



What is an EPD?

Image: EPD_National_Ready_Mix__Vernon." What is an EPD? Climate Earth, 2025, <https://climateearth.com/epd-101/what-is-an-epd/>.

NATIONAL READY MIX ENVIRONMENTAL PRODUCT DECLARATION Mix S63C650S1 • Vernon Plant



This Environmental Product Declaration (EPD) reports the impacts for 1 m³ of ready mixed concrete mix, meeting the following specifications:

- ASTM C94: Ready-Mixed Concrete
- UNSPSC Code 30111505: Ready Mix Concrete
- CSA A23.1/A23.2: Concrete Materials and Methods of Concrete Construction
- CSI Division 03-30-00: Cast-in-Place Concrete

COMPANY

National Ready Mix
15821 Ventura Boulevard, Suite 475
Encino, CA 91436

PLANT

Vernon Plant
2626 26th Street
Vernon, CA 90058

EPD PROGRAM OPERATOR

ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428



DATE OF ISSUE

04/03/2020 (valid for 5 years until 04/03/2025)

ENVIRONMENTAL IMPACTS

Declared Product:

Mix S63C650S1 • Vernon Plant
Description: 1 4000PSI PU PL
Compressive strength: 4000 PSI at 28 days

Declared Unit: 1 m³ of concrete

Global Warming Potential (kg CO ₂ -eq)	247
Ozone Depletion Potential (kg CFC-11-eq)	8.67E-6
Acidification Potential (kg SO ₂ -eq)	1.12
Eutrophication Potential (kg N-eq)	0.31
Photochemical Ozone Creation Potential (kg O ₃ -eq)	20.7
Abiotic Depletion, non-fossil (kg Sb-eq)	2.64E-6
Abiotic Depletion, fossil (MJ)	397
Total Waste Disposed (kg)	1.85
Consumption of Freshwater (m ³)	3.06

Product Components: natural aggregate (ASTM C33), slag cement (ASTM C989), Portland cement (ASTM C150), admixture (ASTM C494), batch water (ASTM C1602)

Additional detail and impacts are reported on page three of this EPD

ISO 21930:2017 Sustainability in Building Construction — Environmental Declaration of Building Products: serves as the core PCR
PCR for Concrete, NSF International, February 2019 serves as the sub-category PCR

Sub-category PCR review was conducted by Thomas P. Gloria • Industrial Ecology Consultants

Independent verification of the declaration, according to ISO 14025:2006: ☐ Internal ☒ external

Third party verifier Thomas P. Gloria (t.gloria@industrial-ecology.com) • Industrial Ecology Consultants

For additional explanatory material

Manufacture Representative: John Halverson (J.Halverson@natcem.com)
Software Tool: CarbonCLARITY Suite, EPD Generator • Verification
LCA & EPD Developer: Climate Earth (support@climateearth.com)

NATIONAL READY MIX
15821 Ventura Boulevard, Suite 475
Encino, CA 91436
(818) 728-5200

VERNON
2626 26th Street
Vernon, CA 90058
909-657-4000

EPDs

- ISO Standards
- Product Category Rules (PCRs)
- Reports Environmental Impacts
 - Product label similar to food nutrition label
- May take up to 6 mo. staff time /up to \$10k for first plant (more for steel)

ENVIRONMENTAL IMPACTS	
Declared Product: Mix 3O1405260A • The Dalles Plant Description: ODOT CLASS 4000 Compressive strength: 4000 PSI at 28 days	
Declared Unit: 1 m ³ of concrete (1 cyd)	
Global Warming Potential (kg CO ₂ -eq)	406 (310)
Ozone Depletion Potential (kg CFC-11-eq)	8.31E-6 (6.35E-6)
Acidification Potential (kg SO ₂ -eq)	1.86 (1.42)
Eutrophication Potential (kg N-eq)	0.46 (0.35)
Photochemical Ozone Creation Potential (kg O ₃ -eq)	47.0 (35.9)
Abiotic Depletion, non-fossil (kg Sb-eq)	7.21E-5 (5.51E-5)
Abiotic Depletion, fossil (MJ)	1,132 (865)
Total Waste Disposed (kg)	111 (85.1)
Consumption of Freshwater (m ³)	3.45 (2.64)
Product Components: natural aggregate (ASTM C33), Portland cement (ASTM C150), batch water (ASTM C1602), admixture (ASTM C494), admixture (ASTM C260)	

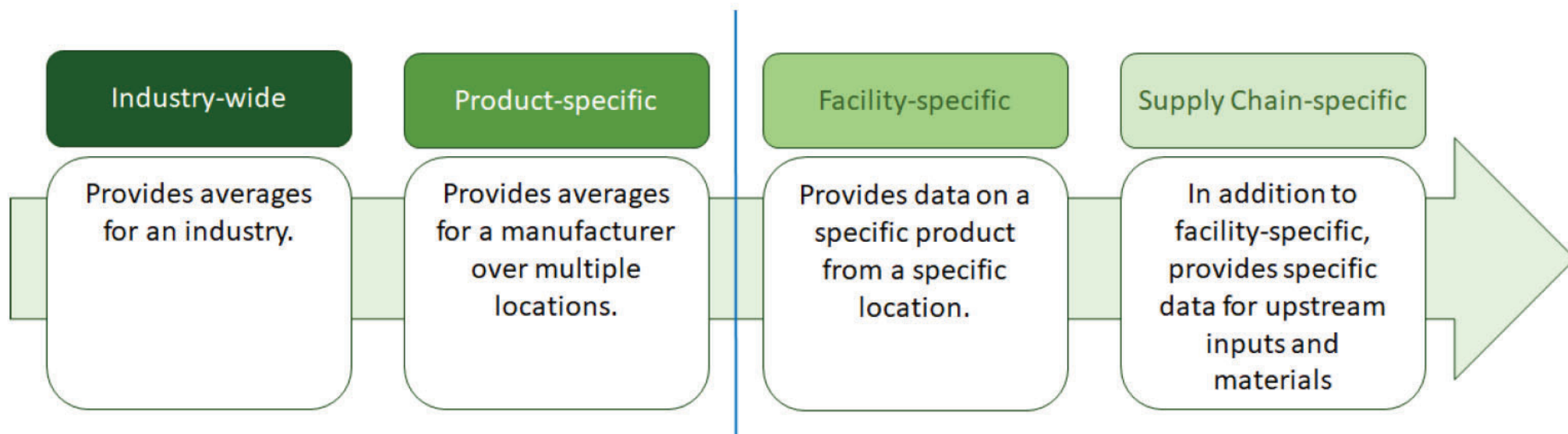
EPDs

- Business to Business Communication
- Express the results of a Life Cycle Assessment (LCA)
- Developed with stakeholder input
- Follow industry standards



What type of EPDs do you need?

Increasing level of specificity, comparability and usefulness in Buy Clean procurement




EPD Uses

- Help Agency understand decisions
- Informative for suppliers regarding supply chain
- Report measurable efficiency and environmental improvements
- Provide data for full-life cycle assessment

EPD Program Operators

- Maintain general program instructions:
 - PCR Creation
 - EPD Verification
 - EPD Publication
 - ISO 14025

Transparency Catalog. (2025, March 3). *Product Category Rules for North American Building & Construction*. Transparency Catalog. <https://transparencycatalog.com/na-pcr-catalog-building-products>



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Product Category Rules for North American Building & Construction

Last updated: March 3, 2025

Created and curated by Sustainable Minds, the catalog is continually updated to include all PCRs that are current / extended, expired, or in development from North American program operators:

ASTM

CSA Group

EPD North America

FPInnovations

ICC Evaluation Service

Labeling Sustainability

NAPA

NSF

NRMCA

P3 Optima

SCS Global Services

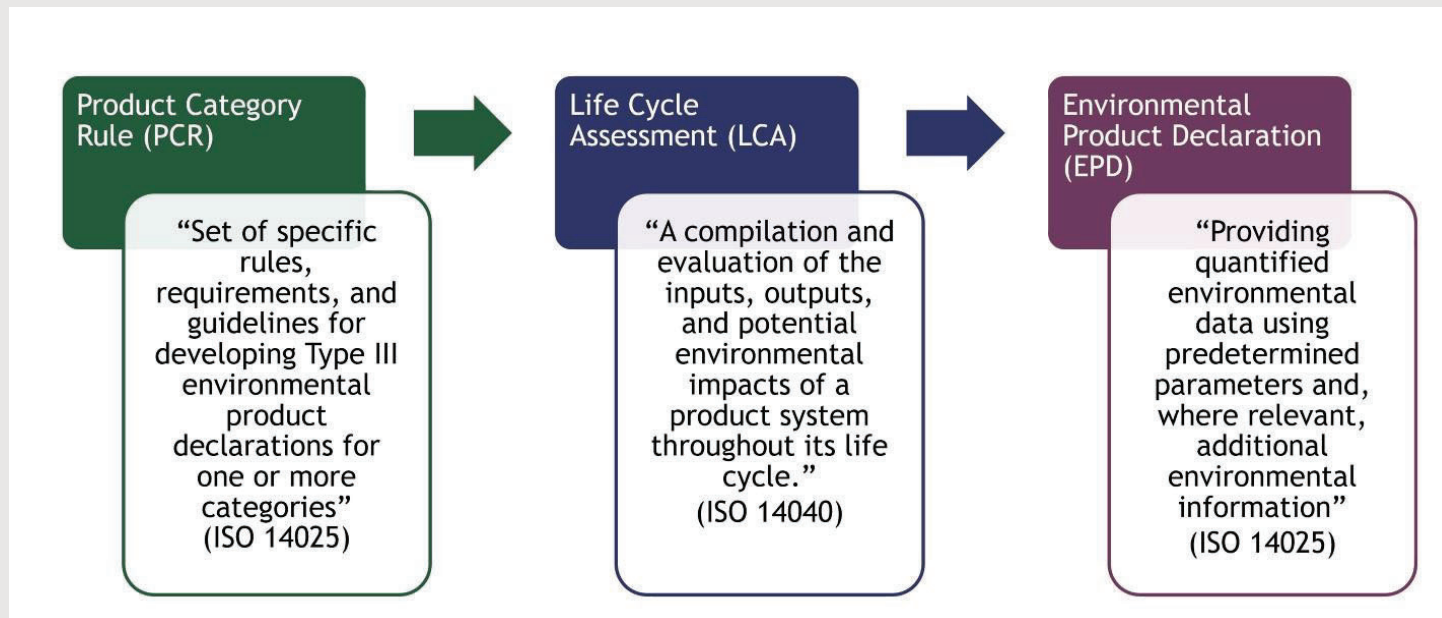
Smart EPD

Sustainable Minds

UL Solutions

PROGRAM OPERATOR	PRODUCT CATEGORY RULE (PCR)	ACI/CA PCR OPEN STANDARD	VALIDITY PERIOD
NA PCRs for Building & Construction			
03 00 00 CONCRETE (12)			
NAPA	Asphalt Mixtures		Apr 2022 – Mar 31, 2027
NSF	Concrete (undergoing update)		Feb 22, 2019 – Feb 28, 2025
NSF	Concrete Admixtures (committee forming)		In development
NSF / ASTM	Construction Aggregates		Dec 1, 2023 – Sep 30, 2027
NSF / ASTM	Portland, Blended Hydraulic, Masonry, Mortar, and Plastic (Stucco) Cements		Mar 2020 – Mar 31, 2025
NSF / ASTM	Precast Concrete		Mar 2015 – Apr 30, 2026
NSF / ASTM	Slag Cement		Dec 31, 2020 – Dec 31, 2025
Smart EPD	Asphalt Binders		In development
Smart EPD	Portland, Blended, Masonry, Mortar and Plastic (Stucco) Cement		In development
Smart EPD	Supplementary Cementitious Materials	Conformant	May 7, 2024 – May 7, 2029
UL Solutions	Part B: Asphalt Recycling and Reclaiming		In development
UL Solutions	Part B: Expanded Shale, Clay and Slate Lightweight Aggregate		Jan 25, 2022 – Jan 25, 2027
04 00 00 MASONRY (12)			
05 00 00 METALS (12)			
06 00 00 WOOD, PLASTICS, AND COMPOSITES (14)			
07 00 00 THERMAL AND MOISTURE PROTECTION (30)			

How do I get an EPD



Steps to Getting an EPD

1. Identify the product's appropriate Product Category Rule (PCR)
2. Life Cycle Assessment (LCA)- ISO 21930 and PCR
3. EPD verification
4. Publication

(Sub-Category) Product Category Rules

- Produced by EPD Program Operators
- An industry consensus standards and guidelines
- Consistency and Transparency
- Listed on ODOT EPD webpage



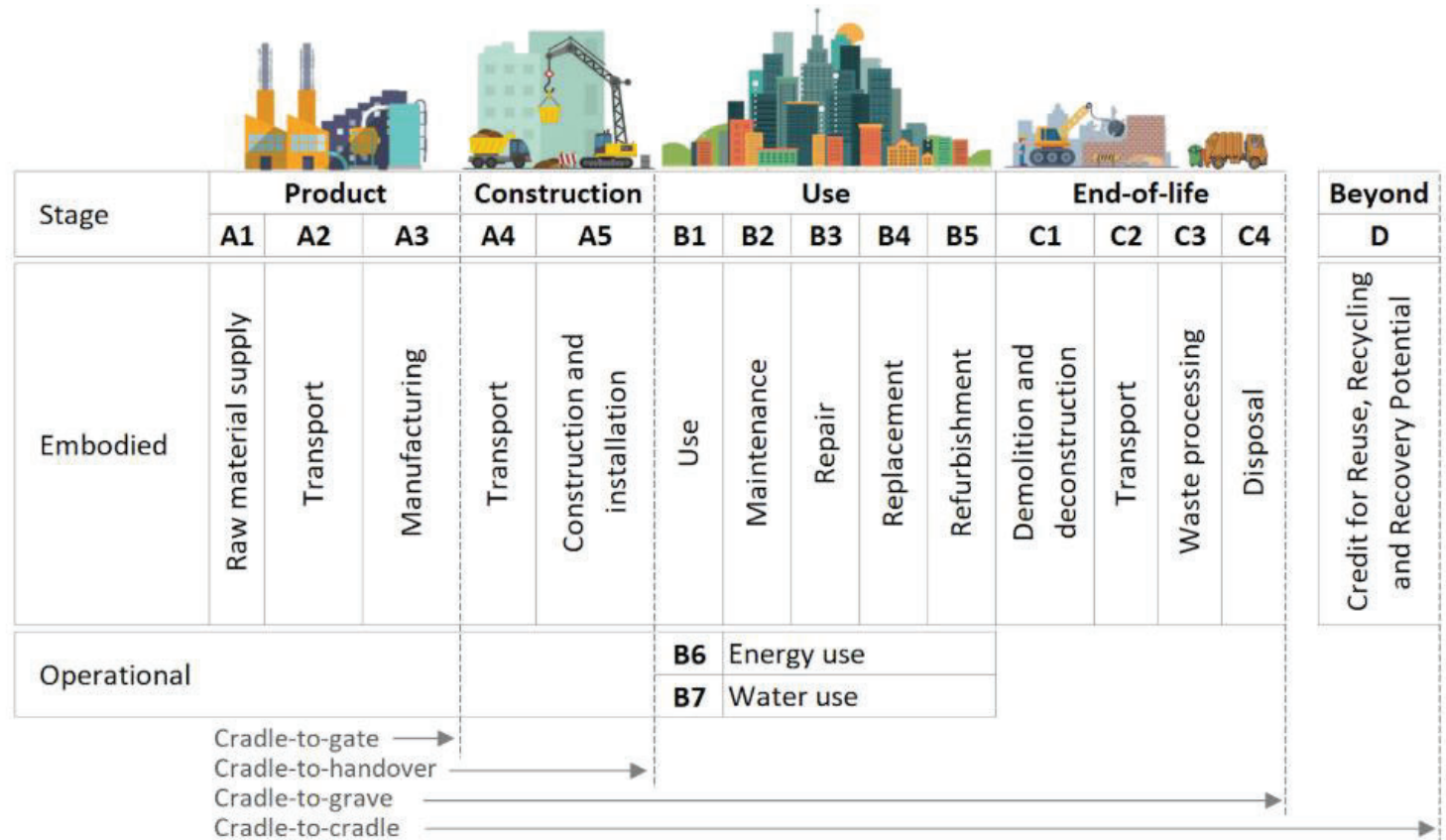
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Life Cycle Assessment (LCA)

- In accordance with ISO 14040 series
- Follows the assumptions and data specified in the PCR
- LCA Summary → EPD

Life Cycles



Current EPD Practice

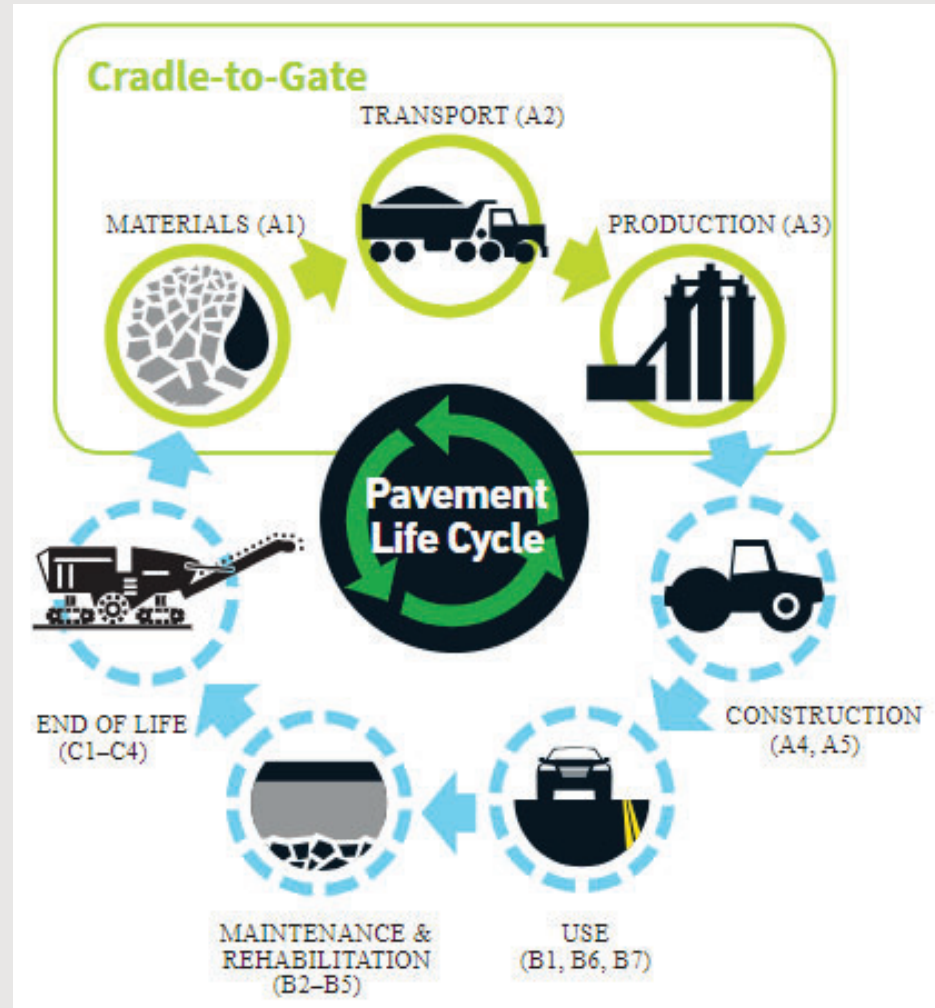
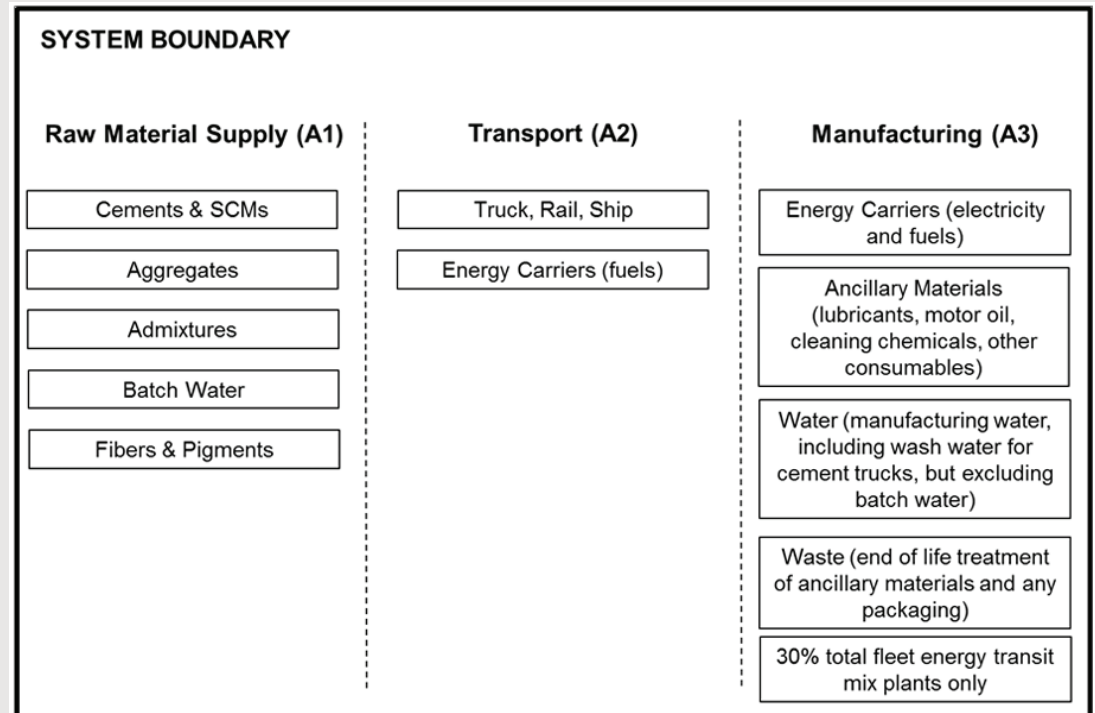


Image Source: National Asphalt Pavement Association (NAPA)

EPD Cradle-to-Gate



Plant Data

- Common step to get involved with LCAP or online EPD tool
- 12 consecutive months (within last 5 years)
- Primary (Plant Data)
 - Fuels
 - Electricity
 - Materials
 - Energy
- Secondary Data
 - Background data
 - Generic/Industry recognized data not collected during the manufacturing
 - For example, energy grid emission

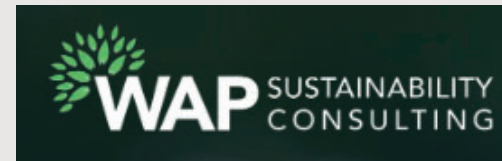
Industry Associations

- Some industry is further ahead than others
- Reach out for assistance



Life Cycle Assessment Practitioner (LCAP)

- Can be in-person or online tool
- Ready made tools to help accelerate EPD generation
- Still need to follow ISO standards



..... and many others

B. MATERIALS											
IN THE YELLOW CELLS BELOW, ENTER THE TOTAL QUANTITIES OF MATERIALS USED.											
Define the specific materials used to produce precast concrete and their respective transportation mode and distance (scroll right).							One-Way Distance From Material Source to Plant by Transportation Mode				
#	Material	Amount	Units	Mass	Units	% of Total Mass	Truck	Rail	Ocean	Barge	Read This
1	Portland Cement	0.00	short ton	0.000	short ton	0%	0.0	0.0	0.0	0.0	MS
2	Portland Limestone Cement (PLC)	0.00	short ton	0.000	short ton	0%	0.0	0.0	0.0	0.0	MS
3	Pre-Blended Cement	0.00	short ton	0.000	short ton	0%	0.0	0.0	0.0	0.0	MS
4	Fine Aggregate - natural sand		short ton	0.000	short ton	0%					MS
5	Fine Aggregate - manufactured		short ton	0.000	short ton	0%					MS
6	Coarse Aggregate - natural gravel		short ton	0.000	short ton	0%					MS
7	Coarse Aggregate - crushed		short ton	0.000	short ton	0%					MS
8	Manufactured Lightweight Aggregate		short ton	0.000	short ton	0%					MS
9	Natural Lightweight Aggregate		short ton	0.000	short ton	0%					MS
10	SCMs - Fly Ash		short ton	0.000	short ton	0%					MS
11	SCMs - Silica Fume		short ton	0.000	short ton	0%					MS
12	Slag Cement		short ton	0.000	short ton	0%					MS
13	Chemical Admixture - Air Entraining Agent		gallon	0.000	short ton	0%					D
14	Chemical Admixture - Water Reducer/Plasticizer		gallon	0.000	short ton	0%					D
15	Chemical Admixture - Accelerator		gallon	0.000	short ton	0%					D
16	Chemical Admixture - High Range Water Reducer (HRWR)/Super Plasticizer		gallon	0.000	short ton	0%					D
17	Chemical Admixture - Corrosion Inhibiting		gallon	0.000	short ton	0%					D
18	Chemical Admixture - Viscosity Modifying Admixture (VMA)		gallon	0.000	short ton	0%					D
19	Form Release Agent		gallon	0.000	short ton	0%					D
20	Rebar		short ton	0.000	short ton	0%					MS

Steps to Getting an EPD

1. Identify the product's appropriate Product Category Rule (PCR)
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4. Publication

EPD Verification

- ISO 14025 ← Required by HB 4139
- 3rd Party Review

Independent LCA Reviewer and EPD
Verifier

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

☐ Internal ☒ External Thomas P. Gloria, PhD. • Industrial Ecology Consultants

Steps to Getting an EPD

1. Identify the product's appropriate Product Category Rule (PCR)
2. Life Cycle Assessment (LCA)- ISO 21930 and PCR
3. EPD verification

4. Publication

Publication

- Verified EPD published by Program Operator

Image Source: ASTM International. (n.d.). *PCRs & EPDs - Environmental Product Declarations*. ASTM. <https://www.astm.org/standards-and-solutions/certification/environmental-product-declarations/epd-pcr>

Published Environmental Product Declarations

An Environmental Product Declaration (EPD) provides quantifiable environmental data to compare products that fulfill the same function. In order to create comparable EPDs, they must follow the rules and guidelines called for in the associated PCR.

- [Athena Sustainable Materials Institute \(Athena\) EPD Calculator for Concrete](#)
- [Cement Sustainability Initiative \(CSI\) EPD Generator for Cement and Concrete](#)
- [Climate Earth CarbonCLARITY EPD Generator - Concrete Masonry](#)
- [Climate Earth CarbonCLARITY EPD Generator - Concrete Masonry and Pavers](#)
- [Climate Earth CarbonCLARITY™ EN 15804 EPD Generator-Concrete](#)
- [Climate Earth Enterprise \(CEE\) EPD Generator for Ready Mix Concrete](#)
- [Pathways' LCA & EPD Generator for Ready Mix Concrete](#)
- [DEP de SOPREMA Inc. Membrane Pare-Air Autocollante SOPRASEAL STICK VP](#)
- [DEP de SOPREMA Inc. Membrane Pare-Air/Vapeur Liquide SOPRASEAL LM 204 VP](#)
- [DEP de SOPREMA Inc. Membrane Pare-Air/Vapeur SOPRASEAL XPRESS G](#)
- [DEP de SOPREMA Inc. Membranes Pare-Airs Autocollantes SOPRASEAL STICK 110 T, SOPRASOLIN HD et SOPRAVAP'R](#)
- [DEP de SOPREMA Inc. Membranes Pare-Airs/Vapeurs Autocollantes SOPRASEAL STICK 130 & 130-S et Thermosoudables SOPRASEAL 60 & 60 FF](#)

TABLE 4. LIFE CYCLE IMPACT INDICATORS

ACRONYM	INDICATOR	UNIT	QUANTITY PER METRIC TONNE ASPHALT MIXTURE (PER SHORT TON ASPHALT MIXTURE)			
			MATERIALS (A1)	TRANSPORT (A2)	PRODUCTION (A3)	TOTAL (A1-A3)
<i>GWP-100</i>	<i>Global warming potential, incl. biogenic CO2</i>	<i>kg CO2 Equiv.</i>	<i>37.10 (33.66)</i>	<i>5.28 (4.79)</i>	<i>14.34 (13.01)</i>	<i>56.71 (51.45)</i>
<i>ODP</i>	<i>Ozone depletion potential</i>	<i>kg CFC-11 Equiv.</i>	<i>1.65e-08 (1.49e-08)</i>	<i>3.19e-08 (2.89e-08)</i>	<i>2.68e-09 (2.43e-09)</i>	<i>5.10e-08 (4.63e-08)</i>
<i>EP</i>	<i>Eutrophication potential</i>	<i>kg N Equiv.</i>	<i>9.97e-03 (9.04e-03)</i>	<i>2.21e-03 (2.01e-03)</i>	<i>1.32e-03 (1.20e-03)</i>	<i>1.35e-02 (1.22e-02)</i>
<i>AP</i>	<i>Acidification potential</i>	<i>kg SO2 Equiv.</i>	<i>1.07e-01 (9.69e-02)</i>	<i>3.70e-02 (3.36e-02)</i>	<i>2.27e-02 (2.06e-02)</i>	<i>1.67e-01 (1.51e-01)</i>
<i>POCP</i>	<i>Photochemical ozone creation potential</i>	<i>kg O3 Equiv.</i>	<i>2.22 (2.01)</i>	<i>1.22 (1.11)</i>	<i>0.72 (0.65)</i>	<i>4.16 (3.78)</i>

defined as “a plant-produced composite material of aggregates, asphalt binder, and other materials.” ³