Environmental Product Declaration

IN ACCORDANCE WITH ISO 14025 AND ISO 21930:2017

Program Operator: Smart EPD®
www.smartepd.com

SmartEPD-2025-001-0490-01

Stonshield Aggregate

Date of Issue	Expiration date	Last updated
Jun 09, 2025	**Jun 09, 2030**	**Jun 09, 2025**

STONHARD

Refer to the EPD Library at www.smartepd.com for the latest EPD listing information

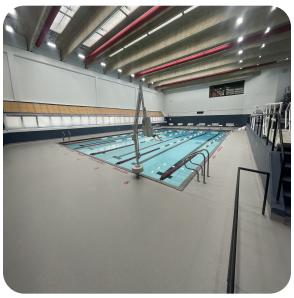
General Information

Stonhard

1000 E. Park Ave., Maple Shade, NJ 08052

1-800-257-7953

ctrageser@stonhard.com stonhard.com



Product Name:	Stonshield Aggregate
Declared Unit:	1 kg
Declaration Number:	SmartEPD-2025-001-0490-01
Date of Issue:	June 09, 2025
Expiration:	June 09, 2030
Last updated:	June 09, 2025
EPD Scope:	Cradle to gate with other options A1 - A3, A4, A5, C1 - C4, D
Market(s) of Applicability:	North America

General Organization Information

Stonhard is the unprecedented leader in manufacturing and installing high performance floors. Our seamless, long lasting, easy to clean systems are engineered for both industrial and commercial markets. We also bring the same performance to our wall and lining systems. Joining form and function, our floors are the dependable go-to choice for tough manufacturing environments, while still honoring innovative design for commercial environments. Epoxy, urethane and fast-track methyl methacrylate resin-based systems deliver a broad range of options for every market and application.

Stonhard manufactures and installs products throughout the world with headquarters in Maple Shade, New Jersey. Stonhard is an ISO-9001 registered company.

Further information can be found at: https://www.stonhard.com/about-us/who-we-are/

Limitations, Liability, and Ownership

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 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 results for upstream or downstream of the life cycle stages declared. The EPD owner has sole ownership, liability, and responsibility for the EPD.

Reference Standards

Standard(s):	ISO 14025 and ISO 21930:2017
Core PCR:	Smart EPD® Part A Product Category Rules for Building and Construction Products and Services, 1000, v1.01 Date of issue: January 15, 2024 Valid until: July 15, 2025

Sub-category PCR review panel:	Contact Smart EPD for more information.
General Program Instructions:	Smart EPD General Program Instructions v.1.0, November 2022

Verification Information

ACLCA PCR Guidance Version:	1.0
ACLCA PCR Conformance Level:	Transparency
LCA Author/Creator:	Juan David Villegas | juan@parqhq.com
EPD Program Operator:	Smart EPD | info@smartepd.com | www.smartepd.com | 585 Grove St., Ste. 145 PMB 966, Herndon, VA 20170, USA
Verification:	Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071: External Rifat Karim | Independent Consultant | rifat.chimique@gmail.com Independent external verification of EPD, according to ISO 14025 and reference PCR(s): External Rifat Karim | Independent Consultant | rifat.chimique@gmail.com

Product Information

Declared Unit:	1 kg
Mass:	1 kg
Reference Service Life:	60 Years
Product Specificity:	✗ Product Average ✓ Product Specific

Product Description

Stonshield Aggregate is a brightly colored, quartz broadcast aggregate.

Further information can be found at: https://www.stonhard.com/products/stonshield/

Product Specifications

Product Classification Codes:	EC3 - Finishes -> Flooring -> OtherFlooring

Material Composition

Material/Component Category	Origin	% Mass
Aggregate		79 - 100
Polyol		< 10
Water		< 10

Packaging Material	Origin	kg Mass
Supersack		0.002

Hazardous Materials
quartz (silicon dioxide) (14808-60-7)
titanium dioxide (13463-67-7)

EPD Data Specificity

Primary Data Year: June 1st 2023 to May 31st 2024

Manufacturing Specificity:

- ✗ Industry Average
- ✗ Manufacturer Average
- ✓ Facility Specific

Averaging:

Averaging was not conducted for this EPD

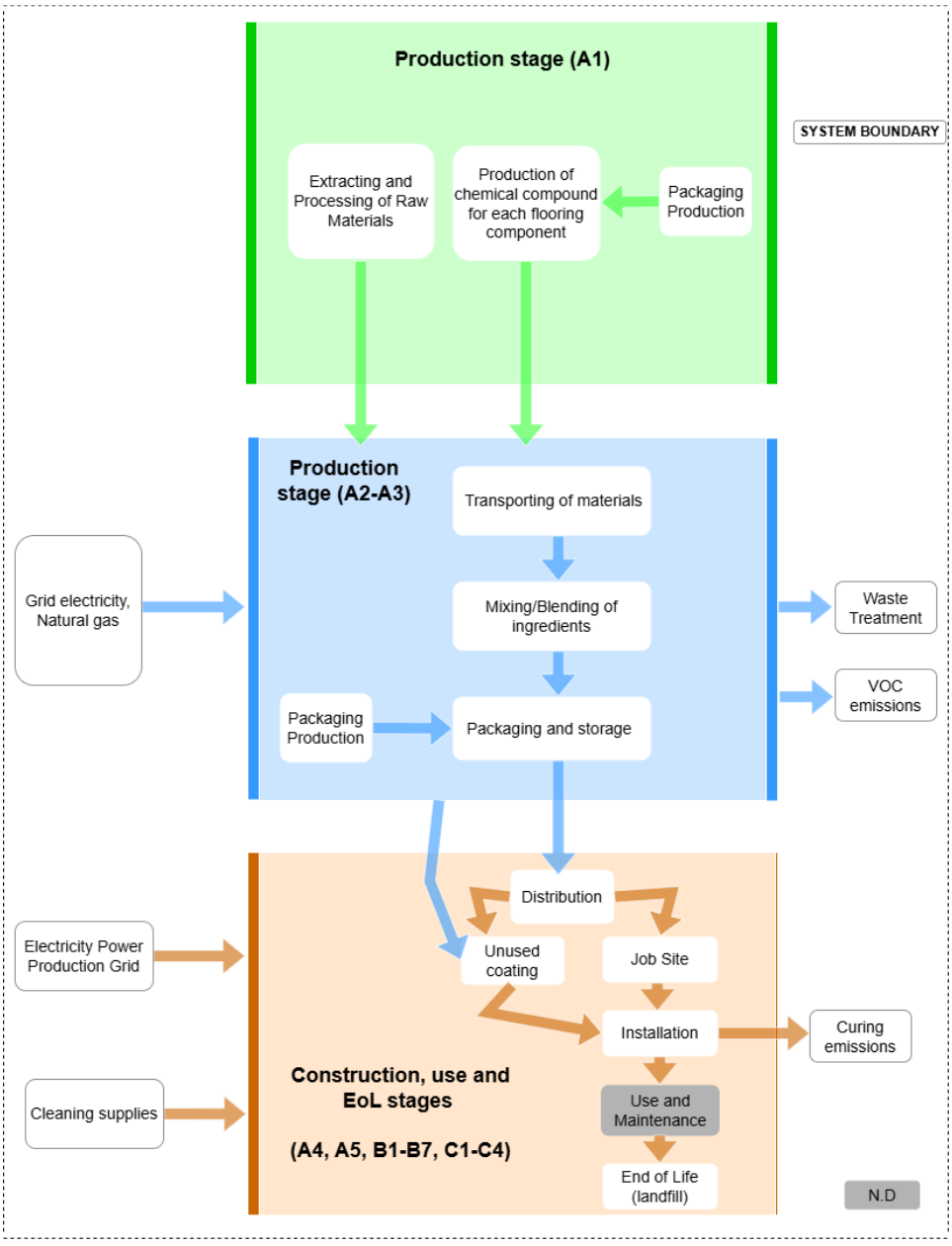
System Boundary

Production	A1	Raw material supply	✓
	A2	Transport	✓
	A3	Manufacturing	✓
Construction	A4	Transport to site	✓
	A5	Assembly / Install	✓
Use	B1	Use	ND
	B2	Maintenance	ND
	B3	Repair	ND
	B4	Replacement	ND
	B5	Refurbishment	ND
	B6	Operational Energy Use	ND
	B7	Operational Water Use	ND
End of Life	C1	Deconstruction	✓
	C2	Transport	✓
	C3	Waste Processing	✓
	C4	Disposal	✓
Benefits & Loads Beyond System Boundary	D	Recycling, Reuse Recovery Potential	✓

Plants

Stonhard Fort Wayne
Fort Wayne, IN, USA

Product Flow Diagram



Software and Database

LCA Software:	SimaPro v. 9.5
LCI Foreground Database(s):	Ecoinvent v. 3.9.1

LCI Background Database(s): Ecoinvent v. 3.9.1

Data Quality

The quality of inventory data is evaluated based on several criteria, including precision, completeness, consistency, and representativeness.

Precision and completeness:

- Precision: The inventory data used in this study were either directly measured, calculated, or estimated based on primary data sources, ensuring high precision. Background data from ecoinvent v3 database also has documented precision to the extent available.
- Completeness: The product system's mass balance and inventory completeness were thoroughly checked. Some exclusions were made in line with the PCR requirements, such as personnel impacts, R&D activities, business travel, secondary packaging, point of sale infrastructure, and the coating applicator. However, no data was intentionally omitted.

Consistency and reproducibility:

- Consistency: Primary data were collected with a similar level of detail, while background data primarily came from the ecoinvent database, with other databases used only if necessary or more representative. The modeling approach and other methodological choices were applied consistently throughout the model.
- Reproducibility: This study ensures reproducibility by providing comprehensive disclosure of input-output data, dataset choices, and modeling approaches. A knowledgeable third party should be able to approximate the results using the same data and modeling methods.

Representativeness:

- Temporal: Primary data were collected for a 12 month period starting on June 2023 and ending on May 2024 to ensure the representativeness of post-consumer content. Secondary data from the ecoinvent v3 database is typically representative of recent years.
- Geographical: Primary data represent Stonhard's production facilities in Mapple Shade, NJ, US. Where applicable, differences in electric grid mix were considered using appropriate secondary data. The use of country-specific data ensures high geographical representativeness, and proxy data were only used when country-specific data were unavailable..
- Technological: Both primary and secondary data were tailored to the specific technologies studied, ensuring high technological representativeness.

Life Cycle Module Descriptions

Primary data were collected for a 12-month period from June 2023 and ending on May 2024 to ensure technical, geographical, and temporal representativeness. The manufacturing process starts with the reception of raw materials, typically in the form of chemical packages (cans, supersacks, bags, pails, among others). Next, the raw materials are mixed to forms resins and additives. After this step, the products are packaged and distributed to various distribution centers. Non-hazardous waste, consisting mainly of packaging waste materialas, is sent for disposal, incineration, and/or recycling. Hazardous waste consist on manufacturing, product losses and its disposal is model according to PCR descriptions (solvent-based coatings are incinerated for energy recovery and water-based coatings are sent to landfill).

LCA Discussion

Allocation Procedure

Allocation of co-products was avoided, to the extent it was possible, based on the guidance given in ISO 14044:2006, 4.3., in ISO 21930:2017. Energy use and VOC emissions at the Maple Shade, NJ factory were allocated by mass. Overhead burdens (building heating and corporate use consumption) were excluded using a square footage factor, that benchmarked and validated with process engineering models of resinous floor coatings production. The process do not consume process water or generate wastewater . Solid waste was estimated using packaging masses and material losses and allocated following the polluter pays principle.

Cut-off Procedure

The system boundary was defined based on relevance to the goal of the study. For the raw material (A1) and process related inputs (A3), all available energy and material flow data have been included in the model. Exclusions allowed by the PCR such as secondary and tertiary packaging, were implemented, as well as overhead burdens such as building heating and corporate office consumption.

Renewable Electricity

Energy Attribute Certificates (EACs) such as Renewable Energy Certificates (RECs) or Power Purchase Agreements (PPAs) are included in the baseline reported results:	✕ No

Scenarios

Transport to the building/construction site (A4)

A4 Module

Fuel Type:	Diesel
Vehicle Type:	Truck and Trailer
Transport Distance:	2.06E+03 km
Capacity Utilization:	33 %
Packaging Mass:	2.35E-03 kg
Weight of products transported:	1.002E+00 kg
Capacity utilization volume factor:	=1
Assumptions for scenario development:	Transport distance includes finished product to distribution center and distribution center to point of sale.

Installation in to the building/construction site (A5)

A5 Module

Product Lost per Declared/Functional Unit:	0.02 kg
Waste Materials at the Construction Site Before Waste Processing:	2.24E-02 kg
Mass of Packaging Waste Specified by Type:	2.353e-03 kg
Biogenic Carbon Contained in Packaging:	0 kg
Direct Emissions to Ambient Air, Soil and Water:	0 kg
VOC Emissions:	0 ug/m3

End of Life (C1 - C4)

C1 - C4 Modules

Collection Process

Collected with Mixed Construction Waste:	9.800e-01 kg

Recovery

Landfill:	9.800e-01 kg

Reuse, Recovery and / or Recycling Potentials & Relevant Scenario Information (D)

D Module

Recycling Rate of Product:	0 %
Recycled Content of Product:	0 %
Net Energy Benefit from Energy Recovery from Waste Treatment Declared as Export Energy in C3:	0 MJ
Net Energy Benefit from Thermal Energy Due to Treatment of Waste Declared as Exported Energy in C4:	0 MJ
Net Energy Benefit from Material Flow Declared in C3 for Energy Recovery:	0 MJ
Process and Conversion Efficiencies:	1:1 functional equivalency of recycled packaging material
Further assumptions for scenario development:	Environmental benefits and loads beyond the system boundary are linked to the recycling of a fraction of the packaging waste in A3 and A5 (ISO 21930 7.1.7.6)

Results

Environmental Impact Assessment Results

IPCC AR5 GWP 100, TRACI 2.1

per 1 kg of product .

LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

Impact Category	Method	Unit	A1A2A3	A4	A5	C1	C2	C3	C4	D
GWP-total	IPCC AR5 GWP 100	kg CO2-eq	3.14e-1	2.18e-1	1.56e-2	0	3.38e-3	0	2.03e-1	-2.81e-2
ODP	TRACI 2.1	kg CFC-11 eq	5.90e-9	3.74e-9	3.06e-10	0	5.80e-11	0	5.56e-9	-1.24e-10
AP	TRACI 2.1	kg SO2 eq	1.20e-3	6.95e-4	5.25e-5	0	1.08e-5	0	7.02e-4	-5.07e-5
EP	TRACI 2.1	kg N eq	7.41e-4	1.92e-4	3.29e-5	0	2.98e-6	0	7.00e-4	-1.75e-5
POCP	TRACI 2.1	kg O3 eq	2.16e-2	1.59e-2	9.92e-4	0	2.47e-4	0	1.14e-2	-1.39e-3

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

GWP = Global Warming Potential, 100 years (may also be denoted as GWP-total, GWP-fossil (fossil fuels), GWP-biogenic (biogenic sources), GWP-luluc (land use and land use change)), ODP = Ozone Depletion Potential, AP = Acidification Potential, EP = Eutrophication Potential, SFP = Smog Formation Potential, POCP = Photochemical oxidant creation potential, ADP-Fossil = Abiotic depletion potential for fossil resources, ADP-Minerals&Metals = Abiotic depletion potential for non-fossil resources, WDP = Water deprivation potential, PM = Particular Matter Emissions, IRP = Ionizing radiation, human health, ETP-fw = Eco-toxicity (freshwater), HTP-c = Human toxicity (cancer), HTP-nc = Human toxicity (non-cancer), SQP = Soil quality index.

Comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building has been specified. Comparisons may be made between product-specific or industry average EPDs at the time of product purchase when product 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. 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 comparison can be inaccurate, and could lead to erroneous selection of materials or products which are higher-impact, at least in some impact categories.

Resource Use Indicators

per 1 kg of product .

Indicator	Unit	A1A2A3	A4	A5	C1	C2	C3	C4	D
RPRE	MJ	7.36e-2	3.01e-2	3.12e-3	0	4.68e-4	0	5.17e-2	-2.36e-3
RPRM	MJ	8.95e-1	9.96e-3	3.29e-2	0	1.55e-4	0	7.40e-1	-7.47e-4
RPRT	MJ	9.69e-1	4.01e-2	3.60e-2	0	6.23e-4	0	7.92e-1	-3.11e-3
NRPRE	MJ	4.99e+0	3.16e+0	2.10e-1	0	4.91e-2	0	2.27e+0	-4.56e-1
NRPRM	MJ	1.13e-4	5.45e-5	5.51e-6	0	8.46e-7	0	1.07e-4	-2.10e-6
NRPRT	MJ	4.99e+0	3.16e+0	2.10e-1	0	4.91e-2	0	2.27e+0	-4.56e-1
ADPF	MJ	6.03e-1	4.44e-1	2.39e-2	0	6.90e-3	0	1.40e-1	-6.64e-2
FW	m3	2.36e-3	4.13e-4	7.64e-5	0	6.42e-6	0	9.76e-4	-2.98e-5
RE	MJ	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
SM	kg	0	0	0	0	0	0	0	0

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

RPRE or PERE = Renewable primary resources used as energy carrier (fuel), RPRM or PERM = Renewable primary resources with energy content used as material, RPRT or PERT = Total use of renewable primary resources with energy content, NRPRE or PENRE = Non-renewable primary resources used as an energy carrier (fuel), NRPRM or PENRM = Non-renewable primary resources with energy content used as material, NRPRT or PENRT = Total non-renewable primary resources with energy content, SM = Secondary materials, RSF = Renewable secondary fuels, NRSF = Non-renewable secondary fuels, RE = Recovered energy, ADPF = Abiotic depletion potential, FW = Use of net freshwater resources, VOCs = Volatile Organic Compounds.

Waste and Output Flow Indicators

per 1 kg of product .

Indicator	Unit	A1A2A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	2.00e-2	0	2.04e-2	0	0	0	1.00e+0	0
NHWD	kg	2.05e-2	0	2.55e-3	0	0	0	0	0
MR	kg	1.33e-4	0	2.14e-4	0	0	0	0	-3.45e-4
MER	kg	0	0	0	0	0	0	0	0
ILLRW	m3	0	0	0	0	0	0	0	0
HLLRW	m3	0	0	0	0	0	0	0	0

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

HWD = Hazardous waste disposed, NHWD = Non-hazardous waste disposed, RWD = Radioactive waste disposed, HLRW = High-level radioactive waste, ILLRW = Intermediate- and low-level radioactive waste, CRU = Components for re-use, MFR or MR = Materials for recycling, MER = Materials for energy recovery, MNER = Materials for incineration, no energy recovery, EE or EEE = Recovered energy exported from the product system, EET = Exported thermal energy.

Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-grave waste performance between products should be derived from these reported values

Carbon Emissions and Removals

per 1 kg of product .

Indicator	Unit	A1A2A3	A4	A5	C1	C2	C3	C4	D
Bio Carbon Removal from Product	kg C	0	0	0	0	0	0	0	0
Bio Carbon Emission from Product	kg C	0	0	0	0	0	0	0	0
Bio Carbon Removal from Packaging	kg C	-8.46e-3	0	0	0	0	0	0	0
Bio Carbon Emission from Packaging	kg C	8.46e-3	0	0	0	0	0	0	0
Bio Carbon Emission from Waste during Manufacturing (renewable source)	kg C	0	0	0	0	0	0	0	0
Calcination Carbon Removal	kg C	0	0	0	0	0	0	0	0
Carbonation Carbon Emission	kg C	0	0	0	0	0	0	0	0
Carbon Emission from Waste during Manufacturing (non-renewable source)	kg C	0	0	0	0	0	0	0	0

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

BCRP = Biogenic Carbon Removal from Product, BCEP = Biogenic Carbon Emission from Product, BCRK = Biogenic Carbon Removal from Packaging, BCEK = Biogenic Carbon Emission from Packaging, BCEW = Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes, CCE = Calcination Carbon Emissions, CCR = Carbonation Carbon Removals, CWNR = Carbon Emissions from Combustion of Waste from Non-Renewable Sources used in Production Processes, GWP-luc = Carbon Emissions from Land-use Change.

Impact Scaling Factors

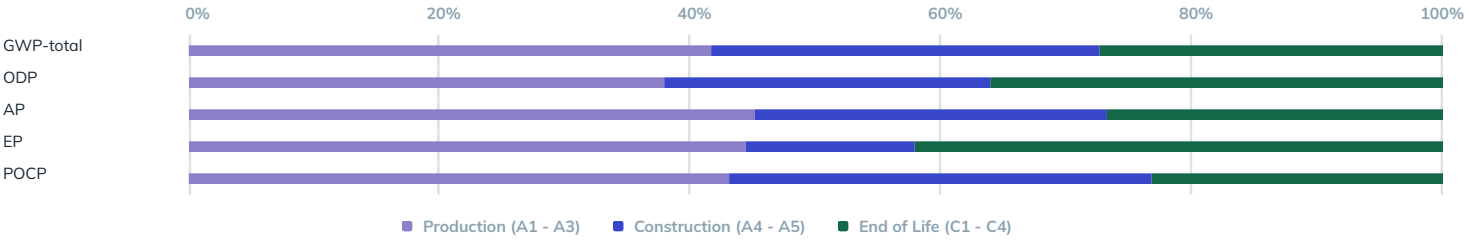
Product Name and/or Product Attribute	Product Specific Functional/Declared Unit Multiplier

Interpretation

Raw materials are sourced from suppliers, transported to manufacturing facilities, and mixed to produce products. The product stage (A1-A3) has the highest environmental impact, especially due to raw material production and energy use, impact amplified in the use phase (B4) from recoatings. The Market scenario shows higher use-phase impacts due to a shorter estimated service life (ESL).End-of-life impacts are relatively low, as products are assumed to be landfilled with building demolition waste. Switching to renewable energy is advised for products with high manufacturing energy demands. The manufacturer should explore lower-impact raw materials and work with suppliers using sustainable methods or renewable energy to enhance product sustainability.

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.



Additional Environmental Information

None

Further Information

Additional product information

Product density,	2.614 g/cm3
VOC content	0 g/l

References

• ISO 14025, Environmental labels and declarations -- Type III environmental declarations -- Principles and procedures, ISO14025:2006

• ISO 21930, Sustainability in buildings and civil engineering works Core rules for environmental product declarations of construction products and services. ISO21930:2017

• NSF International, Product Category Rules for Environmental Product Declarations for Resinous Floor Coatings, NSF International:2023.

• ISO 14044, Environmental management - Life cycle assessment - Requirements and guidelines, ISO14044:2006.

• Ecoinvent v3.9.1, December 2022. The ecoinvent database: Overview and methodology, Data quality guideline for the ecoinvent database version 3, www.ecoinvent.org

• Bare, J. C. TRACI 2.0 - The Tool for the Reduction and Assessment of Chemical and other environmental Impacts. CLEAN TECHNOLOGIES AND ENVIRONMENTAL POLICY. Springer-Verlag, New York, NY.