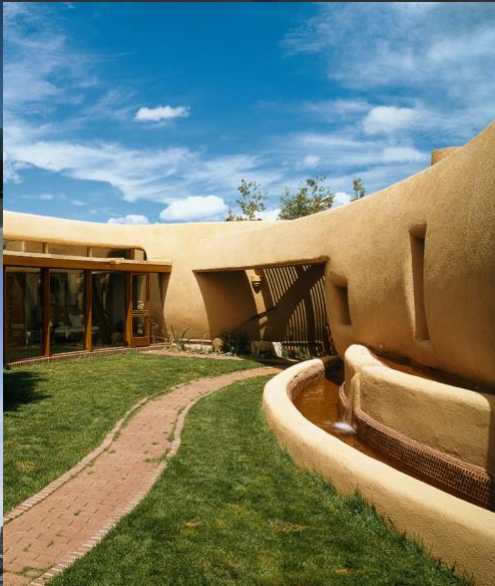




Building with conscience.

EPD for StoCarrier Board Aero

StoCarrier Board Aero is a lightweight composite board made of recycled glass granulate for use in the StoVentec Render Rainscreen® wall system for facades. It can also be used on interiors with Sto finish systems or over steel or wood frame ceilings and soffits.



ASTM INTERNATIONAL



EPD program operator	ASTM International 100 Barr Harbor Drive P.O. Box C700 West Conshohocken, PA 19428-2959, USA https://www.astm.org/	
Manufacturer name	Sto Corp. 3800 Camp Creek Parkway SW, Building 1400, Suite 120 Atlanta, GA 30331 www.stocorp.com (800) 221-2397	
Site(s) in which the results of the LCA are representative	Lauingen, Germany	
Declaration Number	EPD 1087	
Declared Product & Declared Unit	StoCarrier Board Aero One square meter (m ²) of manufactured product	
PCR Identification	UL Part A: Life cycle Assessment Calculation Rules and Reporting Requirements v4.0 UL Part B: Cladding Product Systems EPD Requirements, UL 10010-25, v2.0	
Product's intended application and use	For protection of facades and interior walls/ceilings	
Markets of applicability	North America	
Date of certification	December 9, 2025	
Period of validity	5 years from date of certification	
EPD type	Product-specific	
EPD scope	Cradle to gate with options (A1-A3, C1-C4)	
Year of reported primary data	Calendar year 2023	
LCA software and version Number	LCA for Experts (formerly GaBi) 10.9	
LCI database and version Number	MLC (formerly GaBi) Database Version 2024.2	
LCIA methodology and version number	IPCC AR5, TRACI 2.1 and CML-2016	
The sub-category PCR review was conducted by	Jim Mellentine Christopher White, Ph.D Philip S. Moser, P.E. (MA) Timothy S Brooke ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428 tbrooke@astm.org	
This declaration was independently verified in accordance with ISO 21930:2017, ISO 14025: 2006 and reference PCRs:		
<input type="checkbox"/> Internal <input checked="" type="checkbox"/> External		
This life cycle assessment was independently verified in accordance with ISO 21930:2017, ISO 14044 and reference PCRs by:	Thomas P. Gloria, Ph. D. Industrial Ecology Consultants 35 Bracebridge Rd. Newton, MA 02459-1728 t.gloria@industrial-ecology.com	

Limitations

Environmental product declarations from different EPD programs (ISO 14025) may not be comparable. Comparison of the environmental performance of Cladding Product Systems 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 building energy use phase. Full conformance with the PCR for Cladding Product allows EPD comparability only when all stages of a life cycle have been considered, when they comply with all referenced standards, use the same sub-category Part B PCR, and use equivalent scenarios with respect to construction works. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to different results for upstream or downstream of the life cycle stages declared.

» Company

We believe in **'Building with conscience'**.

That means ensuring that all building products are not only safe, effective and easy to install, but also environmentally responsible and sustainable. We know you're always looking for the smartest and newest technology to create energy efficient buildings with superior aesthetics.

That's exactly what our products help you achieve. Products like our wall systems, coatings and finishes are consistent favorites among design professionals, contractors and property owners alike. Whatever your needs or vision may be, we offer products for every type of building project; whether it's new construction, restoration or panelization, commercial or residential work.

An architect or specifier focuses on aesthetics and feasibility, a contractor needs products that are easy to work with, and a building owner requires high value and low costs on properties. Sto understands these unique needs, and delivers the smart, innovative materials and solutions that make this all possible. That's why Sto remains the innovative leader in integrated exterior wall systems.

When you combine that commitment to product support and innovation with value-added offerings like consultative design and color services through [Sto Studio](#) or training in proper application techniques through the Sto Institute, you get an integrated exterior wall system solution unmatched in the industry.

» Manufacturing Site Covered in this EPD

Lauingen, Germany

» Performance Features

Lightweight	Strong and Flexible	Easy to cut and store
Dimensional Stability	Class A Building Material	

» Product Identification

The product is offered in three sizes: 12mm x 1219mm x 2438mm, 12mm x 1200mm x 2400mm, and 12 mm x 800mm x 1200 mm. The study considers the first size option. This consideration does not impact the result as the material/energy input and waste output is allocated and accounted off on the mass basis.

The product declared in this EPD is product number 07002.

» Product Description

Sto Carrier Board Aero is a lightweight composite board made of recycled glass granulate for use in the StoVentec Render Rainscreen® wall system for facades. It can also be used on interiors with Sto finish systems or over steel or wood frame ceilings and soffits.

This product falls under CSI division 07 42 00 and UNSPSC code 30161505.



» Technical Details

Table 1: Technical Data for Product

Performance	Test Method	Result	Unit
Tensile Strength	n/a	Not tested	MPa
Flexural Strength	EN ISO 178	≥5.4	MPa
Modulus of Elasticity	EN ISO 178	1,800-2,000	MPa
Water Vapor Permeance	n/a	Not tested	metric perms
Liquid Water Absorption	n/a	Not tested	% of dry weight
Airborne Sound Reduction	n/a	Not tested	dB
Sound Absorption Coefficient	n/a	Not tested	%

Because this product can serve several functions and is an individual component intended for use in Sto's wall systems, not all technical properties specified by the PCR for individual components apply. The technical properties and product performance criteria depend on the combination of products in the wall system. As such, the following table declares the product performance when used in Sto wall systems.

Table 2: Technical Data for Product as a Component of Sto Wall Systems

Meets Requirements of	Evaluation Criteria:	Evaluation Report Reference
2021, 2024 IBC, IRC	ASTM C297, C482, E330, E331, E84, E2485, D2247, B117, E2486, E2568, NFPA 285, 268	CCRR-0454

» Material Composition

The material compositions of the product are listed below:

Table 3: Material composition for Product

Ingredient*	Mass %
Expanded glass granulate	<85%
Filler Material	<20%
Reactive Polymer Resin	<10%
Hardener	<2%
Glass Fibre Mesh	<5%
Additives	~1%

* The product does not contain hazardous substances per the EPA's Resource Conservation and Recovery Act.

» Properties of Declared Product as Delivered

Table 4: Properties of declared product

Parameter	Value
Sizes	12mm x 1219mm x 2438mm
	12mm x 1200mm x 2400mm
	12 mm x 800mm x 1200 mm
Packaging	Staked on pallets, 80 sheets per pallet
Storage	Store on pallets off the ground in a dry location
Product Bulletin and Product Test Results can be found at Sto's website	

» Components related to Life Cycle Assessment

The declared unit for the LCA study was 1 square meter (m²) of manufactured product. The reference flow required for one declared unit is provided in Table 5.

Table 5: Declared Unit Details

Parameter	Value	Unit
Declared unit	1 m ² of manufactured cladding products	
Mass	6.00	kg
Thickness to achieve declared unit	12	mm
Density	500	kg/m ³
Length	2.44	m
Width	1.22	m

» Scope and Boundaries of the Life Cycle Assessment

The LCA was performed in accordance with ISO 14040 standards. The study is a cradle-to-gate with options LCA and includes the stages A1-A3, C1-C4 as prescribed in the referenced PCRs.

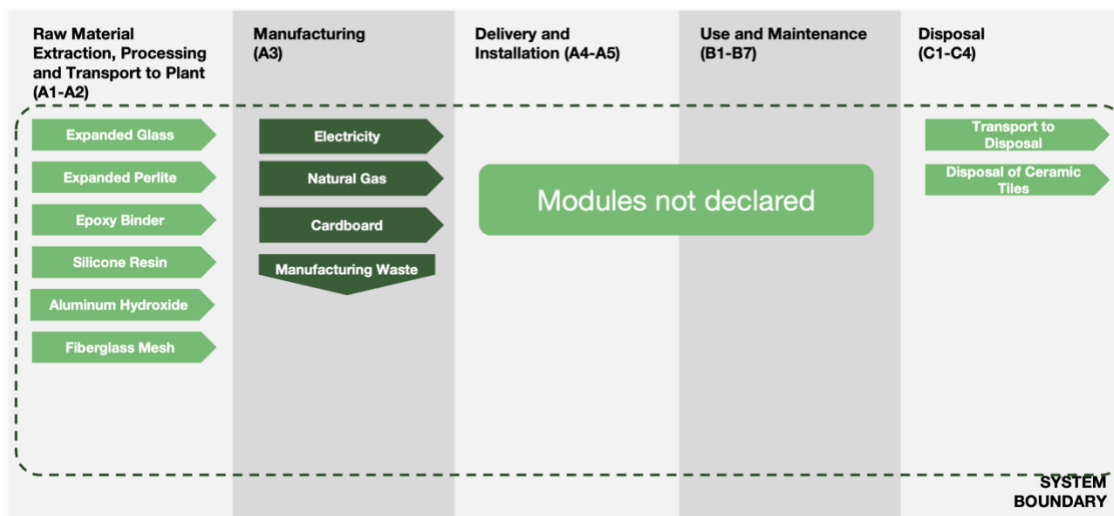


Figure 1: System boundary diagram of the Product

» Cut-off Criteria

Material inputs greater than 1% (based on total mass of the final product) were included within the scope of analysis. Material inputs less than 1% were included if sufficient data was available to warrant inclusion and/or the material input was thought to have significant environmental impact. Cumulative excluded material inputs and environmental impacts are less than 5% based on total weight of the functional unit. No known flows are deliberately excluded from this EPD.

» Data Quality

The overall data quality level was determined to be good. Primary data was collected from Sto's facility in Lauingen, Germany for the 2023 reference year. When primary data did not exist, secondary data were obtained from the MLC Database Service. Overall, both primary and secondary data are considered good quality in terms of geographic, temporal and technological coverage.

» Estimates and Assumption

Assumptions were made to represent the cradle-to-grave environmental performance of Sto's products. These assumptions were made in accordance with the referenced PCRs and include the transportation distances, the disposal of packaging material and the product at its end of life and use phase assumptions.

» Allocation

General principles of allocation were based on ISO 14040/44. Where possible, allocation was avoided. When allocation was necessary it was done on a physical mass basis.

» Product Stage (A1-A3)

The product is produced at Sto's Lauingen Germany facility. This stage includes an aggregation of raw material extraction, supplier processing, delivery, manufacturing and packaging by Sto. The product is supplied staked on pallets, 80 sheets per pallet.

» End-of-Life Stage (C1-C4)

In this stage, the disposal of product waste at its end of life is included. Excavators, cranes, and other heavy machinery may be used for demolishing large sections of cladding or walls. In the study, it is assumed the products are manually demolished. The disposal pathway waste stream is modeled per the referenced PCRs.

Table 6: End-of-life Scenario Details

Parameter	Value
Collected as mixed construction waste [kg]	6.00
Waste to Landfill [kg]	6.00
Distance to Landfill [km]	32

Life Cycle Assessment Results

As prescribed by the referenced PCRs, TRACI 2.1 impact characterization methodology and IPCC 5th assessment report are adopted to calculate the environment impacts. Table 7 provides the acronym key of the impact indicators declared in this EPD.

Table 7: LCIA Impact Category and LCI Indicator Key

Abbreviation	Parameter	Unit
IPCC AR5		
GWP _{excl}	Global warming potential (100 years, excludes biogenic CO ₂)	kg CO ₂ eq
GWP _{incl}	Global warming potential (100 years, includes biogenic CO ₂)	kg CO ₂ eq
TRACI 2.1		
AP	Acidification potential of soil and water	kg SO ₂ eq
EP	Eutrophication potential	kg N eq
ODP	Depletion of stratospheric ozone layer	kg CFC 11 eq
SFP	Smog formation potential	kg O ₃ eq
CML 2001-Jan 2016		
ADP _F	Abiotic depletion potential for fossil resources	MJ, net calorific value
Carbon Emissions and Uptake		
BCRP	Biogenic Carbon Removal from Product	kg CO ₂
BCEP	Biogenic Carbon Emission from Product	kg CO ₂
BCRK	Biogenic Carbon Removal from Packaging	kg CO ₂
BCEK	Biogenic Carbon Emission from Packaging	kg CO ₂
BCEW	Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes	kg CO ₂
CCE	Calcination Carbon Emissions	kg CO ₂
CCR	Carbonation Carbon Removals	kg CO ₂
CWNR	Carbon Emissions from Combustion of Waste from Non- Renewable Sources used in Production Processes	kg CO ₂
Resource Use Parameters		
RPR _E	Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ, net calorific value (LHV)
RPR _M	Use of renewable primary energy resources used as raw materials	MJ, net calorific value
NRPR _E	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ, net calorific value
NRPR _M	Use of non-renewable primary energy resources used as raw materials	MJ, net calorific value
SM	Use of secondary materials	kg
RSF	Use of renewable secondary fuels	MJ, net calorific value
NRSF	Use of non-renewable secondary fuels	MJ, net calorific value
RE	Recovered energy	MJ, net calorific value
FW	Net use of fresh water	m ³
Waste Parameters		
HWD	Disposed-of-hazardous waste	kg
NHWD	Disposed-of non-hazardous waste	kg
HLRW	High-level radioactive waste, conditioned, to final repository	kg
ILLRW	Intermediate- and low-level radioactive waste, conditioned, to final repository	kg
CRU	Components for reuse	kg
MR	Materials for recycling	kg
MER	Materials for energy recovery	kg
EEE	Exported electrical energy	MJ
EET	Exported thermal energy	MJ

The LCIA results presented below are per declared unit: 1 m² of manufactured product.

Impact Category	A1-A3	C1	C2	C3	C4
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IPCC AR5

GWPexcl [kg CO₂ eq]	6.57E+00	0.00E+00	5.05E-04	0.00E+00	1.33E-01
GWPincl [kg CO₂ eq]	6.31E+00	0.00E+00	5.03E-04	0.00E+00	1.33E-01

TRACI LCIA Impacts (North America)

AP [kg SO₂ eq]	1.31E-02	0.00E+00	1.41E-06	0.00E+00	6.73E-04
EP [kg N eq]	2.31E-03	0.00E+00	1.48E-07	0.00E+00	2.90E-05
ODP [kg CFC 11 eq]	9.03E-13	0.00E+00	1.47E-18	0.00E+00	6.22E-15
SFP [kg O₃ eq]	2.11E-01	0.00E+00	3.20E-05	0.00E+00	1.20E-02

CML 2001-Jan 2016

ADP_F [MJ]	1.05E+02	0.00E+00	6.53E-03	0.00E+00	1.91E+00
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Carbon Emissions and Uptake

BCRP [kg CO₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEP [kg CO₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCRK [kg CO₂]	2.84E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEK [kg CO₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEW [kg CO₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCE [kg CO₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCR [kg CO₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CWNR [kg CO₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

The LCI results presented below are per declared unit: 1 m² of manufactured product.

Impact Category	A1-A3	C1	C2	C3	C4
Resource Use Indicators					
RPR_E [MJ]	2.65E+01	0.00E+00	2.91E-04	0.00E+00	2.44E-01
RPR_M [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRPR_E [MJ]	1.11E+02	0.00E+00	6.59E-03	0.00E+00	1.97E+00
NRPR_M [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SM [kg]	4.32E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW [m³]	2.11E-02	0.00E+00	9.69E-07	0.00E+00	2.54E-04
Output Flows and Waste Categories					
HWD [kg]	5.47E-08	0.00E+00	8.88E-13	0.00E+00	4.86E-10
NHWD [kg]	1.68E-01	0.00E+00	6.57E-07	0.00E+00	6.01E+00
HLRW [kg]	2.14E-06	0.00E+00	2.35E-11	0.00E+00	2.34E-08
ILLRW [kg]	2.05E-03	0.00E+00	1.98E-08	0.00E+00	2.09E-05
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR [kg]	0.00E+00	0.00E+00	0.00E+00	1.51E-01	0.00E+00
MER [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

» Interpretation

For the product in study, the majority of the environmental impacts come from the Product Stage (A1-A3) which includes the impacts derived from the raw materials, raw material transportation, and manufacturing of the product. For GWP, the main drivers are the polymeric ingredient, the mineral fillers, and fiberglass.

» Reference

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