Lemay	 NRMCA
LCA and EPD Developer:	Athena Sustainable Materials Institute 119 Ross Ave. #100 Ottawa, ON K1Y 0N6 613-729-9996 www.athenasmi.org  James Salazar	 Athena Sustainable Materials Institute
Product Category Rule:	The Carbon Leadership Forum PCR: Product Category Rules (PCR) for ISO 14025 Type III Environmental Product Declarations (EPDs) for Concrete Version 1.1 dated December 4, 2013, Serves as the PCR for this EPD. The EPD has been prepared in accordance with the guidance provided in clarification #1, #2 & #3 per section 4.6 of the Version 1.1 PCR (6/1/2015) www.carbonleadershipforum.org PCR review was conducted by: Nicholas Santero, PE International; Holly Lahd, EL Analytics and Medgar Marceau, Morrison Hershfield; December 4, 2013	
Independent LCA Reviewer and EPD Verifier:	This EPD was independently verified by NSF International 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 ☐ Internal ☒ External	
	 LONG TRAIL SUSTAINABILITY Formerly EARTHSHIFT Third Party Verifier Paula Bernstein, Long Trail Sustainability on Behalf of NRMCA	
Date of Issue:	Published: January 9, 2015 Revised: March 16, 2018 and November 30, 2018	
Period of Validity:	January 9, 2020	
EPD Number	NRMCAEPD:10006	

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Description of Company

Graniterock has served the needs of the construction industry since 1900. Graniterock supplies crushed aggregate, sand and gravel, concrete, building materials, natural stone, and asphaltic concrete to any construction job, large or small. The Company's construction division is a significant regional heavy engineering contractor building roadways, airports and private commercial and residential projects. Graniterock was founded on Valentine's Day, February 14, 1900. Graniterock has operations in Watsonville, Santa Cruz, Seaside, Salinas, Hollister, Aromas, Cupertino, Felton, San Jose, Redwood City, Oakland, and South San Francisco.

At Graniterock, we believe that quality products and exemplary service can only be achieved with highly skilled and motivated people who take personal ownership of customer satisfaction. You will notice a difference in Graniterock People. We are proud of our dedication to uncompromising product quality and service.

Graniterock received the 1992 Malcolm Baldrige National Quality Award and the 1994 Governor's Golden State Quality Award. The future of Graniterock will echo the many remarkable achievements of the past. Graniterock has strategic plans to maintain its leadership position in the industry. High-technology solutions are being implemented to enhance the products, service and procedures already in place at the A. R. Wilson Quarry in Aromas.

Community Contribution and Responsibility is one of the corporate objectives at Graniterock. All team members are encouraged "to be exemplary citizens of each of the communities in which we operate by actively participating in achieving community goals. The environment is important to us; our actions shall be consistent with environmental responsibility." Details for Graniterock's environmental responsibility and sustainability report can be found at: http://www.graniterock.com/about_us/environment

Graniterock has led the way through for more than 100 years and will continue to be a community and market leader through employee dedication, technological innovation and commitment to excellence.

Location of Facilities

This EPD is for ready-mixed concrete produced by Graniterock at the following facilities:

Table 1: Plants Represented in the EPD					
Facility	321-Santa Cruz	331-Salinas	341-Sand City	361 – San Jose	381-Redwood
Street	303 Coral St.	400 Work St.	1755 Del Monte Blvd.	11711 Berryessa	355 Blomquist St.
City	Santa Cruz	Salinas	Seaside	San Jose	Redwood City
State	California	California	California	California	California
Zip	95060-2106	93091	93955	95133-1012	94063-2701
Plant Type	Central Mix	Transit Mix	Transit Mix	Central Mix	Central Mix

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Description of Product

Table 2 lists the 38 products declared in this EPD.

Table 2. Declared Product Range Classification						
Mix #	Product ID	Mix Properties				
		28-day CS (psi)	Water/ Cement Ratio (w/cm)	Fly Ash (FA)%	Slag %	Air Entrained
1	670297	3,000	0.60	15	0	Y
2	087296	3,000	0.58	25	0	Y
3	670311	3,000	0.62	15	0	Y
4	57T500	3,000	0.62	15	35	N
5	67T50P	3,000	0.64	15	35	N
6	072604	3,000	0.53	17	0	Y
7	080300	3,000	0.58	15	0	Y
8	072609	3,500	0.50	25	0	Y
9	670363	3,500	0.55	15	0	Y
10	57T550	3,500	0.55	15	35	N
11	57B590	3,500	0.45	30	0	N
12	670357	3,500	0.55	25	0	Y
13	578606	3,500	0.49	25	0	Y
14	578604	4,000	0.49	20	0	N
15	083774	4,000	0.43	15	0	Y
16	666713	4,000	0.48	15	0	Y
17	083798	4,000	0.42	25	0	N
18	672414	4,000	0.50	15	0	Y
19	57T605	4,000	0.51	15	35	N
20	57T600	4,000	0.50	30	40	N
21	572657	4,000	0.45	25	0	Y
22	572600	4,000	0.50	25	0	N
23	670414	4,000	0.50	25	0	Y
24	67G607	4,000	0.49	15	35	N
25	57G665	4,000	0.45	15	30	Y
26	678657	4,500	0.45	25	0	Y
27	571650	4,500	0.45	0	0	N
28	57T750	5,000	0.44	30	30	N
29	57T751	5,500	0.39	15	30	N
30	571800	6,000	0.38	0	0	N
31	07T750	4,000	0.45	15	35	N
32	67G653	4,500	0.45	15	30	N
33	577720	5,000	0.40	25	0	Y
34	57B590	4,000	0.45	30	0	N
35	572590	4,000	0.45	25	0	N
36	57B550	3,500	0.55	25	0	N
37	57B505	3,000	0.55	25	0	N
38	070303	1,500	0.58	15	0	Y

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Products covered by this EPD satisfy general purpose concrete as used in residential, commercial and public works applications in the US and Canada. This EPD reports the impacts for ready-mixed concrete products produce at Graniterock facilities in accordance with the following:

- ACI 211: Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete
- ACI 318: Building Code Requirements for Structural Concrete
- ASTM C94: Standard Specification for Ready-Mixed Concrete
- CSI MasterFormat Division 03-30-00: Cast-in-Place Concrete
- UNSPSC Code 30111500: Ready Mix

Cradle-to-Gate Life Cycle of Ready-Mixed Concrete

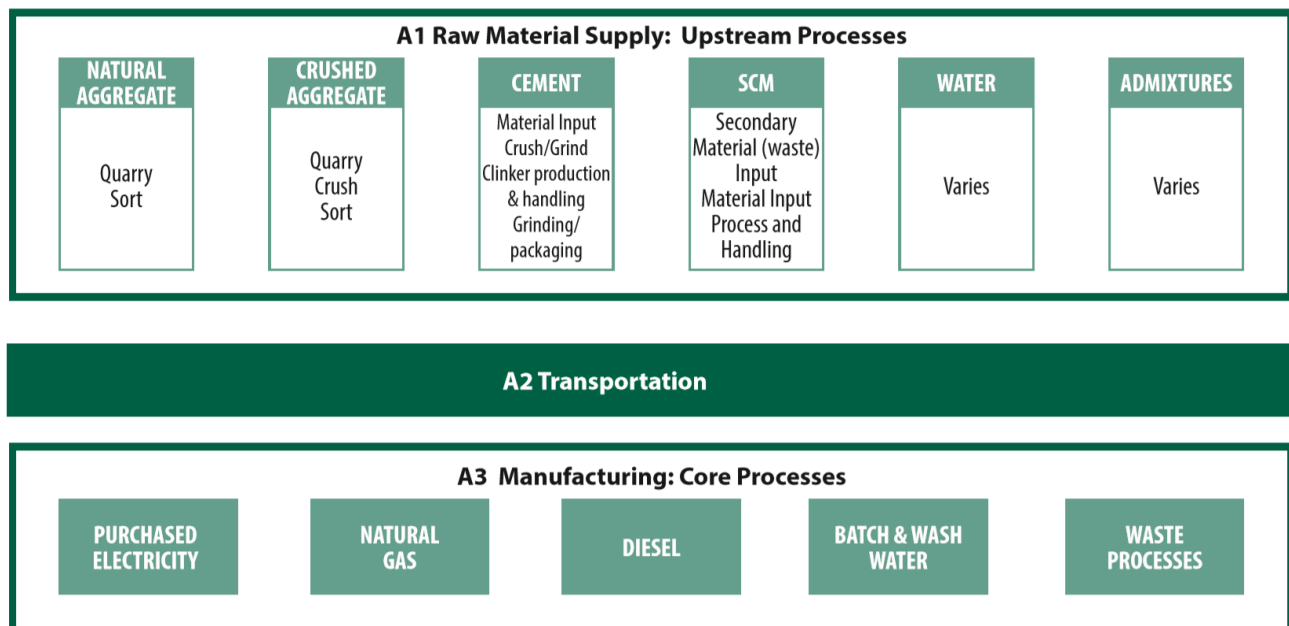
A summary of life cycle stages included in the EPD is as follows:

A1: Raw Material Supply (upstream processes): Extraction, handling and processing of the raw materials used in the production of concrete: cement, supplementary cementitious materials, aggregate (coarse and fine), water, admixtures and other materials or chemicals used in concrete mixtures.

A2: Transportation: Transportation of these materials from the supplier to the 'gate' of the concrete producer.

A3: Manufacturing (core processes): The energy used to store, batch, mix and distribute the concrete and operate the facility (concrete plant). Includes water use in mixing and distributing concrete.

Figure 1: Cradle-to-gate product system for concrete



Methodology of Underlying LCA

LCA Project Report

Details of the methodology of the underlying LCA can be found in the LCA Project Report: Athena Sustainable Materials Institute: A Cradle-to-Gate Life Cycle Assessment of Ready-Mixed Concrete Produced by Graniterock; Version 2.0. Prepared by the Athena Sustainable Materials Institute: November 2018.

Declared Unit

The declared unit is 1 cubic meter of ready mixed concrete product. Key product variables include:

- Compressive strength – Compressive strengths are represented in the various mix designs and include the number of days after pouring as a part of the reference value: e.g. 3,000 psi (20.7 MPa) @ 28 days.
- Water to cementitious materials ratio (w/cm)– Varies, but generally lower for higher strength non-air entrained mix designs (above 5,000psi (34.5 MPa)) in accordance with ACI 211.1 recommendations;
- SCM use– mix designs call for portland cement displaced by incorporating fly ash (FA) and/or slag cement (SL);
- Admixtures use – Admixture use was specified for the different mixes. These admixtures included an air-entraining admixture, water reducing and accelerating admixtures, and high range water reducer admixtures.

Product (mix design) components and their corresponding product standards include:

- Portland cement: ASTM C150
- Slag cement: ASTM C989
- Fly ash: ASTM C618
- Natural and Crushed Aggregates: ASTM C33
- Admixtures: ASTM C494
- Batch water: ASTM C1602

Cut-off Rules

The cut-off criteria for all activity stage flows considered within the system boundary conform with ISO14044:2006 and section 3.3 of the governing PCR. Specifically, the cut-off criteria were applied as follows:

- All inputs and outputs for which data are available are included in the calculated effects and no collected core process data are excluded.
- A one percent cut-off is considered for renewable and non-renewable primary energy consumption and the total mass of inputs within a unit process. The sum of the total neglected flows does not exceed 5% of all energy consumption and mass of inputs.
- All flows known to contribute a significant impact or to uncertainty are included;
- The cut-off rules are not applied to hazardous and toxic material flows – all of which are included in the life cycle flow inventory.

Allocation

The applied allocation procedures conform with ISO14044 clause 4.3.4. Two of the five Graniterock concrete plants (331 and 341) are truck mixing plants where the concrete mixing occurs within mixer trucks after they are loaded and at the project site; for these operations, a portion of the delivery truck's energy use that would typically be captured under "Construction and Process Stage" A4-Transportation (to site) is allocated to the mixing of concrete for truck-mixing plants and is captured in information module A3. This system boundary refinement addresses the difference between truck-mixing and central-mixing concrete plants where the latter plant type fully mixes the concrete prior to loading the concrete into delivery trucks.

Limitations

The limitations of this EPD include:

- This EPD does not report all of the environmental impacts due to manufacturing of the product, but rather reports the environmental impacts for those categories with established LCA-based methods to track and report. Unreported environmental impacts include (but are not limited to) factors attributable to human health, land use change, and habitat destruction.
- In order to assess the local impacts of product manufacturing, additional analysis is required.
- This EPD reports the results of an LCA or the 'cradle-to-gate' analysis. Thus, declarations themselves are not comparative assertions, defined as an environmental claim regarding the superiority or equivalence of one product versus a competing product that performs the same function. An EPD does not make any statements that the product covered by the EPD is better or worse than any other product.
- The EPD participants may participate in other sustainability or environmental best practice programs. However, no such additional environmental claim or declaration is conveyed in this EPD.
- EPDs of concrete mixtures may not be comparable if they do not comply with this standard and data from this EPD. The data cannot be used to compare between concrete mixes, construction products or concrete mixtures used in different concrete products unless the data is integrated into a comprehensive LCA. For example, precast concrete, concrete masonry units and site cast concrete all have different manufacturing processes whose impacts are attributed to different LCA stages. This precludes direct comparison between mixtures used in these different products unless all lifecycle phases are included.
- Life cycle impact assessment (LCIA) results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.
- This EPD was created using industry average data for upstream materials. Variation can result from differences in supplier locations, manufacturing processes, manufacturing efficiency and fuel type used.

Data Sources and Data Quality Assessment

This EPD is based on LCI data collected from Graniterock's ready-mixed concrete facilities. Additional primary data includes the production of the fine and coarse aggregate used by Graniterock's ready-mixed concrete facilities as produced by two quarries operated by Graniterock. The LCI data for aggregates is documented in a recent EPD for aggregates: www.nrmca.org/sustainability/EPDProgram/Downloads/Graniterock_EP2018-07-03.pdf
All other upstream material, resource and energy carrier inputs have been sourced from industry-average datasets and literature. Tables 3-5 describe each LCI data source and the data quality for each data source.

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Table 3. A1 - Raw Material Supply				
Materials	LCI Data Source	Geography	Year	Data Quality Assessment
Cement (lbs) <i>ASTM C150</i>	Portland Cement Association EPD USA Portland Cement, 2016	USA	2014	• Technology: good Process models USA industry average portland cement production • Time: good Data is within 3 years • Geography: very good • Completeness: good • Reliability: very good, third-party verified EPD
Fly Ash (lbs) <i>ASTM C618</i>	None, no incoming burden, only inbound transport was considered	N/A	N/A	• N/A • Recovered material
Silica Fume (lbs) <i>ASTM C1240</i>	None, no incoming burden, only inbound transport was considered	N/A	N/A	• N/A • Recovered material
Slag Cement (lbs) <i>ASTM C989</i>	Slag Cement Association N. America EPD Slag Cement, 2015	N. America	2013-2014	• Technology: good Process models ground granulated blast furnace slag • Time: good Data is within 3 years • Geography: very good • Completeness: good • Reliability: very good, third-party verified EPD
Admixtures (oz) Accelerator Air Entrainment Retarding Waterproofing Plasticizer Superplasticizer <i>ASTM C494</i>	EFCA EcoProfiles (300, 301, 302, 303, 324 and 325) CLF PCR Default	EU	2005 - 2006	• Technology: very good Processes represents admixture production for use in concrete • Time: fair Data is within eleven years • Geography: fair • Completeness: good Data from a federation of European admixture producers • Reliability: good Profiles have undergone an independent review process. Compliance with ISO standards (unknown)

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Table 3. A1 - Raw Material Supply				
Materials	LCI Data Source	Geography	Year	Data Quality Assessment
Synthetic Fibers	USLCI 2014 - Polypropylene resin, at plant/RNA	USA	2014	• Technology: very good Processes represents U.S average transportation profiles • Time: very good Data is within two years • Geography: good • Completeness: good (all data place holders filled) Data is representative of US conditions • Reliability: good • Data is from USLCI database
Concrete Batch and Wash Water (gallons) <i>ASTM C1602</i>	ecoinvent process: Tap water, at user RER U (modified with WECC electricity grid)	Global/ California	2013 & 2015	• Technology: very good Data represents fresh batch water, recycled wash water used as batch water and wash water inputs • Time: very good Data is within three years • Geography: very good • Completeness: very good Primary data from core processes survey • Reliability: very good Data based on specified use



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Table 4. A2 - Transportation

Process	LCI Data Source	Geography	Year	Data Quality Assessment
Rail, ocean freighter and barge* (lbs*miles)	USLCI: rail transport, diesel powered; ocean freighter, average fuel mix; barge, average fuel mix	USA	2008	• Technology: very good Processes represents U.S average transportation profiles • Time: fair Data is within ten years • Geography: good • Completeness: good (all data place holders filled) Data is representative of US conditions • Reliability: good • Data is from USLCI database
Road (lbs*miles)	USLCI 2014: single unit truck transport, diesel powered, short haul US avg.;	USA	2014	• Technology: very good Processes represents U.S average transportation profiles • Time: very good Data is within two years • Geography: good • Completeness: good (all data place holders filled) Data is representative of US conditions • Reliability: good • Data is from USLCI database

Table 5. A3 - Manufacturing

Process	LCI Data Source	Geography	Year	Data Quality Assessment
Electricity (kWh)	California purchased electricity grid mix- Electricity, medium voltage, WECC at grid, US (ecoinvent v3.01)	US/California	2008/2013	• Technology: very good Process represents production of electricity in the appropriate NERC region. Time: fair/good Electricity production data is within ten years. NERC regional production breakdown from 2013. • Geography: very good • Completeness: good Data is representative of US production • Reliability: good ecoinvent has verified the data

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Table 5. A3 - Manufacturing				
Process	LCI Data Source	Geography	Year	Data Quality Assessment
Natural Gas (cu.ft.)	USLCI: Natural gas, combusted in industrial boiler/US	US	2008	• Technology: very good Process represents combustion of natural gas in an industrial boiler. • Time: fair Data is within ten years • Geography: fair • Completeness: good Data is representative of US conditions • Reliability: good Data is from USLCI database
Fuel Oil (other than diesel), (gallon)	USLCI: Residual fuel oil, combusted in industrial boiler/US	US	2008	• Technology: very good Process represents combustion of RFO in an industrial boiler. • Time: fair Data is within ten years • Geography: fair • Completeness: good Data is representative of US conditions • Reliability: good Data is from USLCI database
Diesel (gallon)	USLCI: Diesel, combusted in industrial equipment/US	US	2008	• Technology: very good Process represents combustion of diesel in industrial equipment. • Time: fair Data is within ten years • Geography: fair • Completeness: good Data is representative of US conditions • Reliability: good Data is from USLCI database
Gasoline (gallon)	USLCI: Gasoline, combusted in equipment/US	US	2008	• Technology: very good Process represents combustion of gasoline in equipment. • Time: fair Data is within ten years • Geography: fair • Completeness: good Data is representative of US conditions • Reliability: good Data is from USLCI database

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Table 5. A3 - Manufacturing				
Process	LCI Data Source	Geography	Year	Data Quality Assessment
Hazardous Solid Waste, (lbs)	ecoinvent 3.1, 2014 -Hazardous waste, for incineration {US} treatment of hazardous waste, hazardous waste incineration Alloc Def, U	EU	2008	• Technology: good • Time: fair Data is within ten years. • Geography: fair Processes model Swiss production (no US process in USLCI database). • Completeness: very good • Reliability: very good Data is verified by Ecoinvent.
Non-Hazardous Solid Waste, (lbs)	ecoinvent 3.1, 2014 -Waste concrete {US} treatment of, inert material landfill Alloc Def, U	EU	2008	• Technology: good • Time: fair Data is within ten years. • Geography: fair Processes model Swiss production (no US process in USLCI database). • Completeness: very good • Reliability: very good Data is verified by Ecoinvent.

Data Quality Assessment

Data quality requirements, as specified in the CLF PCR: 2013, sections 3.5 and 3.6, are applied and reported in Tables 3 to 5. This section also describes the achieved data quality relative to the ISO 14044:2006 requirements. This LCA and resulting EPD was created using industry average data for upstream materials. Data variation can result from differences in supplier locations, manufacturing processes, manufacturing efficiency and fuel types used. Data quality is judged on the basis of its representativeness (technological, temporal, and geographical), completeness (e.g., unreported emissions), consistency and reliability.

All LCI data (Tables 3 to 5) are assessed on the basis of the five data quality indicators listed below. Each indicator is interpreted with respect to its context and key determining data parameters are discussed to provide clarity as to how the overall quality of each indicator is assessed and stated.

Technical representativeness: Overall quality - Good to very good

The degree to which the data reflects the actual technology(ies) used. Core manufacturing process technology is derived from the manufacturing facilities. These data are deemed to be reflective of typical or average technologies used by Graniterock in the production of ready-mixed concrete. Some background material and process data are European but deemed to be similar to technologies used in the US and are often cited as preferred “default data” in the governing CLF PCR.

Temporal representativeness: Overall quality - Fair to very good

The degree to which the data reflects the actual time (e.g. year) or age of the activity. Core manufacturing process data is recent (2013 to 2016). All other key LCI data sources are less than 10 years old.

Geographical representativeness: Overall quality - Fair to very good

The degree to which the data reflects the actual geographic location of the activity (e.g. country or site). Geographical coverage of core manufacturing processes is specific to California. All background energy profiles reflect US conditions and the electricity grid that was specified for the Graniterock facilities was the WECC NERC region. Some material (e.g., admixtures) and process data are based on European sources. These data have been previously verified or listed in the governing PCR for default use.

Completeness: Overall quality - Good to very good

The degree to which the data are statistically representative of the relevant activity. Completeness includes the percentage of locations for which data is available and used out of the total number that relate to a specific activity. Core manufacturing processes are very complete and were derived from data gathered at the participating facilities. These data reflect annual operations inclusive of seasonal and other normal annual fluctuations in operations. 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 RMC products. The relevant background materials and processes were taken from the US LCI Database (adjusted for known data placeholders); US system boundary adjusted ecoinvent v 2.2 and v3.1 LCI databases and modeled in SimaPro software v.8.0.4, 2018. Efforts were made to ensure that all data used was as complete as reasonably possible.

Reliability: Overall quality - Fair to very good

The degree to which the sources, data collection methods and verification procedures used to obtain the data are dependable. For core manufacturing processes the reliability of the information and data is deemed to be very good as these were derived from specific data of the RMC production facilities. Similarly, the LCI data for Portland and slag cements, at plant, reflect verified industry average EPDs. All missing process data (dummies) associated with the US LCI data have been consistently filled. All other LCI data have been incorporated in accordance with the default PCR requirements or derived from ecoinvent databases, which have been verified by ecoinvent.

Furthermore, the data quality is evaluated on the basis the precision, consistency and reproducibility.

Precision: Graniterock, through measurement and calculation, collected primary data on their annual production of RMC products. For accuracy the LCA team validated these gate-to-gate input and output data.

Consistency: To ensure consistency, the LCI modeling of the production weighted input and output LCI data for the declared products used the same modeling structure across the respective product systems, which consisted of input raw and ancillary material, energy flows, water resource inputs, product and co-products outputs, returned and recovered concrete materials, emissions to air, water and soil, and waste recycling and treatment. The same background LCI were used across all RMC product systems LCI modeling. Crosschecks concerning the plausibility of mass and energy flows were continuously conducted. The LCA team conducted mass and energy balances for the RMC plant to maintain a high level of consistency.

Reproducibility: Internal reproducibility is possible since the data are stored in an available calculator (Graniterock Concrete EPD Calculator, 2018). A considerable level of transparency is provided throughout the report as the specifications and material quantity make-up for the declared RMC products are presented and key primary and secondary LCI data sources are summarized in Tables 1, 2, and 3. The provision of more detailed data to allow full external reproducibility was not possible due to reasons of confidentiality.

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Life Cycle Assessment Results

Environmental Indicators and Inventory Metrics

This EPD supports 15 life cycle impact assessment indicators and inventory metrics as listed in Table 4. As specified in the CLF PCR 2013, Section 8., the US EPA Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI), version 2.1, 2012 impact categories were used to calculate mandatory category indicators.

Table 6. Life Cycle Category Indicators and Inventory Metrics			
#	LCIA Indicators	Abbreviations	Units
1	Global Warming Potential (climate change)	GWP	kg CO ₂ -eq
2	Ozone Depletion Potential	ODP	kg CFC-11-eq
3	Acidification Potential	AP	kg SO ₂ -eq
4	Eutrophication Potential	EP	kg N-eq
5	Photochemical Ozone Creation/Smog Potential	POCP	kg O ₃ -eq
Inventory Metrics			
6	Total primary energy consumption	PEC	MJ (HHV)
7	Depletion of non-renewable energy resources	NRE	MJ (HHV)
8	Use of renewable primary energy	RE	MJ (HHV)
9	Depletion of non-renewable material resources	NRM	kg
10	Use of renewable material resources	RM	kg
11	Concrete batching water consumption	CBW	m ³
12	Concrete washing water consumption	CWW	m ³
13	Total water consumption	TW	m ³
14	Hazardous waste	HW	kg
15	Non-hazardous waste	NHW	kg

The CLF PCR 2013 also requires the reporting of carbon emissions from biofuel combustion. No biofuels are combusted in the life cycle of any of the products declared in this EPD and thus this metric was excluded from the results.

Tables 7 through 11 present the LCA results for the mixes produced at the different facilities. The results are presented first on the basis of 1 cubic yard (Tables 7a-11a) and on the basis of the declared unit, 1 cubic meter (Tables 7b-11b).

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Graniterock
Ready-Mixed Concrete

According to ISO 14025

Table 7a: Calculated Results for Plant 321 A1-A3 per yd3

Indicator	Strength		GWP	ODP	AP	EP	POCP	PEC	NRE	RE	NRM	RM	CBW	CWW	TW	CHW	CNHW
Mix Name	PSI	# Days	kg CO2	kg CFC-11	kg SO2	kg N	kg O3	MJ	MJ	MJ	kg	kg	m3	m3	m3	kg	kg
670297	3000	28	240.49	5.41E-06	0.79	0.26	16.95	1702.73	1673.08	29.64	1760.54	1.53	0.14	0.12	3.40	0.01	1.72
87296	3000	28	244.54	5.51E-06	0.79	0.26	16.94	1710.09	1680.05	30.05	1644.80	1.57	0.15	0.12	3.56	0.01	1.77
670311	3000	28	245.64	5.54E-06	0.80	0.26	17.12	1725.65	1695.39	30.26	1734.63	1.57	0.14	0.12	3.50	0.01	1.77
57T500	3000	28	166.98	4.58E-06	0.74	0.18	15.01	1428.39	1403.23	25.16	1688.35	1.10	0.14	0.12	2.62	0.03	0.99
67T50P	3000	28	166.16	4.56E-06	0.74	0.18	14.95	1421.19	1396.18	25.01	1672.40	1.10	0.14	0.12	2.70	0.03	0.98
72604	3000	28	268.31	6.09E-06	0.85	0.29	18.23	1851.10	1818.22	32.88	1740.95	1.73	0.14	0.12	3.80	0.01	1.97
80300	3000	28	270.91	6.20E-06	0.85	0.30	18.02	1846.18	1812.78	33.40	1661.43	1.77	0.15	0.12	3.76	0.01	2.01
72609	3500	28	247.37	5.55E-06	0.80	0.27	17.35	1741.87	1711.62	30.25	1722.96	1.58	0.13	0.12	3.59	0.01	1.78
670363	3500	28	253.59	5.73E-06	0.82	0.27	17.60	1775.83	1744.67	31.16	1769.01	1.62	0.13	0.12	3.56	0.01	1.83
57T550	3500	28	179.43	4.98E-06	0.78	0.19	15.70	1507.68	1480.60	27.08	1688.00	1.20	0.13	0.12	2.71	0.03	1.09
57B590	3500	28	243.47	5.43E-06	0.80	0.26	17.34	1735.87	1706.07	29.80	1776.67	1.54	0.12	0.12	3.38	0.01	1.73
670357	3500	28	229.32	5.11E-06	0.76	0.24	16.48	1644.22	1616.04	28.18	1727.64	1.44	0.13	0.12	3.31	0.01	1.62
578606	3500	28	246.83	5.54E-06	0.80	0.26	17.31	1742.09	1711.77	30.32	1742.51	1.57	0.13	0.12	3.42	0.01	1.77
578604	4000	28	261.64	5.91E-06	0.84	0.28	18.13	1831.09	1799.02	32.07	1808.77	1.68	0.13	0.12	3.59	0.01	1.89
83774	4000	28	337.31	7.82E-06	1.02	0.37	21.38	2224.24	2183.02	41.22	1755.65	2.24	0.15	0.12	4.50	0.02	2.57
666713	4000	28	304.53	7.11E-06	0.91	0.34	18.81	1994.70	1956.84	37.86	1458.02	2.04	0.15	0.12	3.87	0.02	2.34
83798	4000	28	313.42	7.20E-06	0.96	0.34	20.34	2097.52	2059.31	38.21	1715.66	2.06	0.15	0.12	4.26	0.02	2.36
672414	4000	28	273.66	6.23E-06	0.87	0.30	18.51	1884.92	1851.30	33.63	1777.17	1.77	0.13	0.12	3.72	0.01	2.00
57T605	4000	28	191.68	5.39E-06	0.83	0.21	16.43	1588.72	1559.70	29.02	1693.94	1.30	0.14	0.12	2.81	0.03	1.18
57T600	4000	28	139.62	4.25E-06	0.72	0.15	14.28	1330.67	1307.31	23.36	1597.62	0.94	0.13	0.12	2.30	0.04	0.71
572657	4000	28	264.48	5.99E-06	0.84	0.29	18.10	1837.67	1805.18	32.49	1743.67	1.70	0.13	0.12	3.55	0.01	1.92
572600	4000	28	247.61	5.55E-06	0.81	0.26	17.46	1753.07	1722.72	30.35	1774.91	1.57	0.13	0.12	3.45	0.01	1.77
670414	4000	28	246.55	5.54E-06	0.80	0.26	17.27	1738.28	1708.01	30.27	1730.00	1.57	0.13	0.12	3.46	0.01	1.77
67G607	4000	28	191.72	5.40E-06	0.83	0.21	16.47	1589.98	1560.98	29.01	1688.38	1.30	0.13	0.12	2.89	0.04	1.18
57G665	4000	28	215.90	5.95E-06	0.87	0.24	17.31	1704.57	1672.83	31.73	1668.72	1.48	0.13	0.12	3.00	0.03	1.41
678657	4500	28	263.50	5.96E-06	0.84	0.28	18.08	1832.01	1799.69	32.32	1743.28	1.69	0.13	0.12	3.59	0.01	1.91
571650	4500	28	337.36	7.82E-06	1.03	0.37	21.58	2241.26	2199.85	41.41	1910.92	2.24	0.13	0.12	4.30	0.02	2.55
57T750	5000	28	191.71	5.48E-06	0.83	0.21	16.40	1592.88	1563.55	29.33	1575.78	1.31	0.14	0.12	2.76	0.04	1.18
57T751	5500	28	243.81	6.78E-06	0.97	0.27	18.97	1893.16	1857.46	35.71	1705.33	1.69	0.13	0.12	3.23	0.04	1.62
571800	6000	28	405.94	9.54E-06	1.19	0.45	24.69	2617.66	2567.94	49.72	1948.21	2.74	0.13	0.12	4.88	0.02	3.14

Environmental Product Declaration

Table 7a continued: Calculated Results for Plant 321 A1-A3 per yd3

Indicator	Strength		GWP	ODP	AP	EP	POCP	PEC	NRE	RE	NRM	RM	CBW	CWW	TW	CHW	CNHW
Mix Name	PSI	# Days	kg CO2	kg CFC-11	kg SO2	kg N	kg O3	MJ	MJ	MJ	kg	kg	m3	m3	m3	kg	kg
07T750	4000	28	227.66	6.61E-06	0.94	0.26	18.29	1808.29	1773.52	34.77	1626.68	1.61	0.15	0.12	3.15	0.04	1.48
67G653	4500	28	217.28	5.95E-06	0.88	0.24	17.61	1724.11	1692.42	31.69	1727.48	1.48	0.13	0.12	3.12	0.03	1.41
577720	5000	28	288.05	6.57E-06	0.90	0.31	19.19	1967.27	1931.93	35.33	1751.79	1.87	0.13	0.12	3.75	0.01	2.12
57B590	3500	28	243.47	5.43E-06	0.80	0.26	17.34	1735.87	1706.07	29.80	1776.67	1.54	0.12	0.12	3.37	0.01	1.73
572590	4000	28	257.18	5.78E-06	0.83	0.28	17.96	1809.29	1777.79	31.50	1796.65	1.64	0.12	0.12	3.51	0.01	1.85
57B550	3500	28	230.82	5.13E-06	0.77	0.25	16.68	1661.15	1632.82	28.33	1771.36	1.45	0.13	0.12	3.30	0.01	1.62
57B505	3000	28	226.58	5.02E-06	0.76	0.24	16.51	1638.71	1610.93	27.78	1768.68	1.42	0.13	0.12	3.28	0.01	1.58
070303	1500	7	258.76	5.77E-06	0.85	0.27	17.85	1951.54	1920.32	31.22	1770.05	1.63	0.14	0.12	3.65	0.01	1.84

Environmental Product Declaration



Graniterock
Ready-Mixed Concrete

According to ISO 14025

Table 7b: Calculated Results for Plant 321 A1-A3 per m3

Indicator	Strength		GWP	ODP	AP	EP	POCP	PEC	NRE	RE	NRM	RM	CBW	CWW	TW	CHW	CNHW
Mix Name	PSI	# Days	kg CO2	kg CFC-11	kg SO2	kg N	kg O3	MJ	MJ	MJ	kg	kg	m3	m3	m3	kg	kg
670297	3000	28	314.55	7.07E-06	1.03	0.34	22.17	2227.08	2188.31	38.77	2302.70	2.00	0.18	0.15	4.44	0.01	2.25
87296	3000	28	319.85	7.21E-06	1.03	0.34	22.16	2236.72	2197.42	39.30	2151.32	2.05	0.20	0.15	4.65	0.01	2.31
670311	3000	28	321.28	7.24E-06	1.04	0.35	22.40	2257.06	2217.49	39.57	2268.80	2.05	0.19	0.15	4.57	0.01	2.31
57T500	3000	28	218.40	5.99E-06	0.97	0.23	19.63	1868.26	1835.35	32.91	2208.28	1.44	0.18	0.15	3.43	0.04	1.29
67T50P	3000	28	217.32	5.96E-06	0.96	0.23	19.56	1858.85	1826.13	32.71	2187.42	1.43	0.18	0.15	3.52	0.04	1.29
72604	3000	28	350.94	7.97E-06	1.11	0.38	23.85	2421.15	2378.14	43.01	2277.08	2.27	0.18	0.15	4.96	0.02	2.57
80300	3000	28	354.34	8.10E-06	1.11	0.39	23.57	2414.72	2371.03	43.69	2173.06	2.31	0.20	0.15	4.92	0.02	2.62
72609	3500	28	323.55	7.26E-06	1.05	0.35	22.69	2278.27	2238.71	39.56	2253.54	2.06	0.17	0.15	4.69	0.01	2.33
670363	3500	28	331.69	7.49E-06	1.07	0.36	23.02	2322.70	2281.94	40.76	2313.78	2.12	0.17	0.15	4.66	0.02	2.39
57T550	3500	28	234.68	6.52E-06	1.02	0.25	20.54	1971.97	1936.55	35.42	2207.81	1.57	0.17	0.15	3.54	0.04	1.42
57B590	3500	28	318.45	7.11E-06	1.05	0.34	22.69	2270.43	2231.46	38.97	2323.80	2.01	0.16	0.15	4.41	0.01	2.26
670357	3500	28	299.93	6.68E-06	0.99	0.32	21.56	2150.55	2113.70	36.85	2259.67	1.89	0.17	0.15	4.32	0.01	2.12
578606	3500	28	322.84	7.25E-06	1.05	0.35	22.64	2278.57	2238.91	39.65	2279.11	2.06	0.17	0.15	4.47	0.01	2.31
578604	4000	28	342.22	7.72E-06	1.10	0.37	23.72	2394.97	2353.02	41.95	2365.78	2.19	0.17	0.15	4.68	0.02	2.47
83774	4000	28	441.19	1.02E-05	1.33	0.49	27.96	2909.19	2855.28	53.91	2296.30	2.93	0.19	0.15	5.87	0.02	3.36
666713	4000	28	398.31	9.30E-06	1.19	0.44	24.60	2608.97	2559.45	49.52	1907.01	2.67	0.19	0.15	5.05	0.02	3.06
83798	4000	28	409.93	9.42E-06	1.26	0.45	26.61	2743.46	2693.48	49.98	2244.00	2.70	0.19	0.15	5.57	0.02	3.08
672414	4000	28	357.94	8.15E-06	1.13	0.39	24.21	2465.38	2421.40	43.98	2324.45	2.32	0.17	0.15	4.86	0.02	2.62
57T605	4000	28	250.70	7.05E-06	1.08	0.27	21.49	2077.97	2040.01	37.96	2215.58	1.70	0.18	0.15	3.67	0.05	1.55
57T600	4000	28	182.62	5.56E-06	0.95	0.20	18.67	1740.45	1709.90	30.56	2089.61	1.22	0.17	0.15	3.00	0.05	0.93
572657	4000	28	345.93	7.83E-06	1.10	0.37	23.67	2403.58	2361.09	42.49	2280.64	2.23	0.17	0.15	4.63	0.02	2.51
572600	4000	28	323.86	7.26E-06	1.06	0.35	22.84	2292.93	2253.23	39.70	2321.49	2.06	0.17	0.15	4.51	0.01	2.31
670414	4000	28	322.48	7.24E-06	1.05	0.35	22.59	2273.58	2233.99	39.59	2262.75	2.05	0.17	0.15	4.51	0.01	2.31
67G607	4000	28	250.76	7.07E-06	1.08	0.27	21.55	2079.62	2041.68	37.94	2208.31	1.71	0.17	0.15	3.77	0.05	1.55
57G665	4000	28	282.39	7.78E-06	1.14	0.31	22.64	2229.49	2187.98	41.51	2182.60	1.93	0.17	0.15	3.92	0.05	1.84
678657	4500	28	344.65	7.79E-06	1.10	0.37	23.65	2396.17	2353.90	42.27	2280.12	2.22	0.17	0.15	4.69	0.02	2.50
571650	4500	28	441.25	1.02E-05	1.34	0.48	28.23	2931.46	2877.30	54.16	2499.39	2.93	0.17	0.15	5.62	0.02	3.33
57T750	5000	28	250.74	7.16E-06	1.09	0.28	21.45	2083.41	2045.04	38.37	2061.04	1.72	0.19	0.15	3.60	0.05	1.54
57T751	5500	28	318.89	8.87E-06	1.26	0.35	24.81	2476.16	2429.46	46.70	2230.48	2.21	0.17	0.15	4.23	0.05	2.12
571800	6000	28	530.95	1.25E-05	1.55	0.59	32.29	3423.77	3358.74	65.03	2548.16	3.58	0.17	0.15	6.37	0.03	4.11

Environmental Product Declaration

Table 7b continued: Calculated Results for Plant 321 A1-A3 per m3

Indicator	Strength		GWP	ODP	AP	EP	POCP	PEC	NRE	RE	NRM	RM	CBW	CWW	TW	CHW	CNHW
Mix Name	PSI	# Days	kg CO2	kg CFC-11	kg SO2	kg N	kg O3	MJ	MJ	MJ	kg	kg	m3	m3	m3	kg	kg
07T750	4000	28	297.77	8.65E-06	1.23	0.33	23.93	2365.15	2319.68	45.48	2127.62	2.10	0.19	0.15	4.11	0.06	1.94
67G653	4500	28	284.20	7.78E-06	1.15	0.31	23.04	2255.05	2213.60	41.45	2259.46	1.93	0.17	0.15	4.08	0.05	1.84
577720	5000	28	376.76	8.60E-06	1.18	0.41	25.10	2573.08	2526.87	46.21	2291.26	2.45	0.17	0.15	4.90	0.02	2.78
57B590	3500	28	318.45	7.11E-06	1.05	0.34	22.69	2270.43	2231.46	38.97	2323.80	2.01	0.16	0.15	4.41	0.01	2.26
572590	4000	28	336.38	7.57E-06	1.09	0.36	23.49	2366.47	2325.26	41.20	2349.93	2.15	0.16	0.15	4.58	0.02	2.41
57B550	3500	28	301.90	6.72E-06	1.00	0.32	21.82	2172.70	2135.64	37.05	2316.85	1.90	0.17	0.15	4.31	0.01	2.12
57B505	3000	28	296.36	6.57E-06	0.99	0.31	21.59	2143.35	2107.02	36.34	2313.35	1.85	0.17	0.15	4.29	0.01	2.07
070303	1500	7	338.45	7.54E-06	1.11	0.36	23.34	2552.51	2511.68	40.83	2315.14	2.13	0.18	0.15	4.77	0.02	2.41

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Graniterock
Ready-Mixed Concrete

According to ISO 14025

Table 8a: Calculated Results for Plant 331 A1-A3 per yd3

Indicator	Strength		GWP	ODP	AP	EP	POCP	PEC	NRE	RE	NRM	RM	CBW	CWW	TW	CHW	CNHW
Mix Name	PSI	Days	kg CO2	kg CFC-11	kg SO2	kg N	kg O3	MJ	MJ	MJ	kg	kg	m3	m3	m3	kg	kg
670297	3000	28	242.49	5.44E-06	0.84	0.26	18.65	1737.46	1708.06	29.40	1760.55	1.53	0.14	0.12	3.40	0.01	1.72
87296	3000	28	247.39	5.55E-06	0.85	0.27	18.79	1756.50	1726.70	29.81	1644.81	1.56	0.15	0.12	3.56	0.01	1.77
670311	3000	28	247.84	5.58E-06	0.85	0.27	18.86	1763.23	1733.22	30.02	1734.63	1.57	0.14	0.12	3.50	0.01	1.77
57T500	3000	28	168.07	4.62E-06	0.79	0.18	16.55	1450.67	1425.75	24.92	1688.36	1.10	0.14	0.12	2.63	0.03	0.99
67T50P	3000	28	167.30	4.60E-06	0.79	0.18	16.50	1444.22	1419.45	24.77	1672.41	1.09	0.14	0.12	2.70	0.03	0.98
72604	3000	28	270.90	6.13E-06	0.91	0.29	20.04	1893.94	1861.30	32.64	1740.96	1.73	0.14	0.12	3.80	0.01	1.97
80300	3000	28	273.83	6.23E-06	0.91	0.30	19.89	1893.54	1860.37	33.16	1661.44	1.77	0.15	0.12	3.77	0.01	2.01
72609	3500	28	249.93	5.59E-06	0.86	0.27	19.15	1784.28	1754.27	30.01	1722.96	1.57	0.13	0.12	3.60	0.01	1.78
670363	3500	28	255.78	5.76E-06	0.87	0.28	19.34	1813.18	1782.26	30.92	1769.02	1.62	0.13	0.12	3.57	0.01	1.83
57T550	3500	28	180.72	5.02E-06	0.83	0.20	17.28	1532.70	1505.86	26.84	1688.00	1.20	0.13	0.12	2.72	0.03	1.09
57B590	3500	28	245.90	5.47E-06	0.86	0.26	19.12	1776.53	1746.97	29.56	1776.68	1.54	0.12	0.12	3.38	0.01	1.73
670357	3500	28	231.55	5.15E-06	0.82	0.25	18.23	1682.12	1654.18	27.94	1727.65	1.44	0.13	0.12	3.31	0.01	1.62
578606	3500	28	249.30	5.58E-06	0.86	0.27	19.09	1783.29	1753.21	30.08	1742.51	1.57	0.13	0.12	3.42	0.01	1.77
578604	4000	28	263.93	5.94E-06	0.90	0.28	19.88	1869.71	1837.88	31.84	1808.78	1.67	0.13	0.12	3.59	0.01	1.89
83774	4000	28	340.90	7.86E-06	1.08	0.38	23.35	2280.70	2239.72	40.98	1755.66	2.24	0.15	0.12	4.50	0.02	2.57
666713	4000	28	308.83	7.15E-06	0.98	0.34	20.92	2061.07	2023.45	37.62	1458.02	2.04	0.15	0.12	3.87	0.02	2.34
83798	4000	28	317.15	7.24E-06	1.03	0.35	22.35	2156.11	2118.13	37.98	1715.67	2.06	0.15	0.12	4.27	0.02	2.36
672414	4000	28	276.13	6.27E-06	0.92	0.30	20.29	1926.05	1892.66	33.39	1777.18	1.77	0.13	0.12	3.72	0.01	2.00
57T605	4000	28	193.13	5.43E-06	0.88	0.21	18.03	1616.01	1587.22	28.78	1693.94	1.30	0.14	0.12	2.82	0.03	1.18
57T600	4000	28	141.06	4.29E-06	0.77	0.15	15.88	1357.68	1334.56	23.12	1597.63	0.93	0.13	0.12	2.30	0.04	0.71
572657	4000	28	267.25	6.02E-06	0.90	0.29	19.93	1883.04	1850.79	32.25	1743.68	1.70	0.13	0.12	3.55	0.01	1.92
572600	4000	28	249.96	5.59E-06	0.86	0.27	19.22	1792.62	1762.50	30.11	1774.92	1.57	0.13	0.12	3.46	0.01	1.77
670414	4000	28	249.08	5.58E-06	0.86	0.27	19.06	1780.20	1750.17	30.03	1730.01	1.57	0.13	0.12	3.46	0.01	1.77
67G607	4000	28	193.20	5.44E-06	0.88	0.21	18.08	1617.56	1588.79	28.77	1688.38	1.30	0.13	0.12	2.89	0.04	1.18
57G665	4000	28	217.85	5.98E-06	0.92	0.24	19.00	1738.63	1707.13	31.50	1668.72	1.48	0.13	0.12	3.00	0.03	1.41
678657	4500	28	266.26	6.00E-06	0.90	0.29	19.91	1877.21	1845.13	32.08	1743.28	1.69	0.13	0.12	3.59	0.01	1.91
571650	4500	28	339.83	7.86E-06	1.08	0.37	23.37	2282.44	2241.27	41.17	1910.93	2.24	0.13	0.12	4.31	0.02	2.55
57T750	5000	28	194.18	5.51E-06	0.89	0.21	18.19	1634.08	1604.98	29.10	1575.78	1.31	0.14	0.12	2.76	0.04	1.18
57T751	5500	28	246.04	6.82E-06	1.02	0.27	20.71	1931.02	1895.55	35.47	1705.34	1.69	0.13	0.12	3.24	0.04	1.62
571800	6000	28	409.23	9.57E-06	1.25	0.45	26.61	2670.10	2620.62	49.48	1948.21	2.74	0.13	0.12	4.88	0.02	3.14
070303	1500	7	260.97	5.80E-06	0.90	0.28	19.58	1989.17	1958.19	30.98	1770.06	1.63	0.14	0.12	3.65	0.01	1.84

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Table 8b: Calculated Results for Plant 331 A1-A3 per m3

Indicator	Strength		GWP	ODP	AP	EP	POCP	PEC	NRE	RE	NRM	RM	CBW	CWW	TW	CHW	CNHW
Mix Name	PSI	Days	kg CO2	kg CFC-11	kg SO2	kg N	kg O3	MJ	MJ	MJ	kg	kg	m3	m3	m3	kg	kg
670297	3000	28	317.17	7.12E-06	1.10	0.34	24.40	2272.52	2234.06	38.46	2302.71	2.00	0.18	0.16	4.45	0.01	2.25
87296	3000	28	323.57	7.26E-06	1.11	0.35	24.58	2297.42	2258.43	38.99	2151.33	2.05	0.20	0.16	4.65	0.01	2.31
670311	3000	28	324.17	7.29E-06	1.11	0.35	24.67	2306.22	2266.96	39.26	2268.81	2.05	0.19	0.16	4.58	0.01	2.31
57T500	3000	28	219.82	6.04E-06	1.03	0.24	21.64	1897.40	1864.80	32.60	2208.29	1.44	0.18	0.16	3.43	0.04	1.29
67T50P	3000	28	218.82	6.01E-06	1.03	0.24	21.59	1888.97	1856.57	32.40	2187.43	1.43	0.18	0.16	3.53	0.04	1.29
72604	3000	28	354.32	8.02E-06	1.19	0.38	26.21	2477.18	2434.49	42.70	2277.09	2.27	0.18	0.16	4.96	0.02	2.57
80300	3000	28	358.16	8.15E-06	1.19	0.39	26.01	2476.65	2433.27	43.38	2173.07	2.31	0.20	0.16	4.92	0.02	2.62
72609	3500	28	326.89	7.31E-06	1.13	0.35	25.04	2333.75	2294.50	39.25	2253.55	2.06	0.17	0.16	4.70	0.01	2.33
670363	3500	28	334.55	7.54E-06	1.14	0.36	25.29	2371.55	2331.10	40.45	2313.79	2.12	0.17	0.16	4.66	0.02	2.39
57T550	3500	28	236.37	6.57E-06	1.09	0.26	22.60	2004.70	1969.59	35.11	2207.82	1.57	0.17	0.16	3.55	0.04	1.42
57B590	3500	28	321.63	7.16E-06	1.12	0.34	25.01	2323.61	2284.95	38.66	2323.81	2.01	0.16	0.16	4.42	0.01	2.26
670357	3500	28	302.85	6.73E-06	1.07	0.32	23.84	2200.12	2163.58	36.54	2259.68	1.89	0.17	0.16	4.33	0.01	2.12
578606	3500	28	326.07	7.30E-06	1.12	0.35	24.97	2332.46	2293.12	39.34	2279.12	2.05	0.17	0.16	4.47	0.01	2.31
578604	4000	28	345.20	7.77E-06	1.18	0.37	26.01	2445.49	2403.85	41.64	2365.79	2.19	0.17	0.16	4.69	0.02	2.47
83774	4000	28	445.87	1.03E-05	1.41	0.49	30.55	2983.04	2929.44	53.60	2296.31	2.93	0.19	0.16	5.88	0.02	3.36
666713	4000	28	403.94	9.35E-06	1.28	0.45	27.36	2695.78	2646.57	49.21	1907.02	2.67	0.19	0.16	5.06	0.02	3.06
83798	4000	28	414.82	9.47E-06	1.34	0.45	29.23	2820.08	2770.41	49.67	2244.01	2.70	0.19	0.16	5.57	0.02	3.08
672414	4000	28	361.16	8.20E-06	1.21	0.39	26.54	2519.18	2475.51	43.67	2324.46	2.32	0.17	0.16	4.86	0.02	2.62
57T605	4000	28	252.61	7.10E-06	1.15	0.28	23.59	2113.65	2076.01	37.65	2215.59	1.70	0.18	0.16	3.68	0.05	1.55
57T600	4000	28	184.50	5.61E-06	1.01	0.20	20.77	1775.78	1745.54	30.24	2089.62	1.22	0.17	0.16	3.00	0.05	0.93
572657	4000	28	349.56	7.88E-06	1.18	0.38	26.07	2462.92	2420.74	42.18	2280.65	2.22	0.17	0.16	4.64	0.02	2.51
572600	4000	28	326.94	7.31E-06	1.13	0.35	25.14	2344.65	2305.26	39.39	2321.50	2.05	0.17	0.16	4.52	0.01	2.31
670414	4000	28	325.78	7.29E-06	1.12	0.35	24.94	2328.41	2289.13	39.27	2262.76	2.05	0.17	0.16	4.52	0.01	2.31
67G607	4000	28	252.69	7.11E-06	1.15	0.28	23.65	2115.68	2078.06	37.63	2208.32	1.70	0.17	0.16	3.78	0.05	1.55
57G665	4000	28	284.94	7.82E-06	1.21	0.31	24.86	2274.04	2232.85	41.20	2182.61	1.93	0.17	0.16	3.92	0.05	1.84
678657	4500	28	348.26	7.84E-06	1.18	0.38	26.05	2455.30	2413.34	41.96	2280.13	2.21	0.17	0.16	4.70	0.02	2.50
571650	4500	28	444.48	1.03E-05	1.42	0.49	30.56	2985.32	2931.47	53.85	2499.39	2.92	0.17	0.16	5.63	0.02	3.33
57T750	5000	28	253.97	7.21E-06	1.16	0.28	23.79	2137.29	2099.23	38.05	2061.05	1.71	0.19	0.16	3.61	0.05	1.54
57T751	5500	28	321.80	8.91E-06	1.34	0.36	27.09	2525.67	2479.29	46.39	2230.49	2.21	0.17	0.16	4.23	0.05	2.12
571800	6000	28	535.25	1.25E-05	1.64	0.59	34.81	3492.36	3427.64	64.71	2548.16	3.58	0.17	0.16	6.37	0.03	4.11
070303	1500	7	341.34	7.59E-06	1.18	0.36	25.61	2601.74	2561.22	40.52	2315.15	2.13	0.18	0.16	4.77	0.02	2.41

Environmental Product Declaration



Graniterock
Ready-Mixed Concrete

According to ISO 14025

Table 9a: Calculated Results for Plant 341 A1-A3 per yd3

Indicator	Strength		GWP	ODP	AP	EP	POCP	PEC	NRE	RE	NRM	RM	CBW	CWW	TW	CHW	CNHW
Mix Name	PSI	Days	kg CO2	kg CFC-11	kg SO2	kg N	kg O3	MJ	MJ	MJ	kg	kg	m3	m3	m3	kg	kg
670297	3000	28	244.54	5.42E-06	0.84	0.26	18.57	1764.82	1734.00	30.82	1760.55	1.54	0.14	0.14	3.43	0.01	1.72
87296	3000	28	249.25	5.52E-06	0.84	0.27	18.67	1781.24	1750.02	31.22	1644.81	1.57	0.15	0.14	3.58	0.01	1.77
670311	3000	28	249.83	5.55E-06	0.85	0.27	18.76	1789.65	1758.22	31.43	1734.63	1.58	0.14	0.14	3.53	0.01	1.77
57T500	3000	28	170.21	4.59E-06	0.79	0.18	16.48	1479.35	1453.01	26.34	1688.36	1.11	0.14	0.14	2.65	0.03	0.99
67T50P	3000	28	169.41	4.57E-06	0.78	0.18	16.43	1472.43	1446.24	26.19	1672.41	1.10	0.14	0.14	2.72	0.03	0.98
72604	3000	28	272.85	6.10E-06	0.91	0.30	19.93	1919.93	1885.87	34.06	1740.96	1.74	0.14	0.14	3.82	0.01	1.97
80300	3000	28	275.58	6.21E-06	0.90	0.30	19.75	1916.71	1882.13	34.58	1661.43	1.78	0.15	0.14	3.79	0.01	2.01
72609	3500	28	251.96	5.56E-06	0.86	0.27	19.06	1811.36	1779.94	31.42	1722.96	1.58	0.13	0.14	3.62	0.01	1.78
670363	3500	28	257.82	5.74E-06	0.87	0.28	19.25	1840.40	1808.06	32.34	1769.02	1.63	0.13	0.14	3.59	0.01	1.83
57T550	3500	28	182.84	5.00E-06	0.83	0.20	17.21	1561.01	1532.75	28.26	1688.00	1.21	0.13	0.14	2.74	0.03	1.09
57B590	3500	28	248.11	5.45E-06	0.86	0.26	19.06	1806.09	1775.12	30.97	1776.68	1.55	0.12	0.14	3.40	0.01	1.73
670357	3500	28	233.63	5.12E-06	0.81	0.25	18.15	1709.92	1680.57	29.35	1727.65	1.45	0.13	0.14	3.34	0.01	1.62
578606	3500	28	251.38	5.56E-06	0.86	0.27	19.01	1811.02	1779.53	31.49	1742.51	1.58	0.13	0.14	3.45	0.01	1.77
578604	4000	28	266.08	5.92E-06	0.90	0.29	19.82	1898.42	1865.17	33.25	1808.78	1.68	0.13	0.14	3.61	0.01	1.89
83774	4000	28	342.68	7.83E-06	1.08	0.38	23.22	2304.45	2262.05	42.39	1755.66	2.25	0.15	0.14	4.52	0.02	2.57
666713	4000	28	310.02	7.12E-06	0.97	0.34	20.68	2076.60	2037.57	39.04	1458.02	2.05	0.15	0.14	3.89	0.02	2.34
83798	4000	28	319.02	7.21E-06	1.02	0.35	22.23	2180.92	2141.53	39.39	1715.67	2.07	0.15	0.14	4.29	0.02	2.36
672414	4000	28	278.13	6.24E-06	0.92	0.30	20.20	1952.75	1917.95	34.80	1777.17	1.78	0.13	0.14	3.75	0.01	2.00
57T605	4000	28	195.24	5.41E-06	0.87	0.21	17.96	1644.14	1613.94	30.20	1693.94	1.31	0.14	0.14	2.84	0.03	1.18
57T600	4000	28	143.22	4.26E-06	0.77	0.15	15.81	1386.52	1361.98	24.54	1597.63	0.94	0.13	0.14	2.32	0.04	0.71
572657	4000	28	269.30	6.00E-06	0.90	0.29	19.85	1910.26	1876.60	33.66	1743.68	1.71	0.13	0.14	3.57	0.01	1.92
572600	4000	28	252.11	5.56E-06	0.86	0.27	19.15	1821.35	1789.83	31.53	1774.91	1.58	0.13	0.14	3.48	0.01	1.77
670414	4000	28	251.13	5.55E-06	0.86	0.27	18.98	1807.56	1776.12	31.44	1730.01	1.58	0.13	0.14	3.48	0.01	1.77
67G607	4000	28	195.29	5.41E-06	0.88	0.21	18.00	1645.52	1615.34	30.18	1688.38	1.31	0.13	0.14	2.91	0.04	1.18
57G665	4000	28	219.83	5.96E-06	0.92	0.24	18.91	1765.02	1732.11	32.91	1668.72	1.49	0.13	0.14	3.02	0.03	1.41
678657	4500	28	268.31	5.97E-06	0.90	0.29	19.83	1904.47	1870.97	33.49	1743.28	1.70	0.13	0.14	3.62	0.01	1.91
571650	4500	28	341.84	7.84E-06	1.08	0.38	23.28	2309.25	2266.67	42.58	1910.92	2.25	0.13	0.14	4.33	0.02	2.55
57T750	5000	28	196.17	5.49E-06	0.89	0.22	18.09	1660.67	1630.16	30.51	1575.78	1.32	0.14	0.14	2.78	0.04	1.18
57T751	5500	28	248.04	6.79E-06	1.02	0.28	20.62	1957.72	1920.84	36.88	1705.33	1.70	0.13	0.14	3.26	0.04	1.62
571800	6000	28	411.12	9.55E-06	1.25	0.46	26.50	2695.20	2644.31	50.89	1948.21	2.75	0.13	0.14	4.90	0.02	3.14
070303	1500	7	263.01	5.78E-06	0.90	0.28	19.49	2016.33	1983.93	32.39	1770.06	1.64	0.14	0.14	3.67	0.01	1.84

Environmental Product Declaration



Graniterock
Ready-Mixed Concrete

According to ISO 14025

Table 9b: Calculated Results for Plant 341 A1-A3 per m3

Indicator	Strength		GWP	ODP	AP	EP	POCP	PEC	NRE	RE	NRM	RM	CBW	CWW	TW	CHW	CNHW
Mix Name	PSI	Days	kg CO2	kg CFC-11	kg SO2	kg N	kg O3	MJ	MJ	MJ	kg	kg	m3	m3	m3	kg	kg
670297	3000	28	319.85	7.09E-06	1.10	0.34	24.28	2308.29	2267.99	40.31	2302.71	2.01	0.18	0.19	4.48	0.01	2.25
87296	3000	28	326.01	7.22E-06	1.10	0.35	24.42	2329.78	2288.94	40.84	2151.33	2.06	0.20	0.19	4.68	0.01	2.31
670311	3000	28	326.76	7.26E-06	1.11	0.35	24.54	2340.77	2299.66	41.11	2268.81	2.07	0.19	0.19	4.60	0.01	2.31
57T500	3000	28	222.63	6.01E-06	1.03	0.24	21.55	1934.91	1900.46	34.45	2208.29	1.45	0.18	0.19	3.46	0.04	1.29
67T50P	3000	28	221.58	5.98E-06	1.03	0.24	21.49	1925.86	1891.61	34.25	2187.43	1.44	0.18	0.19	3.56	0.04	1.29
72604	3000	28	356.88	7.99E-06	1.19	0.39	26.07	2511.17	2466.62	44.55	2277.08	2.28	0.18	0.19	4.99	0.02	2.57
80300	3000	28	360.44	8.12E-06	1.18	0.39	25.83	2506.95	2461.73	45.23	2173.07	2.32	0.20	0.19	4.95	0.02	2.62
72609	3500	28	329.55	7.28E-06	1.12	0.35	24.92	2369.17	2328.08	41.10	2253.55	2.07	0.17	0.19	4.73	0.01	2.33
670363	3500	28	337.22	7.50E-06	1.14	0.36	25.17	2407.15	2364.85	42.30	2313.79	2.14	0.17	0.19	4.69	0.02	2.39
57T550	3500	28	239.14	6.54E-06	1.09	0.26	22.50	2041.72	2004.76	36.96	2207.82	1.58	0.17	0.19	3.58	0.04	1.42
57B590	3500	28	324.52	7.12E-06	1.12	0.35	24.93	2362.28	2321.77	40.51	2323.81	2.02	0.16	0.19	4.45	0.01	2.26
670357	3500	28	305.58	6.70E-06	1.06	0.33	23.73	2236.49	2198.10	38.39	2259.68	1.90	0.17	0.19	4.36	0.01	2.12
578606	3500	28	328.79	7.27E-06	1.12	0.35	24.86	2368.73	2327.54	41.19	2279.12	2.07	0.17	0.19	4.50	0.01	2.31
578604	4000	28	348.01	7.74E-06	1.17	0.37	25.92	2483.03	2439.55	43.49	2365.79	2.20	0.17	0.19	4.72	0.02	2.47
83774	4000	28	448.21	1.02E-05	1.41	0.49	30.37	3014.10	2958.65	55.45	2296.31	2.95	0.19	0.19	5.91	0.02	3.36
666713	4000	28	405.49	9.31E-06	1.27	0.45	27.05	2716.09	2665.04	51.06	1907.02	2.68	0.19	0.19	5.09	0.02	3.06
83798	4000	28	417.26	9.43E-06	1.34	0.46	29.07	2852.54	2801.02	51.52	2244.01	2.71	0.19	0.19	5.60	0.02	3.08
672414	4000	28	363.78	8.16E-06	1.20	0.39	26.41	2554.10	2508.58	45.52	2324.46	2.33	0.17	0.19	4.89	0.02	2.62
57T605	4000	28	255.36	7.07E-06	1.14	0.28	23.49	2150.46	2110.96	39.50	2215.59	1.72	0.18	0.19	3.71	0.05	1.55
57T600	4000	28	187.32	5.58E-06	1.01	0.20	20.68	1813.49	1781.40	32.09	2089.62	1.24	0.17	0.19	3.03	0.05	0.93
572657	4000	28	352.23	7.85E-06	1.18	0.38	25.96	2498.53	2454.50	44.03	2280.65	2.24	0.17	0.19	4.67	0.02	2.51
572600	4000	28	329.75	7.28E-06	1.13	0.35	25.05	2382.24	2341.00	41.24	2321.50	2.07	0.17	0.19	4.55	0.01	2.31
670414	4000	28	328.46	7.26E-06	1.12	0.35	24.82	2364.19	2323.07	41.12	2262.76	2.07	0.17	0.19	4.55	0.01	2.31
67G607	4000	28	255.43	7.08E-06	1.15	0.28	23.55	2152.26	2112.79	39.48	2208.32	1.72	0.17	0.19	3.80	0.05	1.55
57G665	4000	28	287.53	7.79E-06	1.21	0.32	24.73	2308.56	2265.51	43.05	2182.61	1.95	0.17	0.19	3.95	0.05	1.84
678657	4500	28	350.93	7.81E-06	1.18	0.38	25.93	2490.95	2447.14	43.81	2280.13	2.23	0.17	0.19	4.72	0.02	2.50
571650	4500	28	447.11	1.02E-05	1.41	0.49	30.44	3020.38	2964.69	55.70	2499.39	2.94	0.17	0.19	5.66	0.02	3.33
57T750	5000	28	256.58	7.18E-06	1.16	0.28	23.66	2172.08	2132.17	39.90	2061.05	1.73	0.19	0.19	3.64	0.05	1.54
57T751	5500	28	324.42	8.88E-06	1.33	0.36	26.97	2560.60	2512.37	48.24	2230.49	2.23	0.17	0.19	4.26	0.05	2.12
571800	6000	28	537.72	1.25E-05	1.63	0.60	34.66	3525.19	3458.62	66.56	2548.16	3.59	0.17	0.19	6.40	0.03	4.11
070303	1500	7	344.00	7.56E-06	1.18	0.37	25.50	2637.25	2594.88	42.37	2315.15	2.14	0.18	0.19	4.80	0.02	2.41

Environmental Product Declaration



Graniterock
Ready-Mixed Concrete

According to ISO 14025

Table 10a: Calculated Results for Plant 361 A1-A3 per yd3

Indicator	Strength		GWP	ODP	AP	EP	POCP	PEC	NRE	RE	NRM	RM	CBW	CWW	TW	CHW	CNHW
Mix Name	PSI	# Days	kg CO2	kg CFC-11	kg SO2	kg N	kg O3	MJ	MJ	MJ	kg	kg	m3	m3	m3	kg	kg
670297	3000	28	228.67	5.39E-06	0.71	0.25	14.90	1540.13	1510.40	29.73	1760.54	1.53	0.14	0.14	3.43	0.01	1.72
87296	3000	28	233.17	5.50E-06	0.72	0.26	14.97	1553.69	1523.55	30.13	1644.80	1.57	0.15	0.14	3.58	0.01	1.77
670311	3000	28	233.97	5.53E-06	0.72	0.26	15.10	1565.25	1534.91	30.34	1734.63	1.57	0.14	0.14	3.53	0.01	1.77
57T500	3000	28	155.44	4.57E-06	0.67	0.18	13.00	1269.71	1244.46	25.25	1688.35	1.10	0.14	0.14	2.65	0.03	0.99
67T50P	3000	28	154.72	4.55E-06	0.67	0.17	12.97	1263.96	1238.87	25.10	1672.40	1.10	0.14	0.14	2.72	0.03	0.98
72604	3000	28	256.56	6.08E-06	0.78	0.29	16.19	1689.58	1656.61	32.97	1740.95	1.73	0.14	0.14	3.82	0.01	1.97
80300	3000	28	259.76	6.18E-06	0.78	0.29	16.09	1692.80	1659.31	33.49	1661.43	1.77	0.15	0.14	3.79	0.01	2.01
72609	3500	28	235.48	5.54E-06	0.73	0.26	15.28	1578.35	1548.01	30.33	1722.96	1.58	0.13	0.14	3.62	0.01	1.78
670363	3500	28	241.70	5.71E-06	0.74	0.27	15.53	1612.30	1581.05	31.25	1769.01	1.63	0.13	0.14	3.59	0.01	1.83
57T550	3500	28	167.88	4.97E-06	0.71	0.19	13.70	1348.90	1321.73	27.17	1687.99	1.20	0.13	0.14	2.74	0.03	1.09
57B590	3500	28	231.04	5.42E-06	0.72	0.26	15.18	1564.91	1535.02	29.88	1776.67	1.54	0.12	0.14	3.40	0.01	1.73
670357	3500	28	217.41	5.10E-06	0.69	0.24	14.41	1480.44	1452.17	28.26	1727.64	1.44	0.13	0.14	3.34	0.01	1.62
578606	3500	28	234.80	5.53E-06	0.73	0.26	15.22	1576.73	1546.33	30.40	1742.50	1.57	0.13	0.14	3.45	0.01	1.77
578604	4000	28	249.34	5.89E-06	0.77	0.28	16.00	1661.95	1629.79	32.16	1808.77	1.68	0.13	0.14	3.61	0.01	1.89
83774	4000	28	325.56	7.81E-06	0.94	0.37	19.33	2062.68	2021.37	41.31	1755.65	2.24	0.15	0.14	4.52	0.02	2.57
666713	4000	28	294.77	7.10E-06	0.85	0.33	17.12	1860.43	1822.48	37.95	1458.02	2.04	0.15	0.14	3.89	0.02	2.34
83798	4000	28	301.52	7.19E-06	0.89	0.34	18.27	1933.87	1895.57	38.30	1715.66	2.06	0.15	0.14	4.29	0.02	2.36
672414	4000	28	261.74	6.22E-06	0.79	0.29	16.44	1720.98	1687.27	33.71	1777.17	1.77	0.13	0.14	3.75	0.01	2.00
57T605	4000	28	180.09	5.38E-06	0.75	0.21	14.42	1429.32	1400.21	29.11	1693.94	1.30	0.14	0.14	2.84	0.03	1.18
57T600	4000	28	128.16	4.24E-06	0.65	0.15	12.28	1172.97	1149.52	23.45	1597.62	0.94	0.13	0.14	2.32	0.04	0.71
572657	4000	28	252.43	5.97E-06	0.77	0.28	16.00	1671.96	1639.39	32.57	1743.67	1.70	0.13	0.14	3.57	0.01	1.92
572600	4000	28	235.36	5.54E-06	0.73	0.26	15.33	1584.67	1554.23	30.44	1774.91	1.57	0.13	0.14	3.48	0.01	1.77
670414	4000	28	234.61	5.53E-06	0.73	0.26	15.20	1574.01	1543.65	30.35	1730.00	1.57	0.13	0.14	3.48	0.01	1.77
67G607	4000	28	180.16	5.39E-06	0.75	0.21	14.47	1431.09	1402.00	29.09	1688.38	1.30	0.13	0.14	2.91	0.04	1.18
57G665	4000	28	204.51	5.93E-06	0.80	0.23	15.33	1547.88	1516.05	31.82	1668.72	1.48	0.13	0.14	3.02	0.03	1.41
678657	4500	28	251.45	5.95E-06	0.77	0.28	15.98	1666.30	1633.90	32.41	1743.27	1.69	0.13	0.14	3.62	0.01	1.91
571650	4500	28	325.08	7.81E-06	0.95	0.37	19.45	2072.38	2030.88	41.50	1910.92	2.24	0.13	0.14	4.33	0.02	2.55
57T750	5000	28	180.31	5.46E-06	0.76	0.21	14.42	1436.20	1406.78	29.42	1575.78	1.31	0.14	0.14	2.78	0.04	1.18
57T751	5500	28	232.16	6.77E-06	0.89	0.27	16.95	1732.97	1697.18	35.79	1705.33	1.69	0.13	0.14	3.26	0.04	1.62
571800	6000	28	393.57	9.52E-06	1.11	0.45	22.54	2447.53	2397.72	49.80	1948.20	2.74	0.13	0.14	4.90	0.02	3.14

Environmental Product Declaration

Table 10a continued: Calculated Results for Plant 361 A1-A3 per yd3																	
Indicator	Strength		GWP	ODP	AP	EP	POCP	PEC	NRE	RE	NRM	RM	CBW	CWW	TW	CHW	CNHW
Mix Name	PSI	# Days	kg CO2	kg CFC-11	kg SO2	kg N	kg O3	MJ	MJ	MJ	kg	kg	m3	m3	m3	kg	kg
07T750	4000	28	216.51	6.60E-06	0.87	0.25	16.36	1654.98	1620.12	34.86	1626.68	1.61	0.15	0.14	3.17	0.04	1.48
67G653	4500	28	205.50	5.93E-06	0.81	0.23	15.56	1562.01	1530.23	31.78	1727.48	1.48	0.13	0.14	3.15	0.03	1.41
577720	5000	28	275.92	6.56E-06	0.83	0.31	17.09	1800.48	1765.06	35.42	1751.79	1.87	0.13	0.14	3.78	0.01	2.12
57B590	3500	28	231.04	5.42E-06	0.72	0.26	15.18	1564.91	1535.02	29.88	1776.67	1.54	0.12	0.14	3.40	0.01	1.73
572590	4000	28	244.78	5.77E-06	0.76	0.27	15.80	1638.80	1607.22	31.59	1796.65	1.64	0.12	0.14	3.53	0.01	1.85
57B550	3500	28	218.62	5.12E-06	0.69	0.24	14.56	1493.36	1464.94	28.42	1771.36	1.45	0.13	0.14	3.33	0.01	1.62
57B505	3000	28	214.37	5.01E-06	0.68	0.24	14.38	1470.77	1442.90	27.87	1768.68	1.42	0.13	0.14	3.31	0.01	1.58
070303	1500	7	246.88	5.75E-06	0.77	0.27	15.78	1788.11	1756.80	31.31	1770.05	1.63	0.14	0.14	3.67	0.01	1.84

Environmental Product Declaration

Table 10b: Calculated Results for Plant 361 A1-A3 per m3

Indicator	Strength		GWP	ODP	AP	EP	POCP	PEC	NRE	RE	NRM	RM	CBW	CWW	TW	CHW	CNHW
Mix Name	PSI	# Days	kg CO2	kg CFC-11	kg SO2	kg N	kg O3	MJ	MJ	MJ	kg	kg	m3	m3	m3	kg	kg
670297	3000	28	299.09	7.05E-06	0.93	0.33	19.48	2014.41	1975.53	38.88	2302.70	2.00	0.18	0.19	4.48	0.01	2.25
87296	3000	28	304.97	7.19E-06	0.94	0.34	19.58	2032.15	1992.73	39.41	2151.32	2.05	0.20	0.19	4.68	0.01	2.31
670311	3000	28	306.03	7.23E-06	0.95	0.34	19.74	2047.27	2007.58	39.69	2268.80	2.06	0.19	0.19	4.60	0.01	2.31
57T500	3000	28	203.30	5.98E-06	0.87	0.23	17.00	1660.71	1627.69	33.03	2208.28	1.44	0.18	0.19	3.46	0.04	1.29
67T50P	3000	28	202.37	5.95E-06	0.87	0.23	16.96	1653.20	1620.37	32.83	2187.42	1.43	0.18	0.19	3.56	0.04	1.29
72604	3000	28	335.57	7.95E-06	1.02	0.37	21.18	2209.89	2166.77	43.12	2277.07	2.27	0.18	0.19	4.99	0.02	2.57
80300	3000	28	339.76	8.09E-06	1.02	0.38	21.04	2214.10	2170.30	43.80	2173.06	2.31	0.20	0.19	4.95	0.02	2.62
72609	3500	28	307.99	7.24E-06	0.95	0.34	19.99	2064.40	2024.73	39.67	2253.54	2.06	0.17	0.19	4.73	0.01	2.33
670363	3500	28	316.13	7.47E-06	0.97	0.35	20.32	2108.81	2067.94	40.87	2313.78	2.13	0.17	0.19	4.69	0.02	2.39
57T550	3500	28	219.58	6.50E-06	0.93	0.25	17.92	1764.30	1728.76	35.54	2207.81	1.57	0.17	0.19	3.58	0.04	1.42
57B590	3500	28	302.18	7.09E-06	0.95	0.33	19.86	2046.82	2007.73	39.09	2323.80	2.01	0.16	0.19	4.45	0.01	2.26
670357	3500	28	284.36	6.67E-06	0.90	0.31	18.85	1936.34	1899.37	36.97	2259.67	1.89	0.17	0.19	4.36	0.01	2.12
578606	3500	28	307.11	7.23E-06	0.95	0.34	19.90	2062.28	2022.52	39.77	2279.11	2.06	0.17	0.19	4.50	0.01	2.31
578604	4000	28	326.13	7.71E-06	1.00	0.36	20.92	2173.74	2131.68	42.06	2365.78	2.19	0.17	0.19	4.72	0.02	2.47
83774	4000	28	425.82	1.02E-05	1.23	0.48	25.29	2697.88	2643.85	54.03	2296.30	2.93	0.19	0.19	5.91	0.02	3.36
666713	4000	28	385.54	9.28E-06	1.11	0.44	22.39	2433.35	2383.72	49.63	1907.01	2.67	0.19	0.19	5.09	0.02	3.06
83798	4000	28	394.37	9.40E-06	1.16	0.44	23.90	2529.40	2479.31	50.10	2244.00	2.70	0.19	0.19	5.60	0.02	3.08
672414	4000	28	342.34	8.13E-06	1.04	0.38	21.50	2250.96	2206.86	44.09	2324.45	2.32	0.17	0.19	4.89	0.02	2.62
57T605	4000	28	235.54	7.04E-06	0.98	0.27	18.85	1869.48	1831.41	38.07	2215.58	1.70	0.18	0.19	3.71	0.05	1.55
57T600	4000	28	167.62	5.54E-06	0.85	0.19	16.07	1534.18	1503.51	30.67	2089.61	1.23	0.17	0.19	3.03	0.05	0.93
572657	4000	28	330.17	7.81E-06	1.01	0.37	20.93	2186.84	2144.23	42.60	2280.64	2.23	0.17	0.19	4.67	0.02	2.51
572600	4000	28	307.85	7.24E-06	0.96	0.34	20.05	2072.67	2032.86	39.81	2321.49	2.06	0.17	0.19	4.55	0.01	2.31
670414	4000	28	306.86	7.23E-06	0.95	0.34	19.88	2058.72	2019.02	39.70	2262.75	2.06	0.17	0.19	4.55	0.01	2.31
67G607	4000	28	235.65	7.05E-06	0.99	0.27	18.92	1871.80	1833.75	38.05	2208.31	1.71	0.17	0.19	3.80	0.05	1.55
57G665	4000	28	267.49	7.76E-06	1.04	0.31	20.06	2024.54	1982.92	41.62	2182.60	1.94	0.17	0.19	3.95	0.05	1.84
678657	4500	28	328.89	7.78E-06	1.00	0.37	20.91	2179.44	2137.05	42.38	2280.12	2.22	0.17	0.19	4.72	0.02	2.50
571650	4500	28	425.18	1.02E-05	1.24	0.48	25.44	2710.57	2656.29	54.27	2499.38	2.93	0.17	0.19	5.66	0.02	3.33
57T750	5000	28	235.84	7.15E-06	0.99	0.27	18.87	1878.48	1840.00	38.48	2061.04	1.72	0.19	0.19	3.64	0.05	1.54
57T751	5500	28	303.65	8.85E-06	1.17	0.35	22.17	2266.64	2219.83	46.81	2230.48	2.22	0.17	0.19	4.26	0.05	2.12
571800	6000	28	514.77	1.25E-05	1.45	0.59	29.48	3201.24	3136.10	65.14	2548.15	3.58	0.17	0.19	6.40	0.03	4.11

Environmental Product Declaration

Table 10b continued: Calculated Results for Plant 361 A1-A3 per m3

Indicator	Strength		GWP	ODP	AP	EP	POCP	PEC	NRE	RE	NRM	RM	CBW	CWW	TW	CHW	CNHW
Mix Name	PSI	# Days	kg CO2	kg CFC-11	kg SO2	kg N	kg O3	MJ	MJ	MJ	kg	kg	m3	m3	m3	kg	kg
07T750	4000	28	283.19	8.63E-06	1.14	0.33	21.39	2164.62	2119.03	45.59	2127.61	2.11	0.19	0.19	4.15	0.06	1.94
67G653	4500	28	268.78	7.76E-06	1.05	0.31	20.36	2043.03	2001.47	41.57	2259.46	1.93	0.17	0.19	4.11	0.05	1.84
577720	5000	28	360.90	8.58E-06	1.08	0.40	22.35	2354.94	2308.62	46.33	2291.26	2.45	0.17	0.19	4.93	0.02	2.78
57B590	3500	28	302.18	7.09E-06	0.95	0.33	19.86	2046.82	2007.73	39.09	2323.80	2.01	0.16	0.19	4.44	0.01	2.26
572590	4000	28	320.16	7.55E-06	0.99	0.36	20.67	2143.47	2102.16	41.32	2349.93	2.15	0.16	0.19	4.62	0.02	2.41
57B550	3500	28	285.94	6.70E-06	0.90	0.32	19.04	1953.24	1916.07	37.17	2316.85	1.90	0.17	0.19	4.35	0.01	2.12
57B505	3000	28	280.38	6.56E-06	0.89	0.31	18.81	1923.70	1887.24	36.45	2313.34	1.86	0.17	0.19	4.32	0.01	2.07
070303	1500	7	322.90	7.53E-06	1.01	0.35	20.64	2338.75	2297.81	40.95	2315.14	2.13	0.18	0.19	4.80	0.02	2.41

Environmental Product Declaration



Graniterock
Ready-Mixed Concrete

According to ISO 14025

Table 11a: Calculated Results for Plant 381 A1-A3 per yd3

Indicator	Strength		GWP	ODP	AP	EP	POCP	PEC	NRE	RE	NRM	RM	CBW	CWW	TW	CHW	CNHW
Mix Name	PSI	# Days	kg CO2	kg CFC-11	kg SO2	kg N	kg O3	MJ	MJ	MJ	kg	kg	m3	m3	m3	kg	kg
670297	3000	28	228.25	5.37E-06	0.71	0.25	14.90	1532.32	1503.43	28.88	1760.54	1.52	0.14	0.13	3.41	0.01	1.72
87296	3000	28	232.88	5.48E-06	0.72	0.26	14.99	1547.69	1518.40	29.29	1644.80	1.56	0.15	0.13	3.57	0.01	1.77
670311	3000	28	233.57	5.51E-06	0.72	0.26	15.10	1557.59	1528.09	29.50	1734.62	1.56	0.14	0.13	3.51	0.01	1.77
57T500	3000	28	155.02	4.55E-06	0.67	0.17	13.00	1261.88	1237.48	24.41	1688.35	1.09	0.14	0.13	2.64	0.03	0.99
67T50P	3000	28	154.30	4.53E-06	0.66	0.17	12.97	1256.14	1231.89	24.25	1672.40	1.09	0.14	0.13	2.71	0.03	0.98
72604	3000	28	256.19	6.06E-06	0.78	0.29	16.20	1682.43	1650.31	32.12	1740.95	1.73	0.14	0.13	3.81	0.01	1.97
80300	3000	28	259.37	6.17E-06	0.78	0.29	16.09	1685.40	1652.76	32.65	1661.42	1.76	0.15	0.13	3.78	0.01	2.01
72609	3500	28	235.19	5.52E-06	0.73	0.26	15.30	1572.33	1542.84	29.49	1722.95	1.57	0.13	0.13	3.61	0.01	1.78
670363	3500	28	241.30	5.69E-06	0.74	0.27	15.54	1604.72	1574.32	30.40	1769.01	1.62	0.13	0.13	3.58	0.01	1.83
57T550	3500	28	167.48	4.95E-06	0.71	0.19	13.70	1341.28	1314.96	26.32	1687.99	1.20	0.13	0.13	2.73	0.03	1.09
57B590	3500	28	230.81	5.40E-06	0.72	0.25	15.22	1559.78	1530.74	29.04	1776.67	1.53	0.12	0.13	3.39	0.01	1.73
670357	3500	28	217.10	5.08E-06	0.68	0.24	14.43	1474.11	1446.69	27.42	1727.64	1.44	0.13	0.13	3.32	0.01	1.62
578606	3500	28	234.52	5.51E-06	0.73	0.26	15.24	1570.71	1541.15	29.56	1742.50	1.57	0.13	0.13	3.43	0.01	1.77
578604	4000	28	249.00	5.87E-06	0.76	0.28	16.01	1655.21	1623.89	31.32	1808.77	1.67	0.13	0.13	3.60	0.01	1.89
83774	4000	28	325.22	7.79E-06	0.94	0.37	19.35	2055.93	2015.47	40.46	1755.65	2.24	0.15	0.13	4.51	0.02	2.57
666713	4000	28	294.41	7.08E-06	0.84	0.33	17.13	1853.40	1816.30	37.10	1458.01	2.04	0.15	0.13	3.88	0.02	2.34
83798	4000	28	301.32	7.17E-06	0.89	0.34	18.31	1929.04	1891.59	37.46	1715.66	2.06	0.15	0.13	4.28	0.02	2.36
672414	4000	28	261.35	6.20E-06	0.79	0.29	16.44	1713.53	1680.67	32.87	1777.17	1.77	0.13	0.13	3.73	0.01	2.00
57T605	4000	28	179.69	5.36E-06	0.75	0.20	14.42	1421.88	1393.61	28.27	1693.93	1.30	0.14	0.13	2.83	0.03	1.18
57T600	4000	28	127.92	4.22E-06	0.65	0.14	12.32	1167.60	1144.99	22.60	1597.62	0.93	0.13	0.13	2.31	0.04	0.71
572657	4000	28	252.17	5.96E-06	0.77	0.28	16.03	1666.27	1634.54	31.73	1743.67	1.70	0.13	0.13	3.56	0.01	1.92
572600	4000	28	235.08	5.52E-06	0.73	0.26	15.36	1578.68	1549.08	29.59	1774.90	1.57	0.13	0.13	3.47	0.01	1.77
670414	4000	28	234.32	5.51E-06	0.73	0.26	15.22	1568.01	1538.51	29.51	1730.00	1.57	0.13	0.13	3.47	0.01	1.77
67G607	4000	28	179.77	5.37E-06	0.75	0.20	14.47	1423.65	1395.40	28.25	1688.37	1.30	0.13	0.13	2.90	0.04	1.18
57G665	4000	28	204.13	5.91E-06	0.80	0.23	15.34	1540.62	1509.64	30.98	1668.71	1.47	0.13	0.13	3.01	0.03	1.41
678657	4500	28	251.19	5.93E-06	0.77	0.28	16.01	1660.61	1629.05	31.56	1743.27	1.69	0.13	0.13	3.60	0.01	1.91
571650	4500	28	324.54	7.79E-06	0.95	0.36	19.43	2062.89	2022.24	40.65	1910.91	2.23	0.13	0.13	4.32	0.02	2.55
57T750	5000	28	180.15	5.45E-06	0.76	0.21	14.47	1431.92	1403.34	28.58	1575.77	1.31	0.14	0.13	2.77	0.04	1.18
57T751	5500	28	231.81	6.75E-06	0.89	0.27	16.96	1726.09	1691.14	34.95	1705.32	1.69	0.13	0.13	3.25	0.04	1.62
571800	6000	28	393.03	9.51E-06	1.11	0.45	22.52	2438.09	2389.13	48.96	1948.20	2.73	0.13	0.13	4.89	0.02	3.14

Environmental Product Declaration

Table 11a continued: Calculated Results for Plant 381 A1-A3 per yd3

Indicator	Strength		GWP	ODP	AP	EP	POCP	PEC	NRE	RE	NRM	RM	CBW	CWW	TW	CHW	CNHW
Mix Name	PSI	# Days	kg CO2	kg CFC-11	kg SO2	kg N	kg O3	MJ	MJ	MJ	kg	kg	m3	m3	m3	kg	kg
07T750	4000	28	216.16	6.58E-06	0.87	0.25	16.37	1648.04	1614.03	34.01	1626.68	1.60	0.15	0.13	3.16	0.04	1.48
67G653	4500	28	205.12	5.91E-06	0.80	0.23	15.57	1554.75	1523.82	30.93	1727.48	1.47	0.13	0.13	3.14	0.03	1.41
577720	5000	28	275.69	6.54E-06	0.82	0.31	17.12	1795.23	1760.65	34.57	1751.79	1.87	0.13	0.13	3.76	0.01	2.12
57B590	3500	28	230.81	5.40E-06	0.72	0.25	15.22	1559.78	1530.74	29.04	1776.67	1.53	0.12	0.13	3.39	0.01	1.73
572590	4000	28	244.51	5.75E-06	0.75	0.27	15.83	1632.96	1602.21	30.74	1796.65	1.63	0.12	0.13	3.52	0.01	1.85
57B550	3500	28	218.31	5.10E-06	0.69	0.24	14.58	1487.03	1459.46	27.57	1771.35	1.44	0.13	0.13	3.31	0.01	1.62
57B505	3000	28	214.07	4.99E-06	0.68	0.23	14.40	1464.54	1437.51	27.03	1768.68	1.41	0.13	0.13	3.30	0.01	1.58
070303	1500	7	246.48	5.74E-06	0.77	0.27	15.78	1780.55	1750.08	30.46	1770.05	1.62	0.14	0.13	3.66	0.01	1.84

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Table 11b: Calculated Results for Plant 381 A1-A3 per m3

Indicator	Strength		GWP	ODP	AP	EP	POCP	PEC	NRE	RE	NRM	RM	CBW	CWW	TW	CHW	CNHW
Mix Name	PSI	# Days	kg CO2	kg CFC-11	kg SO2	kg N	kg O3	MJ	MJ	MJ	kg	kg	m3	m3	m3	kg	kg
670297	3000	28	298.54	7.03E-06	0.93	0.33	19.49	2004.20	1966.42	37.78	2302.70	1.99	0.18	0.17	4.46	0.01	2.25
87296	3000	28	304.60	7.17E-06	0.94	0.34	19.61	2024.31	1986.00	38.31	2151.32	2.04	0.20	0.17	4.66	0.01	2.31
670311	3000	28	305.49	7.20E-06	0.94	0.34	19.75	2037.25	1998.67	38.58	2268.80	2.05	0.19	0.17	4.59	0.01	2.31
57T500	3000	28	202.76	5.95E-06	0.87	0.23	17.01	1650.48	1618.56	31.92	2208.28	1.43	0.18	0.17	3.45	0.04	1.29
67T50P	3000	28	201.82	5.92E-06	0.87	0.23	16.96	1642.97	1611.24	31.72	2187.42	1.43	0.18	0.17	3.54	0.04	1.29
72604	3000	28	335.09	7.93E-06	1.02	0.37	21.19	2200.53	2158.52	42.02	2277.07	2.26	0.18	0.17	4.98	0.02	2.57
80300	3000	28	339.25	8.06E-06	1.01	0.38	21.05	2204.42	2161.73	42.70	2173.06	2.30	0.20	0.17	4.94	0.02	2.62
72609	3500	28	307.62	7.22E-06	0.95	0.34	20.02	2056.53	2017.96	38.57	2253.54	2.05	0.17	0.17	4.71	0.01	2.33
670363	3500	28	315.61	7.45E-06	0.97	0.35	20.32	2098.90	2059.13	39.77	2313.78	2.12	0.17	0.17	4.67	0.02	2.39
57T550	3500	28	219.05	6.48E-06	0.93	0.25	17.92	1754.33	1719.90	34.43	2207.81	1.56	0.17	0.17	3.56	0.04	1.42
57B590	3500	28	301.89	7.07E-06	0.94	0.33	19.90	2040.11	2002.13	37.98	2323.80	2.00	0.16	0.17	4.43	0.01	2.26
670357	3500	28	283.95	6.64E-06	0.89	0.31	18.88	1928.06	1892.20	35.86	2259.66	1.88	0.17	0.17	4.34	0.01	2.12
578606	3500	28	306.74	7.21E-06	0.95	0.34	19.94	2054.41	2015.75	38.66	2279.11	2.05	0.17	0.17	4.48	0.01	2.31
578604	4000	28	325.68	7.68E-06	1.00	0.36	20.94	2164.93	2123.97	40.96	2365.78	2.18	0.17	0.17	4.70	0.02	2.47
83774	4000	28	425.38	1.02E-05	1.23	0.48	25.31	2689.05	2636.13	52.92	2296.30	2.93	0.19	0.17	5.89	0.02	3.36
666713	4000	28	385.07	9.26E-06	1.10	0.44	22.40	2424.16	2375.63	48.53	1907.01	2.66	0.19	0.17	5.07	0.02	3.06
83798	4000	28	394.11	9.38E-06	1.16	0.44	23.95	2523.09	2474.10	48.99	2244.00	2.69	0.19	0.17	5.59	0.02	3.08
672414	4000	28	341.83	8.11E-06	1.03	0.38	21.50	2241.22	2198.23	42.99	2324.44	2.31	0.17	0.17	4.88	0.02	2.62
57T605	4000	28	235.03	7.01E-06	0.98	0.27	18.86	1859.75	1822.78	36.97	2215.58	1.70	0.18	0.17	3.69	0.05	1.55
57T600	4000	28	167.31	5.52E-06	0.85	0.19	16.11	1527.16	1497.59	29.57	2089.61	1.22	0.17	0.17	3.02	0.05	0.93
572657	4000	28	329.82	7.79E-06	1.00	0.37	20.97	2179.40	2137.90	41.50	2280.63	2.22	0.17	0.17	4.65	0.02	2.51
572600	4000	28	307.47	7.22E-06	0.96	0.34	20.08	2064.83	2026.12	38.71	2321.49	2.05	0.17	0.17	4.53	0.01	2.31
670414	4000	28	306.48	7.20E-06	0.95	0.34	19.91	2050.88	2012.29	38.60	2262.75	2.05	0.17	0.17	4.53	0.01	2.31
67G607	4000	28	235.13	7.03E-06	0.98	0.27	18.93	1862.07	1825.12	36.95	2208.31	1.70	0.17	0.17	3.79	0.05	1.55
57G665	4000	28	266.99	7.74E-06	1.04	0.30	20.07	2015.06	1974.54	40.52	2182.59	1.93	0.17	0.17	3.93	0.05	1.84
678657	4500	28	328.54	7.75E-06	1.00	0.36	20.94	2172.00	2130.72	41.28	2280.11	2.21	0.17	0.17	4.71	0.02	2.50
571650	4500	28	424.48	1.02E-05	1.24	0.48	25.41	2698.16	2644.99	53.17	2499.38	2.92	0.17	0.17	5.64	0.02	3.33
57T750	5000	28	235.63	7.12E-06	0.99	0.27	18.93	1872.88	1835.51	37.38	2061.03	1.71	0.19	0.17	3.62	0.05	1.54
57T751	5500	28	303.20	8.83E-06	1.17	0.35	22.18	2257.64	2211.93	45.71	2230.48	2.21	0.17	0.17	4.24	0.05	2.12
571800	6000	28	514.06	1.24E-05	1.45	0.58	29.45	3188.90	3124.86	64.04	2548.15	3.57	0.17	0.17	6.39	0.03	4.11

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Table 11b continued: Calculated Results for Plant 381 A1-A3 per m3

Indicator	Strength		GWP	ODP	AP	EP	POCP	PEC	NRE	RE	NRM	RM	CBW	CWW	TW	CHW	CNHW
Mix Name	PSI	# Days	kg CO2	kg CFC-11	kg SO2	kg N	kg O3	MJ	MJ	MJ	kg	kg	m3	m3	m3	kg	kg
07T750	4000	28	282.73	8.61E-06	1.14	0.33	21.41	2155.56	2111.07	44.49	2127.61	2.10	0.19	0.17	4.13	0.06	1.94
67G653	4500	28	268.28	7.74E-06	1.05	0.30	20.37	2033.54	1993.08	40.46	2259.46	1.93	0.17	0.17	4.10	0.05	1.84
577720	5000	28	360.59	8.56E-06	1.08	0.40	22.39	2348.07	2302.85	45.22	2291.25	2.44	0.17	0.17	4.92	0.02	2.78
57B590	3500	28	301.89	7.07E-06	0.94	0.33	19.90	2040.11	2002.13	37.98	2323.80	2.00	0.16	0.17	4.43	0.01	2.26
572590	4000	28	319.80	7.53E-06	0.99	0.35	20.70	2135.83	2095.62	40.21	2349.93	2.14	0.16	0.17	4.60	0.02	2.41
57B550	3500	28	285.53	6.68E-06	0.90	0.31	19.07	1944.96	1908.90	36.06	2316.84	1.89	0.17	0.17	4.33	0.01	2.12
57B505	3000	28	279.99	6.53E-06	0.89	0.31	18.84	1915.55	1880.20	35.35	2313.34	1.85	0.17	0.17	4.31	0.01	2.07
070303	1500	7	322.38	7.50E-06	1.01	0.35	20.64	2328.87	2289.02	39.84	2315.14	2.13	0.18	0.17	4.79	0.02	2.41

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