



## Environmental Product Declaration

This Environmental Product Declaration (EPD) is for 39 aggregate products manufactured by CEMEX at their Lytle Creek, Moorpark, Redlands, and Rockfield quarries in California.

CEMEX  
10100 Katy Freeway, Suite 300  
Houston, TX 77043

# Environmental Product Declaration

## General Information

This declaration has been prepared in accordance with ISO 14025, ISO 21930, and ASTM International's EPD program operator rules.

### PCR review was conducted by:

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The PCR peer review report is available upon request:  
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Independent verification of the declaration and data, according to ISO 14025:  internal  external

### Third-party verifier:

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### Product Category Rule:

ASTM Product Category Rules (PCR) for Construction Aggregates: Natural Aggregate, Crushed Concrete, and Iron/Steel Furnace Slag, issued January 2017.

**Declared Unit:** 1 metric ton (dry weight).

### Program Operator:

ASTM International  
<http://www.astm.org/EPDs.htm>



### EPD Owner:

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### LCA and EPD Developer:

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### Date of Issue:

April 21, 2022 (valid for 5 years until April 21, 2027).

**ASTM Declaration Number:** EPD-300

### Product system

The product systems investigated by this study are sand and gravel aggregates for use in construction materials. These products are compliant to the following standards and specifications

- ASTM C33/C33M-13 – Standard specification for concrete aggregates
- ASTM C114-11 – Standard specification for aggregate for masonry mortar
- ASTM D692/D692M-15 – Standard specification for coarse aggregate for bituminous paving mixtures
- ASTM D2940/D2940M-15 – Standard specification for graded aggregate material for bases or subbases for highways or airports
- Caltrans Section 90 – California concrete construction detail

### Locations

The thirty-nine aggregates covered in this EPD are produced at the following locations:

Lytle Creek Quarry  
3221 Riverside Ave  
Rialto, CA 92377

Moorpark Quarry  
9035 Roseland Ave.  
Moorpark, CA 93021

Redlands Quarry  
8731 Orange Street  
Redlands, CA 92374

Rockfield Quarry  
13475 North Friant Road  
Friant, CA 93626

### Material Composition

The material composition of the aggregates covered in this study is 100% natural sand and gravel.

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## Product Information

### Products

**Table 1: Aggregates Covered in this Study**

Facility	Name	Standards	Application	
Lytle Creek	1 1/2" Gravel	ASTM C-33 Caltrans Section 90	This product is a blend of natural aggregate ranging in size from 1 1/2" down to 3/8", that has 88-100% of material passing the 1 1/2" sieve, and 0-7% of material passing the 3/8" sieve. This aggregate blend is used for concrete mix designs, landscaping, decorative, ground cover, as a drainage/filtration medium, bedding medium, erosion control, along with other applications.	Appendix A-Image 1
	1"x4 Gravel	ASTM C-33 Caltrans Section 90	This product is a blend of natural aggregate ranging in size from 1" down to #4, with 88-100% of material passing the 1" sieve, and 0-6% or material passing the #8 sieve. This aggregate blend is used for concrete mix designs, landscaping, decorative, ground cover, erosion control, and as a drainage or bedding medium, along with other applications.	Appendix A-Image 2
	3/4" Crushed	ASTM D692/D692M-15	A product consisting of crushed aggregates ranging in size from 3/4" down to #8 with 90-100% of material passing the 3/4" sieve and 0-5% of material passing the #4 sieve. 3/4" Crushed is used for multiple landscape and construction applications.	Appendix A-Image 3
	1/2" Crushed	ASTM D692/D692M-15 Caltrans Section 39	A product consisting of crushed aggregate ranging in size from 1/2" down to #8, with 90% of the material is passing the 1/2" sieve, and 0-5% passing the #8 sieve. 1/2" Crushed is used for multiple landscape and construction applications.	Appendix A-Image 4
	3/8" Crushed	ASTM D692/D692M-15 Caltrans Section 39	A product consisting of crushed aggregate ranging in size from 3/8" down to #8, with 90-100% of material passing the 3/8" sieve, and 0-10% passing the #8 sieve. 3/8" Crushed is used for multiple landscape and construction applications.	Appendix A-Image 5
	3/8" x #8 Gravel	ASTM C-33 Caltrans Section 90	This product is a blend of natural aggregates ranging in size from 3/8" down to #8, with 0-10% of material passing the 3/8" sieve and 0-6% passing the #8 sieve. 3/8" Gravel is used for concrete mix designs, landscape, playgrounds, along with other construction and decorative applications.	Appendix A-Image 6
	Crushed Aggregate Base (CAB/Class 2 AB)	ASTM D2940/D2940M15 Caltrans Section 26	Also known as "CAB," this product consists of crushed aggregate ranging in size from 3/4" down to #200, with 90-100% of material passing the 3/4" sieve, 35-55% passing the #4 sieve, and 2-9% passing the #200 sieve. CAB is used as a base coarse in roadways, cement pads, foundations, backfill material, along with other landscape and construction applications	Appendix A-Image 7
	Rock Dust	ASTM D692/D692M-15 Caltrans Section 39	This product contains finely crushed aggregate ranging in size from #4 down to #200, with 90-100% passing the #4 sieve, 20-60% passing the #30 sieve, and 5-20% passing the #200 sieve. Rock Dust is used as an aggregate in asphalt mix designs, slurry seal, groundcover, trench fill, along with other construction applications.	Appendix A-Image 8
	Washed Concrete Sand (WCS)	ASTM C-33 Caltrans Section 90	This product contains a blend of washed and screened aggregate and has particles ranging from #4 down to #200. Washed Concrete Sand is used mainly as the fine aggregate in concrete mix designs, as well as a drainage/filtration medium, a granular fill, a bedding medium, blotting sand for prime coat, along with other applications.	Appendix A-Image 9
	Plaster Sand	ASTM D2940/D2940M15	This product contains a blend of washed and screened aggregate ranging in size from #8 down to #200, with 85-100% passing the #8 sieve, 40-75% passing the #30 sieve, and 0-5% passing the #200 sieve. Plaster Sand is used in concrete mix designs, mortar and stucco mix, sandboxes, as well as many other landscape and construction applications.	Appendix A-Image 10

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Facility	Name	Standards	Application	
Moorpark	Washed Concrete Sand	ASTM C33/C33M-13 Caltrans Section 90	This product contains a blend of washed and screened aggregate and has particles ranging from #4 down to #200. Washed Concrete Sand is used mainly as the fine aggregate in concrete mix designs, as well as a drainage/filtration medium, a granular fill, a bedding medium, blotting sand for prime coat, along with other applications.	Appendix B- Image 1
	Plaster Sand	ASTM C114-11	This product contains a blend of washed and screened aggregate ranging in size from #8 down to #200, with 85-100% passing the #8 sieve, 40-75% passing the #30 sieve, and 0-5% passing the #200 sieve. Plaster Sand is used in concrete mix designs, mortar and stucco mix, sandboxes, as well as many other landscape and construction applications.	Appendix B- Image 2
	3/8" Gravel	ASTM C33/C33M-13 Caltrans Section 90	This product is a blend of natural aggregates ranging in size from 3/8" down to #8, with 0-10% of material passing the 3/8" sieve and 0-6% passing the #8 sieve. 3/8" Gravel is used for concrete mix designs, landscape, playgrounds, along with other construction and decorative applications.	Appendix B- Image 3
	Fill Sand	ASTM D2940/D2940M15	This product contains a blend of screened aggregate and has particles ranging from #4 down to #200. Fill Sand is used mainly for backfilling.	Appendix B- Image 4
	1"x4	ASTM C33/C33M-13 Caltrans Section 90	This product is a blend of natural aggregate ranging in size from 1" down to #4, with 88-100% of material passing the 1" sieve, and 0-6% or material passing the #8 sieve. This aggregate blend is used for concrete mix designs, landscaping, decorative, ground cover, erosion control, and as a drainage or bedding medium, along with other applications.	Appendix B- Image 5
	1 1/2"	ASTM C33/C33M-13 Caltrans Section 90	This product is a blend of natural aggregate ranging in size from 1 1/2" down to 3/8", that has 88-100% of material passing the 1 1/2" sieve, and 0-7% of material passing the 3/8" sieve. This aggregate blend is used for concrete mix designs, landscaping, decorative, ground cover, as a drainage/filtration medium, bedding medium, erosion control, along with other applications.	Appendix B- Image 6
Redlands	3/8" X #8 Gravel	ASTM C33/C33M-13 Caltrans Section 90	Washed 3/8" x #8 Gravel. This product is a blend of natural and colorful aggregates ranging in size from 3/8" down to #8, with 70-10% of material passing the 3/8" sieve and 0-6% passing the #8 sieve. This product is mostly used for landscape, playgrounds and decorative applications.	Appendix C- Image 1
	Washed Concrete Sand	ASTM C33/C33M-13 Caltrans Section 90	Washed #4 x 0 Concrete Sand. This product contains a blend of washed and screened aggregate and has particles ranging from #4 down to #200. Washed Concrete Sand is used mainly as the fine aggregate in cement, as well as a drainage/filtration medium, a granular fill, a bedding medium, and blotting sand for prime coat, along with other applications.	Appendix C- Image 2
	1" X #4 Gravel	ASTM C33/C33M-13 Caltrans Section 90	Washed 1" x #4 Gravel This product is a blend of natural and colorful aggregate ranging in size from 1" down to #4, with 88-100% of material passing the 1" sieve, and 0-6% or material passing the #8 sieve. This aggregate blend is used for landscaping, decorative, ground cover, erosion control, and as a drainage or bedding medium, along with other applications.	Appendix C- Image 3
Rockfield	4x8 Noiyo's	ASTM C33/C33M-13	This product is a blend of natural aggregate ranging in size from 8" down to 4", This aggregate blend is used for landscaping, decorative, ground cover, as a drainage/filtration medium, erosion control, along with other applications.	Appendix D- Image 1
	2x4 Noiyo's	ASTM C33/C33M-13	This product is a blend of natural aggregate ranging in size from 4" down to 2", This aggregate blend is used for landscaping, decorative, ground cover, as a drainage/filtration medium, erosion control, along with other applications.	Appendix D- Image 2

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Facility	Name	Standards	Application	
	1 1/2" x 1" Noiyo's	ASTM C33/C33M-13	This product is a blend of natural aggregate ranging in size from 1 1/2" down to 1", This aggregate blend is used for landscaping, decorative, ground cover, as a drainage/filtration medium, erosion control, along with other applications.	Appendix D-Image 3
	1" x 3/4" Noiyo's	ASTM C33/C33M-13	This product is a blend of natural aggregate ranging in size from 1" down to 3/4", This aggregate blend is used for landscaping, decorative, ground cover, as a drainage/filtration medium, erosion control, along with other applications.	Appendix D-Image 4
	3/4" x 1/2" Noiyo's	ASTM C33/C33M-13	This product is a blend of natural aggregate ranging in size from 3/4" down to 1/2", This aggregate blend is used for landscaping, decorative, ground cover, as a drainage/filtration medium, erosion control, along with other applications.	Appendix D-Image 5
	1/2" x 3/8" Noiyo's	ASTM C33/C33M-13	This product is a blend of natural aggregate ranging in size from 1/2" down to 3/8", This aggregate blend is used for landscaping, decorative, ground cover, as a drainage/filtration medium, erosion control, along with other applications.	Appendix D-Image 6
	3/8" x 1/8" Noiyo's	ASTM C33/C33M-13	This product is a blend of natural aggregate ranging in size from 3/8" down to #4", This aggregate blend is used for landscaping, decorative, ground cover, as a drainage/filtration medium, erosion control, along with other applications.	Appendix D-Image 7
	3/8" x #4 Pea Gravel	ASTM C33/C33M-13 Caltrans Section 90	Washed 3/8" x #8 Gravel. This product is a blend of natural and colorful aggregates ranging in size from 3/8" down to #8. This product is mostly used for concrete mix designs along with other applications.	Appendix D-Image 8
	1" x #4 Gravel	ASTM C33/C33M-13 Caltrans Section 90	This product is a blend of natural aggregate ranging in size from 1" down to #4. This aggregate blend is used for concrete mix designs, landscaping, decorative, ground cover, erosion control, and as a drainage or bedding medium, along with other applications.	Appendix D-Image 9
	1/4" x 1/8" Gravel	ASTM C33/C33M-13	This product is a blend of natural aggregate ranging in size from 1/4" down to 1/8", This aggregate blend is used for landscaping, decorative, ground cover, as a drainage/filtration medium, erosion control, along with other applications.	Appendix D-Image 10
	Concrete Sand	ASTM C33/C33M-13 Caltrans Section 90	Washed #4 x 0 Concrete Sand. This product contains a blend of washed and screened aggregate and has particles ranging from #4 down to #200. Washed Concrete Sand is used mainly as the fine aggregate in concrete, as well as a drainage/filtration medium, a granular fill, a bedding medium, and blotting sand for prime coat, along with other applications.	Appendix D-Image 11
	Plaster Sand	ASTM C114-11	This product contains a blend of washed and screened aggregate ranging in size from #8 down to #200, Plaster Sand is used in concrete mix designs, mortar and stucco mix, sandboxes, as well as many other landscape and construction applications.	Appendix D-Image 12
	1" Concrete Mix	ASTM C33/C33M-13 Caltrans Section 90	This product contains a blend of washed aggregate and screened Concrete Sand ranging in size from 1" down to #200, Concrete Mix is used in the production of concrete without the use of a concrete plant.	Appendix D-Image 13
	3/8" Concrete Mix	ASTM C33/C33M-13 Caltrans Section 90	This product contains a blend of washed aggregate and screened Concrete Sand ranging in size from 3/8" down to #200, Concrete Mix is used in the production of concrete without the use of a concrete plant.	Appendix D-Image 14

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Facility	Name	Standards	Application	
	1 1/2" x 3/4" Crushed	ASTM D692/D692M-15 Caltrans Section 39	This product is a blend of crushed aggregate ranging in size from 1 1/2" down to 3/4". This aggregate blend is used for landscaping, decorative, ground cover, erosion control, and as a drainage or bedding medium, along with other applications.	Appendix D-Image 15
	3/4" x 1/2" Crushed	ASTM D692/D692M-15 Caltrans Section 39	This product is a blend of crushed aggregate ranging in size from 3/4" down to #4. This aggregate blend is used for asphalt mix designs, landscaping, decorative, ground cover, erosion control, and as a drainage or bedding medium, along with other applications.	Appendix D-Image 16
	1/2" x 3/8" Crushed	ASTM D692/D692M-15 Caltrans Section 39	This product is a blend of crushed aggregate ranging in size from 1/2" down to #4. This aggregate blend is used for asphalt mix designs, landscaping, decorative, ground cover, erosion control, and as a drainage or bedding medium, along with other applications.	Appendix D-Image 17
	3/8" x #6 Crushed	ASTM D692/D692M-15 Caltrans Section 39	This product is a blend of crushed aggregate ranging in size from 3/8" down to #4. This aggregate blend is used for asphalt mix designs, landscaping, decorative, ground cover, erosion control, and as a drainage or bedding medium, along with other applications.	Appendix D-Image 18
	Rockdust	ASTM D692/D692M-15 Caltrans Section 39	This product is a blend of crushed aggregate ranging in size from #4 down to #200. This aggregate blend is used for asphalt mix designs, landscaping, decorative, ground cover, erosion control, and bedding medium, along with other applications.	Appendix D-Image 19
	3/4" AB Class II	ASTM D2940/D2940M15 Caltrans Section 26	This product is a blend of crushed aggregate ranging in size from 3/4" down to #200. This aggregate blend is used for road construction, landscaping, decorative, ground cover, erosion control, and bedding medium, along with other applications.	Appendix D-Image 20

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## LCA Study

This study is a cradle-to-gate life cycle assessment of thirty nine aggregates produced at four CEMEX facilities.

### System boundary

This study captures the following mandatory cradle-to-gate (A1-A3) life cycle product stages (as illustrated in Figure 1):

A1 - Extraction and processing of raw materials including fuels used in extraction and transport within the process;

A2 – Specific transportation of raw materials (including recycled materials) from extraction site or source to manufacturing site (including any recovered materials from source to be recycled in the process) and including empty backhauls and transportation to interim distribution centers or terminals;

A3 – Manufacturing of the product, including all energy and materials required and all emissions and wastes produced.

PRODUCTION Stage (Mandatory)			CONSTRUCTION Stage		USE Stage					END-OF-LIFE Stage			
Extraction and upstream production	Transport to factory	Manufacturing	Transport to site	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	De-construction/Demolition	Transport to waste processing or disposal	Waste processing	Disposal of waste
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4

Figure 1. Life-Cycle Stages and Modules

Except as noted above, all other life cycle stages as described in Figure 1 are excluded from the LCA study. The following processes are also excluded from the study:

1. Production, manufacture, and construction of manufacturing capital goods and infrastructure;
2. Production and manufacture of production equipment, delivery vehicles, and laboratory equipment;
3. Personnel-related activities (travel, furniture, office supplies);
4. Fuel used to transport personnel around the mine and sand & gravel facility;
5. Energy and water use related to company management and sales activities.

# Environmental Product Declaration

## LCA Study

The main processes included in the system boundary are illustrated in Figure 2.

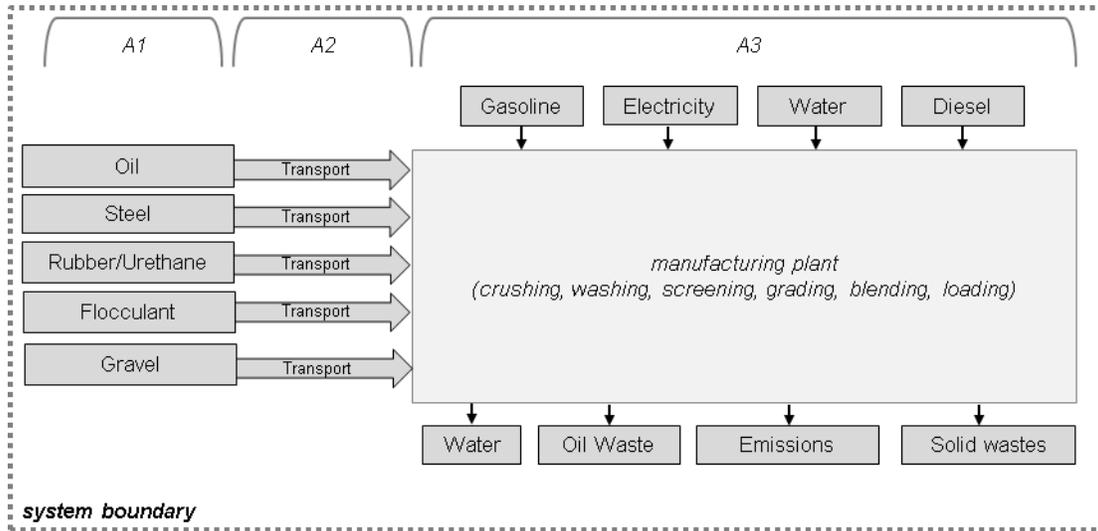


Figure 2. Main Processes Included in System Boundary

## Life Cycle Inventory

Electricity impacts are calculated based on the 2018 resource mix at the level of North American Electricity Reliability Council (NERC) CA region. The 2018 grid mix contains: 46.2% Natural Gas, 13.8% Solar, 13.4% Hydro, 9.3% Nuclear, 7.2% Wind, 6.0% Geothermal, 3.1% biomass, 1% other.

## Environmental Impacts

Cradle to Gate (A1-A3) impact results per 1 metric ton (dry weight) of product are outlined in Tables 2-7 below for each CEMEX facility.

This EPD only covers the cradle-to-gate impacts of aggregates using a declared unit and the results cannot be used to compare between products. EPDs from different programs (using different PCR) may not be comparable.

Explanatory materials may be requested by contacting:

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## LCA Study

Environmental Impacts – Lytle Creek Quarry

Table 2: Cradle-to-Gate (A1-A3) Impact Results Lytle Creek’s Aggregates Covered in Study. Results per Metric Ton (Dry Weight).

Impact Category	Unit	1 ½" Gravel	1"x4 Gravel	¾" Crushed	½" Crushed	⅜" Crushed	⅜" Gravel	CAB	Rock Dust	WCS	Plaster Sand
Global warming potential	kg CO <sub>2</sub> eq	0.70	0.70	1.61	1.61	1.63	0.71	1.69	1.65	0.80	0.81
Acidification potential	kg SO <sub>2</sub> eq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Eutrophication potential	kg N eq	3.14E-04	3.17E-04	6.41E-04	6.40E-04	6.46E-04	3.19E-04	6.72E-04	6.54E-04	3.57E-04	3.61E-04
Smog creation potential	kg O <sub>3</sub> eq	0.04	0.05	0.06	0.06	0.06	0.05	0.07	0.07	0.05	0.05
Ozone depletion potential	kg CFC-11 eq	1.05E-08	1.06E-08	3.72E-08	3.72E-08	3.76E-08	1.07E-08	3.90E-08	3.80E-08	1.26E-08	1.28E-08
Nonrenewable fossil	MJ	5.4	5.4	19.7	19.7	19.9	5.5	20.6	20.1	6.5	6.6
Nonrenewable nuclear	MJ	2.05	2.07	5.52	5.51	5.56	2.08	5.78	5.63	2.39	2.42
Renewable (biomass)	MJ	0.33	0.33	1.26	1.25	1.27	0.33	1.32	1.28	0.40	0.40
Renewable (solar, wind, hydroelectric, and geothermal)	MJ	1.46	1.47	5.53	5.51	5.57	1.48	5.79	5.63	1.77	1.78
Nonrenewable material resources	kg	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Renewable material resources	kg	0.02	0.02	0.07	0.07	0.07	0.02	0.08	0.07	0.02	0.02
Net fresh water	L	0.11	0.12	0.12	0.12	0.13	0.13	0.18	0.14	0.22	0.23
Non-hazardous waste generated	kg	0.01	0.01	0.03	0.03	0.03	0.01	0.03	0.03	0.01	0.01
Hazardous waste generated	kg	2.77E-05	2.80E-05	1.06E-04	1.06E-04	1.07E-04	2.81E-05	1.11E-04	1.08E-04	3.36E-05	3.40E-05

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## LCA Study

### Environmental Impacts – Moorpark Quarry

Table 3: Cradle-to-Gate (A1-A3) Impact Results for Moorpark’s Aggregates Covered in Study. Results per Metric Ton (Dry Weight).

Impact Category	Unit	WCS	Plaster Sand	3/8" Gravel	Fill Sand	1 x #4	1 ½"
Global warming potential	kg CO <sub>2</sub> eq	4.20	4.14	4.54	3.47	4.51	4.51
Acidification potential	kg SO <sub>2</sub> eq	0.05	0.05	0.05	0.04	0.05	0.05
Eutrophication potential	kg N eq	4.21E-03	4.10E-03	4.03E-03	3.69E-03	4.00E-03	4.00E-03
Smog creation potential	kg O <sub>3</sub> eq	1.56	1.52	1.41	1.41	1.40	1.40
Ozone depletion potential	kg CFC-11 eq	2.71E-08	2.84E-08	4.75E-08	1.48E-08	4.71E-08	4.71E-08
Nonrenewable fossil	MJ	60.5	59.7	66.4	49.5	65.9	65.9
Nonrenewable nuclear	MJ	2.85	3.03	5.56	1.32	5.51	5.51
Renewable (biomass)	MJ	0.58	0.64	1.33	0.19	1.32	1.32
Renewable (solar, wind, hydroelectric, and geothermal)	MJ	2.15	2.41	5.47	0.47	5.42	5.42
Nonrenewable material resources	kg	1,000	1,000	1,000	1,000	1,000	1,000
Renewable material resources	kg	0.03	0.04	0.08	0.01	0.08	0.08
Net fresh water	L	0.55	0.50	0.39	0.40	0.38	0.38
Non-hazardous waste generated	kg	0.11	0.11	0.12	0.10	0.12	0.12
Hazardous waste generated	kg	5.98E-05	6.40E-05	1.21E-04	2.56E-05	1.20E-04	1.20E-04

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## LCA Study

Environmental Impacts – Redlands Quarry

Table 4: Cradle-to-Gate (A1-A3) Impact Results for Redlands' Aggregates Covered in Study. Results per Metric Ton (Dry Weight).

Impact Category	Unit	3/8" x #8	WCS	1 x #4
Global warming potential	kg CO <sub>2</sub> eq	1.32	1.39	1.17
Acidification potential	kg SO <sub>2</sub> eq	0.00	0.00	0.00
Eutrophication potential	kg N eq	1.94E-03	2.23E-03	1.89E-03
Smog creation potential	kg O <sub>3</sub> eq	0.06	0.07	0.06
Ozone depletion potential	kg CFC-11 eq	3.21E-08	3.28E-08	2.78E-08
Nonrenewable fossil	MJ	13.3	12.9	11.0
Nonrenewable nuclear	MJ	3.88	3.93	3.33
Renewable (biomass)	MJ	0.80	0.77	0.66
Renewable (solar, wind, hydroelectric, and geothermal)	MJ	3.55	3.42	2.91
Nonrenewable material resources	kg	1,000	1,000	1,000
Renewable material resources	kg	0.05	0.04	0.04
Net fresh water	L	0.04	0.23	0.03
Non-hazardous waste generated	kg	0.20	0.23	0.20
Hazardous waste generated	kg	7.15E-05	6.96E-05	5.91E-05

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## LCA Study

### Environmental Impacts – Rockfield Quarry

Table 5: Cradle-to-Gate (A1-A3) Impact Results Rockfield's Aggregates Covered in Study. Results per Metric Ton (Dry Weight).

Impact Category	Unit	4 x 8 Noiyo's	2 x 4 Noiyo's	1 ½" x 1 Noiyo's	1 x ¾" Noiyo's	¾" x ½" Noiyo's	½" x 3/8" Noiyo's	3/8" x 1/8" Noiyo's	3/8" x #4 Pea Gravel	1 x #4 Gravel	¼" x 1/8" Gravel
Global warming potential	kg CO <sub>2</sub> eq	2.42	2.45	3.05	3.14	3.13	3.12	3.14	3.14	3.09	3.10
Acidification potential	kg SO <sub>2</sub> eq	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Eutrophication potential	kg N eq	2.91E-03	2.95E-03	3.16E-03	3.20E-03	3.19E-03	3.18E-03	3.23E-03	3.23E-03	3.17E-03	3.21E-03
Smog creation potential	kg O <sub>3</sub> eq	0.95	0.96	0.97	0.98	0.98	0.97	0.99	0.99	0.97	0.99
Ozone depletion potential	kg CFC-11 eq	1.44E-08	1.45E-08	3.20E-08	3.44E-08	3.43E-08	3.42E-08	3.37E-08	3.37E-08	3.31E-08	3.25E-08
Nonrenewable fossil	MJ	34.6	34.9	44.3	45.7	45.5	45.4	45.7	45.7	44.9	45.0
Nonrenewable nuclear	MJ	0.94	0.95	3.22	3.52	3.51	3.50	3.42	3.42	3.36	3.27
Renewable (biomass)	MJ	0.14	0.14	0.75	0.83	0.83	0.83	0.80	0.80	0.79	0.76
Renewable (solar, wind, hydroelectric, and geothermal)	MJ	0.63	0.63	3.30	3.65	3.64	3.63	3.53	3.53	3.46	3.36
Nonrenewable material resources	kg	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Renewable material resources	kg	0.01	0.01	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.04
Net fresh water	L	0.34	0.35	0.35	0.36	0.35	0.35	0.38	0.38	0.35	0.37
Non-hazardous waste generated	kg	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Hazardous waste generated	kg	2.37E-05	2.40E-05	7.52E-05	8.20E-05	8.17E-05	8.15E-05	7.98E-05	7.98E-05	7.83E-05	7.64E-05

# Environmental Product Declaration

## LCA Study

### Environmental Impacts – Rockfield Quarry

Table 6: Cradle-to-Gate (A1-A3) Impact Results for Rockfield’s Aggregates Covered in Study. Results per Metric Ton (Dry Weight).

Impact Category	Unit	Concrete Sand	Plaster Sand	1" Concrete Mix	3/8" Concrete Mix	1 1/2" x 3/4" Crushed	3/4" x 1/2" Crushed	1/2" x 3/8" Crushed	3/8" x #6 Crushed	Rockdust	3/4" AB Class II
Global warming potential	kg CO <sub>2</sub> eq	3.30	3.32	3.11	3.11	2.94	2.95	3.24	3.28	3.21	3.12
Acidification potential	kg SO <sub>2</sub> eq	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Eutrophication potential	kg N eq	3.42E-03	3.44E-03	3.21E-03	3.21E-03	3.10E-03	3.11E-03	3.30E-03	3.35E-03	3.27E-03	3.24E-03
Smog creation potential	kg O <sub>3</sub> eq	1.05	1.06	0.99	0.99	0.96	0.97	1.01	1.03	1.00	1.00
Ozone depletion potential	kg CFC-11 eq	3.47E-08	3.49E-08	3.29E-08	3.30E-08	2.94E-08	2.95E-08	3.54E-08	3.59E-08	3.51E-08	3.27E-08
Nonrenewable fossil	MJ	47.9	48.2	45.1	45.2	42.6	42.8	47.1	47.8	46.7	45.4
Nonrenewable nuclear	MJ	3.49	3.51	3.32	3.34	2.89	2.90	3.62	3.67	3.59	3.29
Renewable (biomass)	MJ	0.81	0.82	0.78	0.78	0.66	0.67	0.85	0.87	0.85	0.77
Renewable (solar, wind, hydroelectric, and geothermal)	MJ	3.58	3.60	3.42	3.43	2.91	2.92	3.75	3.80	3.72	3.36
Nonrenewable material resources	kg	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Renewable material resources	kg	0.05	0.05	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.04
Net fresh water	L	0.46	0.41	0.40	0.41	0.34	0.35	0.40	0.42	0.39	0.38
Non-hazardous waste generated	kg	0.09	0.09	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.08
Hazardous waste generated	kg	8.14E-05	8.20E-05	7.75E-05	7.78E-05	6.76E-05	6.78E-05	8.42E-05	8.54E-05	8.35E-05	7.67E-05

# Environmental Product Declaration

## Appendix A

### Lytle Creek Images

Image 1



Image 2



Image 3



Image 4



Image 5



Image 6



# Environmental Product Declaration

## Appendix A

### Lytle Creek Images

Image 7



Image 8



Image 9



Image 10



# Environmental Product Declaration

## Appendix B

### Moorpark Images

Image 1



Image 2



Image 3



Image 4



Image 5



Image 6



# Environmental Product Declaration

## Appendix C

### Redlands Images

Image 1



Image 2



Image 3



# Environmental Product Declaration

## Appendix D

### Rockfield Images

Image 1



Image 2



Image 3



Image 4



Image 5



Image 6



CEMEX  
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# Environmental Product Declaration

## Appendix D

### Rockfield Images

Image 7



Image 8



Image 9



Image 10



Image 11



Image 12



# Environmental Product Declaration

## Appendix D

### Rockfield Images

**Image 13**



**Image 14**



**Image 15**



**Image 16**



**Image 17**



**Image 18**



# Environmental Product Declaration

## Appendix D

### Rockfield Images

Image 19



Image 20

