

Product Specific
Environmental Product Declaration
for Cement



Delta, BC

Production Facility
Delta Cement Plant and Terminal
7777 Ross Road, Delta, BC, Canada

Program Operator
ASTM International
100 Barr Harbor Drive, West
Conshohocken, PA 19428
www.astm.org



In accordance with ISO 21930, ISO 14025, ISO 14040, and ISO 14044

EPD Scope: A1-A3 (Cradle to Gate)

Issuance Date: 12/17/2025

Expiration Date: 12/17/2030

Declaration Number: EPD 1105



Environmental Impacts

Delta Plant: Product-Specific Type III EPD

Declared Cement Products: GUL/Type IL

Declared Unit: One metric tonne of cement

	Cement Product GUL/Type IL
Total Global Warming Potential (kg CO ₂ eq)	672
Global Warming Potential, Fossil (kg CO ₂ eq)	667
Global Warming Potential, Biogenic (kg CO ₂ eq)	4.7
Global Warming Potential, Luluc (kg CO ₂ eq)	0
Stratospheric Ozone Depl. Potential (kg CFC-11 eq)	3.7e-66
Eutrophication Potential, Marine (kg N eq)	0.18
Eutrophication Potential, Freshwater (kg P eq)	0
Soil and Water Acidification Potential (kg SO ₂ eq)	1.6
Tropospheric Ozone Formation Potential (kg O ₃ eq)	53.0
Product Components	
Clinker	83.8%
Limestone, Gypsum, and Others	16.2%

Reference Standards	ISO 21930:2017 Sustainability in Building Construction-Environmental Declaration of Building Products: serves as the core PCR. Smart EPD Part A Product Category Rules for Building and Construction Products and Services: serves as the Part A PCR. Smart EPD (2025) Part B Product Category Rules for Cements for Construction Version 4.0. Standard 1000-010. Published July 2, 2025: serves as the Part B PCR.
Sub-Category PCR Reviewer	Dr Thomas Gloria (t.gloria@industrial-ecology.com) • Industry Ecology Consulting Garav Das (gd30gcc@gmail.com) • Independent Consultant Emily B Lorenz (emilyblorenz@gmail.com) • Independent Consultant
Internal/External	Independent verification of the declaration, according to ISO 21930:2017 and ISO 14025:2006: <input type="checkbox"/> internal <input checked="" type="checkbox"/> external
LCA Project Third Party Verifier	Dr Thomas Gloria • t.gloria@industrial-ecology.com • Industry Ecology Consulting
EPD Third Party Verifier	Dr Thomas Gloria • t.gloria@industrial-ecology.com • Industry Ecology Consulting
For Additional Material	Manufacturer Representative: Ignacio Cariaga (ignacio.cariaga@heidelbergmaterials.com) This LCA EPD was prepared by: Capucine Richard • Pathways (www.pathwaysai.co)

Limitations, Liability, and Ownership

The EPD owner has sole ownership, liability, and responsibility for the EPD.

Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of the environmental performance of products using EPD information shall be based on the product's use and impacts at the building or construction works level, and therefore EPDs may not be used for comparability purposes when not considering the whole building life cycle. EPD comparability is only possible when all stages of a life cycle have been considered. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to differences in results upstream or downstream of the life cycle stages declared.

The environmental impact results of products in this document are based on a declared unit and therefore do not provide sufficient information to establish comparisons. The results shall not be used for comparisons without knowledge of how the physical properties of the product impact the precise function at the construction level. The environmental impact results shall be converted to a functional unit basis before any comparison is attempted.

A manufacturer shall not make claims based on an industry-average EPD which leads the market to believe the industry-average is representative of manufacturer-specific or product-specific results.

Product Name	GUL	Declaration Number	EPD 1105
Declared Unit	1 metric ton	Date of Issue	12/17/2025
EPD Scope	A1-A3	Expiration	12/17/2030
Markets of Applicability	Canada and US	Last Updated	12/17/2025

Company Description

Heidelberg Materials, a leading supplier of cementitious materials in North America, has been manufacturing cement in Canada for more than 100 years, including Bamberton, British Columbia since 1904, making the company a pillar of its surrounding communities, providing employment and economic benefit to small towns and cities. The company now operates one cement plant in British Columbia alongside the south arm of the Fraser River in Delta which began production in 1978. Water access helps to mitigate environmental impacts through efficient and more sustainable transportation of raw materials and delivery of cement to water-based terminals. Heidelberg Materials' commitment to sustainable manufacturing processes includes actively working to create low-carbon cement through supplementary cementitious materials (SCMs) and alternative raw materials and fuels. Consistent with their vision of reducing greenhouse gas (GHG) emissions to produce net-zero cement by 2050, Heidelberg Materials has developed product and plant specific EPDs as baselines for its embodied carbon.

Heidelberg Materials believes that the health and well-being of their employees, communities and the natural environment are vital to their success, so the company works hard to give back through annual public events at Granville Island, Delta and in Sechelt. The company also helps raise awareness about the importance of biodiversity at the Burns Bog Conservation Society and has provided donations to several local organizations and foundations with a focus on conservation and community development.

Product Information

Product Type	Portland Limestone Cement	Standard Designation	Type IL (GUL)
Applicable Standards	ASTM C595, C1157, AASHTO M240, CSA A3001	Supply-Chain Specificity of Product	94.2%
UNSPSC Code	30111504	UNCPC Code	3744

Product Description

This EPD reports environmental transparency information for one cement product, produced by Heidelberg Materials at their Delta, BC facility; EcoCem®PLC. This cement is a hydraulic binder and is manufactured by grinding cement clinker and other main or minor constituents into a finely ground, usually grey colored mineral powder. Cement is just one ingredient in the mixture that creates concrete, but it is the most chemically active ingredient and crucial to the quality of the final product. When mixed with water, cement acts as a glue to bind together the sand, gravel or crushed stone to form concrete, one of the most durable, resilient and widely used construction materials in the world. EcoCem®PLC, Heidelberg Material's branded GUL/Type IL cement, is manufactured to provide strength and durability while reducing carbon footprint of the cement. This product is a portland limestone cement product for concrete and mortar as well as all various applications for cement, including engineered soils and solidification/stabilization of materials and wastes.



Materials and Composition

Product	Product components
GUL	Clinker, Limestone, Synthetic Gypsum, Grinding Aids

Hazardous Materials

No hazardous substances are contained in the products according to the normative requirements of the US and Canadian EPD markets per the Smart EPD Part A PCR.

Wastes classifications have been assessed per the Canadian waste classification: Transportation of Dangerous Goods (TDG) Regulations (SOR/2001-286); The Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2021-25).

EPD Representativeness

Primary Data Year	2024	
Manufacturing Specificity	X	Industry average
	X	Manufacturer average
	✓	Facility-specific
	✓	Product-specific
	X	Product-average

System Boundary

Production	A1	Raw material supply	✓
	A2	Transport	✓
	A3	Manufacturing	✓
Construction	A4	Transport to site	
	A5	Assembly / install	
Use	B1	Use	
	B2	Maintenance	
	B3	Repair	
	B4	Replacement	
	B5	Refurbishment	
	B6	Operational energy use	
	B7	Operational water use	
End of Life	C1	Deconstruction	
	C2	Transport	
	C3	Waste processing	
	C4	Disposal	
Benefits & Loads Beyond System Boundary		D	Recycling, reuse, recovery potential

General Cement System Boundary Diagram

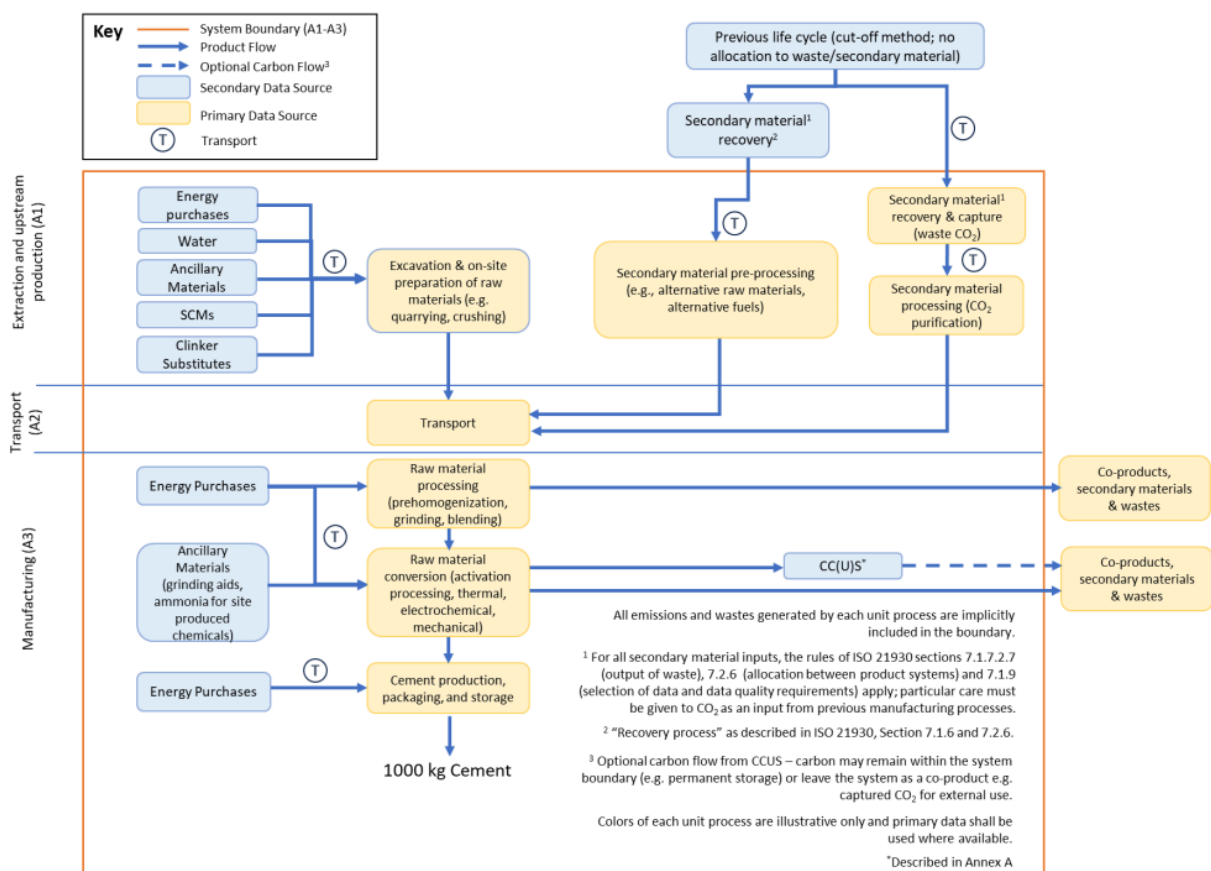


Diagram from Smart EPD (2025) Part B Product Category Rules for Cements for Construction Version 4.0. Standard 1000-010

Manufacturing Process Description

GUL

GUL cement manufacturing uses clinker as a main cementitious input; additional raw materials include synthetic gypsum, limestone, and grinding aids. These materials are ground together using electricity to produce GUL Cement.

Software and Data

Software

LCA Software	Pathways v1.0
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Data Quality

Indicator	Definition	Data Quality Score Meaning	Data Quality Score (1=lowest; 5=highest)
Temporal representativeness	Indicates the temporal difference between the date of data generation and the date the data are supposed to represent based on the PCR	Previous calendar or financial year (1 year)	1
Geographical representativeness	Indicates how well the geographical area from which data for a unit process are collected satisfies the goal of the study	Site-specific data	1
Technological Representativeness	Indicates technical representativeness based on four categories: process design, operating conditions, material quantity/type and process scale	Site-specific data	1
Reliability (Precision, Accuracy, Verification)	Indicates quality of data generation method and verification of data collection methods	Combustion emissions	1
		Calcination emissions	1
		Thermal energy quantity by source type	Site-specific data 1
		Electricity quantities	Site-specific data 1
		Raw material quantities	Site-specific data 1
		Waste quantities	Site-specific data 1
		Inbound transport distance	Site-specific data 1
		Outbound transport distances from A3	Default values 2
		Raw material quantities	Site-specific data 1
		Waste quantities	Site-specific data 1

Data Sources

Material/ Process Category	Module	Material/ Process Name	Inventory Dataset Name	Dataset Geographi c Region	Reporting Period/Year Dataset Represents	Reference
Material/ Product	A1	Aggregate - Sand (Natural)	Gravel and sand quarry operation (Ecoinvent 3.10)	Rest of World	1997-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.
	A1	Construction and demolition refuse derived fuel (CDRDF) production	Custom Construction and Demolition Residue Derived Fuel Activity using Ecoinvent processes	Rest of World	2010-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.
	A1	Aggregate - Crushed limestone	Market for crushed limestone, for mill - RoW (Ecoinvent 3.10)	Rest of World	2011-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.
	A1	Ammonia	Ammonia steam reforming liquid, at plant - RNA (USLCI)	United States	1972-2002	U.S. Life Cycle Inventory Database. (2012). National Renewable Energy Laboratory. Accessed Sept. 9, 2025: https://www.lcacommons.gov/nrel/search
	A1	Mill scale	Treatment of mill scale, residual material landfill - GLO (Ecoinvent 3.10)	Global	2010-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.
	A1	Silica	Silica sand production - RoW (Ecoinvent 3.10)	Rest of World	2010-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.
	A1	Ponded/Bottom Ash	Treatment of bottom ash, MSWI-WWT-SLF, hard coal ash, slag compartment - GLO (Ecoinvent 3.10)	Global	2010-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.
	A1	Shale	Market for shale - GLO (Ecoinvent 3.10)	Global	2010-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.
	A1	Slag	Burden-free production - GLO (Ecoinvent 3.10)	Global	2010-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.

	A1	Natural gas production	market for natural gas, high pressure, custom dataset	Alberta, CA	2010-2024	See Section 3.4
	A1-A2	Coal production	Market for hard-coal - RNA (Ecoinvent 3.10)	North America	2014-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.
	A1-A2	Tire derived fuel (TDF) production	Custom pathways activity using Ecoinvent 3.10 datasets	Rest of World	2010-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.
	A1-A2	Refuse-derived fuel (RDF)	Market for municipal solid waste - CA (Ecoinvent 3.10)	Canada	2010-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.
	A1-A2	Construction and demolition refuse derived fuel (CDRDF) production	Custom pathways activity using Ecoinvent 3.10 datasets	Rest of World	2010-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.
	A1	Grinding aids	Alkylbenzene sulfonate production, linear, petrochemical RoW (Ecoinvent 3.10)	Rest of World	1992-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.
	A1	Synthetic gypsum	Market for gypsum, mineral - RoW (Ecoinvent 3.10)	Rest of World	2017-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.
	A3	Process water	Market for tap water - RoW (Ecoinvent 3.10)	Rest of World	2012-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.
Transportation	A2	Aggregate - Sand (Natural) Transport	Transport, combination truck, short-haul, diesel powered (USLCI)	United States	2024	U.S. Life Cycle Inventory Database. (2012). National Renewable Energy Laboratory. Accessed Sept. 9, 2025: https://www.lcacommons.gov/nrel/search
	A2	Aggregate - Crushed limestone transport	Transport, barge, diesel-powered (USLCI)	United States	2005-2013	U.S. Life Cycle Inventory Database. (2012). National Renewable Energy Laboratory. Accessed Sept. 9, 2025: https://www.lcacommons.gov/nrel/search
	A2	Ammonia transport	Transport, combination truck, short-haul, diesel powered (USLCI)	United States	2024	U.S. Life Cycle Inventory Database. (2012). National Renewable Energy Laboratory. Accessed Sept. 9, 2025: https://www.lcacommons.gov/nrel/search
	A2	Slag cement transport	Transport, combination truck, short-haul, diesel powered (USLCI)	United States	2024	U.S. Life Cycle Inventory Database. (2012). National Renewable Energy Laboratory. Accessed Sept. 9, 2025: https://www.lcacommons.gov/nrel/search
	A2	Mill scale transport	Transport, combination truck, short-haul, diesel powered (USLCI)	United States	2024	U.S. Life Cycle Inventory Database. (2012). National Renewable Energy Laboratory. Accessed Sept. 9, 2025: https://www.lcacommons.gov/nrel/search

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	A2	Grinding aid transport	Transport, combination truck, short-haul, diesel powered (USLCI)	United States	2024	U.S. Life Cycle Inventory Database. (2012). National Renewable Energy Laboratory. Accessed Sept. 9, 2025: https://www.lcacommons.gov/nrel/search
	A2	Synthetic gypsum transport	Transport, combination truck, short-haul diesel powered (Adjusted Petroleum for Diesel Coproduct) (USLCI); Market for transport, freight, sea, containership	United States	2024	See section 3.4
Electricity	A3	Electricity	British Columbia Statcan 2024 Electricity Dataset	British Columbia, CA	2024	See section 3.4
Energy	A3	Diesel - mobile equipment	Diesel, combusted in industrial equipment (USLCI)	United States	2003	U.S. Life Cycle Inventory Database. (2012). National Renewable Energy Laboratory. Accessed Sept. 9, 2025: https://www.lcacommons.gov/nrel/search
	A3	Gasoline - mobile equipment	Gasoline, combusted in industrial equipment (USLCI)	United States	1995-2002	U.S. Life Cycle Inventory Database. (2012). National Renewable Energy Laboratory. Accessed Sept. 9, 2025: https://www.lcacommons.gov/nrel/search
	A3	Natural gas	n/a (primary data using CEMS data)	British Columbia, CA	2024	n/a (primary data from CEMs and ultimate analysis)
	A3	Tire derived fuel (TDF)	n/a (primary data using CEMS data)	British Columbia, CA	2024	n/a (primary data from CEMs and ultimate analysis)
	A3	Refuse derived fuel (RDF)	n/a (primary data using CEMS data)	British Columbia, CA	2024	n/a (primary data from CEMs and ultimate analysis)
	A3	Construction and demolition refuse derived fuel (CDRDF) production	n/a (primary data using CEMS data)	British Columbia, CA	2024	n/a (primary data from CEMs and ultimate analysis)
Waste/Other	A1-A3	Non-hazardous waste	Treatment of inert waste, sanitary landfill - RoW (Ecoinvent 3.10)	Rest of World	2012-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.
	A1-A3	Hazardous waste	Treatment of hazardous waste, hazardous waste incineration - RoW (Ecoinvent 3.10)	Rest of World	1997-2003	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.
	A1-A3	wastewater	Treatment of wastewater, average, wastewater	Rest of World	2010-2023	ecoinvent Association. (2023). <i>ecoinvent database, version 3.10</i> . Zurich, Switzerland: ecoinvent Association.

			treatment - RoW (Ecoinvent 3.10)			
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LCA Discussion

Allocation Procedure

Allocation follows the requirements and guidance of ISO 14044:2006, Clause 4.3.4; ISO 21930:2017 section 7.2 and Smart EPD (2025) Part B Product Category Rules for Cements for Construction Version 4.0. Recycling and recycled content is modeled using the cut-off rule.

This sub-category PCR recognizes coal combustion products, other combustion ashes, granulated blast-furnace slag, silica fume, off-spec lime, mine tailings, recycled concrete fines, ponded/washed fines from grinding or crushing of aggregates, metallurgical slag, flue gas desulfurization gypsum, lime kiln dust, and cement kiln dust as recovered materials and thus the environmental impacts allocated to these mate

Cut-Off Procedure

All known energy and material flow data were included in accordance with the system boundary. Proxy data were used as needed in the model to capture all considered life cycle impacts, aligning with ISO requirements for data completeness.

Items excluded from system boundary include:

- Production, manufacture and construction of manufacturing capital goods and infrastructure;
- Production and manufacture of production equipment, delivery vehicles, and laboratory equipment;
- Personnel-related activities (travel, furniture, and office supplies); and
- Energy and water use related to company management and sales activities that may be located either within the factory site or at another location.

Results

Impact Assessment	Unit	A1	A2	A3	A1-A3
Global warming potential - total (GWP-total)	kg CO ₂ eq	10.96	20.25	641.22	672.42
Global warming potential – fossil (GWP-fossil)	kg CO ₂ eq	10.9	20.2	637.0	667.0
Global warming potential – biogenic (GWP-biogenic)	kg CO ₂ eq	0.03	0	4.68	4.7
Global warming potential – luluc (GWP-luluc) ¹	kg CO ₂ eq	0	0	0	0
Global warming potential – CC (GWP-CC)	kg CO ₂ eq	0	0	0	0
Global warming potential – S (GWP-S)	kg CO ₂ eq	0	0	0	0
Global warming potential – U (GWP-U)	kg CO ₂ eq	0	0	0	0
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq	1.5E-07	3.4E-07	3.2E-06	3.7E-06
Eutrophication potential - marine (EP-marine)	kg N eq	8.6E-03	0.01	0.16	0.18
Eutrophication potential - freshwater (EP-freshwater)	Kg P eq	8.1E-04	3.5E-05	0	0
Acidification potential of soil and water sources (AP)	kg SO ₂ eq	0.1	0.16	1.35	1.6
Formation potential of tropospheric ozone (POCP)	kg O ₃ eq	2.2	3.0	47.8	53.0
Resource Use					
Use of renewable primary energy resources (RPR _E)	MJ	4.8	0	185	190
Use of renewable primary energy resources used as raw materials (RPR _M)	MJ	0	0	184	184
Total use of renewable primary energy resources (RPR _T)	MJ	4.8	0	369	374
Use of non-renewable primary energy resources (NRPR _E)	MJ	112	0	0	1.0
Use of non-renewable primary energy resources used as raw materials (NRPR _M)	MJ	37	0	255	293
Total use of non-renewable primary energy resources (NRPR _T)	MJ	149	0	0	294
Use of secondary material (SM)	kg	0.06	0	0.21	0.27
Use of renewable secondary fuels (RSF)	MJ	1.3E-03	0	7.9E-04	2.1E-03
Use of non-renewable secondary fuels (NRSF)	MJ	0	0	0	0
Use of net fresh water (FW)	m ³	1.59	0	91.6	93.2
Use of recovered energy (RE)	MJ	0.11	0	0.37	0.48
Waste & Output Flows					
Hazardous waste disposed (HWD)	kg	2.6	0	1.6	4.1
Non-hazardous waste disposed (NHWD)	kg	8.4	0	3741.0	3750.0
High-level radioactive waste (HLRW)	kg	1.2E-05	0	4.8E-05	6.0E-05
Intermediate and low-level radioactive waste (ILLRW)	kg	3.0E-05	0	1.1E-04	1.4E-04
Components for reuse (CFR)	kg	0	0	0	0
Materials for recycling (MFR)	kg	1.9E-03	0	3.9	3.9
Materials for energy recovery (MER)	kg	4.1E-05	0	8.6E-06	4.9E-05

Additional Carbon Emissions and Removals

Parameter	Value, kg CO ₂ eq
Biogenic Carbon Removal from Product	0
Biogenic Carbon Emission from Product	0
Biogenic Carbon Removal from Packaging	0
Biogenic Carbon Emission from Packaging	0
Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes	38.3
Calcination Carbon Emissions	363
Carbonation Carbon Removals	0
Carbon Emissions from Combustion of Waste from Non-Renewable Sources used in Production Processes	0
Global Warming Potential - Carbon Capture	0
Global Warming Potential - Sequestration	0
Global Warming Potential - Utilization	0
Global Warming Potential - Carbon Capture, Utilization, and Sequestration	0

GWP Impact Reporting for Different Processes

Impact Category	Unit	Primary Fuels Combustion	Alternative Fuels Combustion	Calcination	Other	GWP-CC	GWP-S	GWP-U	GWP-CCUS
GWP	Fossil	kg CO ₂ eq	208.1	10.9	363	0	0	0	0
	Biogenic	kg CO ₂ eq	0	38.3	0	0	0	0	0
	Total	kg CO ₂ eq	208.1	49.2	363	0	0	0	0

Note: comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building or construction works has been specified. Comparisons may be made between product-specific or industry average EPDs at the time of product purchase only when product or construction works performance and specifications have been established and serve as a functional unit for comparison. Environmental impact results shall be converted to a functional unit basis before any comparison is attempted. Any comparison of EPDs shall be subject to the requirements of ISO 21930 or EN 15804. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries, are based on different product category rules or are missing relevant environmental impacts. Such comparisons can be inaccurate and could lead to erroneous selection of materials or products that are higher-impact, at least in some impact categories.

Additional Environmental Information

Additional information for reporting transport from cement plant gate

Plant/Gate Location	Percent of Supply	Transport Mode (Leg 1)	Distance and Unit	End User or Terminal Location
Delta, BC	100%	Barge	77 km	Bamberton, BC - 1451 Trowsse Road, Mill Bay
Delta, BC	100%	Barge	179 km	Everett, WA - Pier 3, 2730 Terminal Ave
Delta, BC	100%	Rail	426 km	Kamloops, BC - 9785 E Trans Canada Hwy
Delta, BC	100%	Barge	879 km	Kitimat, BC - Smelter Site Rd
Delta, BC	100%	Rail	517 km	Portland, OR - 4035 SE - 22nd Ave
Delta, BC	100%	Barge	192 km	Seattle, WA - 5225 E Marginal Way S

Environmental Management System (EMS)

The Delta Plant has an EMS in place. The EMS identifies environmental impacts and ensures that control procedures are continually updated to reflect current environmental knowledge and regulations. Environmental policies and procedures are written in the EMS manual which serves as a reference and provides operating personnel with environmental procedures. For environmental reporting the plant complies with the Canadian and British Columbia providential protection requirements and emissions reports:

- Canadian National Pollutant Release Inventory (NPRI) which is federal.
- Greenhouse Gas Industrial Reporting and Control Act – Here in BC we report CO₂ emissions to both federal and provincial. In Delta's case, the emissions are audited and verified by Price Waterhouse Cooper.
- Output-Based Pricing System (OBPS) for CO₂ under the BC Ministry of Energy and Climate Solutions. CO₂ are reporting to the BC Industrial Emissions Reporting System (BCIERS).
- WBCSD Cement Sustainability Initiative Cement CO₂ and Energy Protocol, Version 3.1.
- Multi-Sector Air Pollutants Regulations (MSAPR) under the Federal Government.

Air Permit

The Delta Plant has an air quality permit with the regional regulator Metro Vancouver (formerly the Greater Vancouver Regional District (GVRD)). It is Permit GVA0175 under GVRD Air Quality Management Bylaw No. 1082, 2008 and the BC Environmental Management Act, S.B.C 2003,c.53.

Used Oil, Waste Oil Products, Waste Chemicals and Anti-Freeze:

The Delta plant stores these wastes in appropriate storage bins and containers in a containment area. A third-party contractor removes this waste and properly disposes of it as per provincial regulations. Communication of final disposal is given to the Delta plant.

Recycling Programs

The Delta plant has taken steps for warehouse storage and maintains third party contractors that pick up and recycle the following from the Delta plant and office operations: used batteries (including used vehicle batteries), paper and cardboard, outdated or damaged electronic hardware and parts, lightbulbs, metals, wood pallettes.

Heidelberg Materials Sustainability Commitments 2030

The world needs smart, sustainable and resilient infrastructure, buildings and public spaces. At Heidelberg Materials, we have transformed our business to address these challenges, and placed sustainability at the core of what we do.

The United Nations Sustainable Development Goals (SDGs) shape our strategy and sustainability commitments. Our Sustainability Commitments 2030 support our vision to build a more sustainable future that is net zero, safe and inclusive, nature positive, and circular and resilient. Learn more at Sustainability Commitments 2030 (heidelbergmaterials.com/en/sustainability).

References

- ACLCA. (2018). *ACLCA Guidance to Calculating Non-LCIA Inventory Metrics in Accordance with ISO 21930: 2017*.
- ACLCA. (2025). *EPD classifications addendum 2025: Guidance for determining EPD types and calculating and communicating data specificity through the supply chain*. ACLCA.
- Bare, J. (2011). TRACI - The Tool for the Reduction and Assessment of Chemical and other Environmental Impacts. *CLEAN TECHNOLOGIES AND ENVIRONMENTAL POLICY*.
- European Standards. (2012). *EN 15804 - 2012 Sustainability of construction works, Environmental product declarations, Core rules for the product category of construction products*.
- Guinée, J.B. et al. (2002). *Handbook on life cycle assessment. Operational guide to the ISO standards. I: LCA in perspective. IIa: Guide. IIb: Operational annex. III: Scientific background*. Dordrecht: Kluwer Academic Publishers.
- IPCC. (2021). *Climate Change 2021: The Physical Science Basis*. IPCC.
- ISO. (2006a). *14040:2006/Amd.1:2020 – Environmental management — Life cycle assessment — Principles and framework*. Geneva: International Organization of Standardization.
- ISO. (2006b). *14044:2006/Amd.1:2017/Amd.2:2020 – Environmental management — Life cycle assessment — Requirements and guidelines*. Geneva: International Organization for Standardization.
- National Renewable Energy Laboratory. (2012). *U.S. Life Cycle Inventory Database*. U.S. Department of Energy. <https://www.lcacommons.gov/nrel/search>
- Smart EPD (2025) *Part A Product Category Rules for Building and Construction Products and Services 1000-012*. Published March 14, 2025. www.smartepd.com.
- Smart EPD (2025) *Part B Product Category Rules for Cements for Construction Version 4.0. Standard 1000-010*. Published July 2, 2025. www.smartepd.com.
- Statistics Canada. (2024). *Electric power generation, fuel consumed and cost of fuel by electricity generating thermal plants (Table 25-10-0084-01)*. <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=2510008401>
- UL Environment. (2022). *Part A: Life Cycle Assessment Calculation Rules and Report Requirements*. UL Environment.
- Wernet, G., Bauer, C., Steubing, B., Reinhard, J., Moreno-Ruiz, E., & Weidema, B. (2016). The ecoinvent database version 3 (part I): overview and methodology. *The International Journal of Life Cycle Assessment*, 1218-1230.