

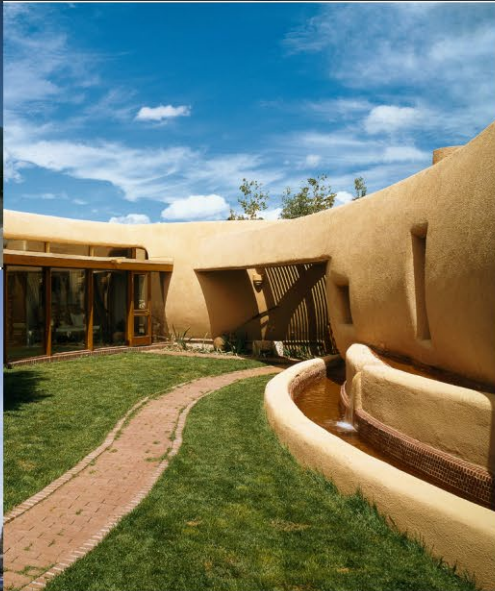


Building with conscience.

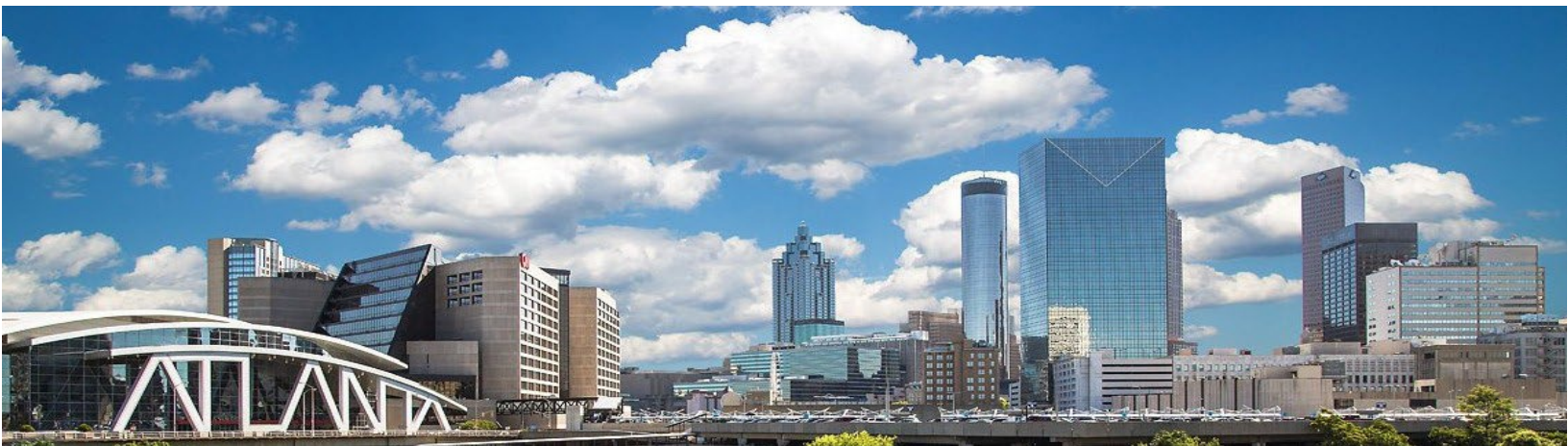




EPD for Sto DrainScreen®

Sto DrainScreen® is a tangled filament drainage mat for use in above grade vertical wall assemblies beneath stucco, stone, siding, and thin brick veneer. It is intended to promote drainage and drying of wall assemblies.



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PCR Identification	PCR for Water-Resistive and Air Barriers on the basis of ISO 21930: 2017, ASTM 2017. Valid through Sept, 2022
PCR Review was conducted by	Thomas P. Gloria, Industrial Ecology Consultants. Graham Finch, RDH Building Science, Inc Paul H. Shipp, USG Corporation
Product Category	Water-Resistive Barrier
Manufacturer's name	Sto Corp. 3800 Camp Creek Parkway SW, Building 1400, Suite 120 Atlanta, GA 30331 www.stocorp.com (800) 221-2397
EPD program operator	Epsten Group, a Salas O'Brien Company 101 Marietta St NW Suite 2600 Atlanta, GA 30303 www.epstengroup.com
Declaration Number	01-020
Date of Certification	October 9 th , 2024
Period of Validity	5 years from date of certification
Declared Unit	One square meter of covered and protected substrate
Overall Data Quality Assessment Score	Good
Site(s) in which the results of the LCA are representative	Candler, NC, USA
Information on where explanatory material can be obtained	See references at the end of this document.
LCA Software and Version Number	LCA for Experts (formerly GaBi) 10.7
LCI Database and Version Number	MLC (formerly GaBi) Database Version 2023.2
This declaration was independently verified in accordance with ISO 21930:2017, ISO 14025: 2006 and the reference PCR: PCR for Architectural Coatings: NAICS 325510 <input type="checkbox"/> Internal <input checked="" type="checkbox"/> External	Megan Blizzard Megan.Blizzard@salasobrien.com 
This life cycle assessment was conducted in accordance with ISO21930:2017, ISO 14044 and the reference PCR by:	WAP Sustainability Consulting, LLC
This life cycle assessment was independently verified in accordance with ISO 21930:2017, ISO 14044 and the reference PCR by:	Angela Fisher, Aspire Sustainability angela@aspireustainability.com 

Comparability

In order to support comparative assertions, this EPD meets all comparability requirements stated in ISO 14025:2006. However, differences in certain assumptions, data quality, and variability between LCA data sets may still exist. As such, caution should be exercised when evaluating EPDs from different manufacturers, as the EPD results may not be entirely comparable. Any EPD comparison must be carried out at the building level per ISO 21930 guidelines. The results of this EPD reflect an average performance by the product and its actual impacts may vary on a case-to-case basis.

» 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 Sites Covered in this EPD

The manufacturing location is Candler, North Carolina, USA



» Product Identification

Sto DrainScreen® is offered in roll diameters of 15 and 22 inches. Sto DrainScreen® is a tangled filament nylon core drainage mat for use in above grade vertical wall assemblies beneath stucco, stone, siding, and thin brick veneer. It is intended to promote drainage and drying of wall assemblies. The mat is offered in two thickness options: 6 mm and 10 mm. Though the 10 mm option is a specialized product, the results presented in this EPD are for a sales-weighted average of the two products.

Table 1: List of DrainScreen® Products

Product Name	Thickness	Product Number
Sto DrainScreen®	6 mm	81208
	10 mm	81588

» Product Description

Sto DrainScreen® is a drainage mat between the cladding and the fully adhered air and moisture barrier. Should water reach the back of the cladding, it can drain from the wall assembly via the drainage mat, which also helps speed the drying. Drainage and drying can be particularly important in hot and humid climates and in areas with wind-driven rain. Sto DrainScreen® functions as a wall cavity drainage component.

- Promotes drainage and drying in stucco, cement board stucco, stone, siding and thin-brick veneer wall assemblies;
- Water vapor moves freely through the drainage mat layer;
- Easy to handle, carry and roll onto the wall; and
- Prevents stucco or mortar from penetration into the cavity for unobstructed drainage



» Performance Features

Drainage and ventilation mat Lightweight, narrow diameter rolls	Highly breathable Laminated with lightweight breathable fabric
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» Technical Details

Performance*	Test Method	Result	Unit
Air Permeance	ASTM E2718	Not Tested	L/m ² *s @ 75 Pa
Water Vapor Permeance	ASTM E96	Not Tested	perms at 7-8 mils DFT
Water Penetration	ASTM E2570/AATCC 127 (modified)	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	ASTM Classification	Evaluation Report Reference
NOA # 23-1010.13	NFPA 285	ESR 1233

» Material Composition

The material compositions of Sto DrainScreen® are listed below:

Table 3: Material composition for Sto DrainScreen®

Ingredient	Sto DrainScreen®
Polypropylene	70-75%
Polyester	10-11%
Elastomeric Copolymer Modifier	6-8%
Nylon 6	4-5%
Flame Retardant	3-4%
Colorant	2-3%

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

» Components related to Life Cycle Assessment

The declared unit for the LCA study was covering and protecting 1 square meter (m²) of substrate. The reference flow required for one declared unit is provided in Table 3.

Table 4: Reference flow for one declared unit

Product	Declared Unit	Reference Flow [kg]
Sto DrainScreen®	1	3.22E-01

» 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 LCA and includes the following life

stages as prescribed in the PCR.

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

X = Module Included in LCA Report, ND = Module not Declared

Figure 1: Life stages for the cradle-to-gate LCA

» **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 declared unit.

» **Data Quality**

The overall data quality level was determined to be good. Primary data was collected from the manufacturing facility in Candler, NC, USA for the 2018 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 PCR and include the transportation distances

» **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)**

Sto DrainScreen® is produced at the manufacturing facility in Candler, NC, USA. This stage includes an aggregation of raw material extraction, supplier processing, delivery, manufacturing and packaging by Sto. Sto DrainScreen® is supplied in 62.5-foot (6mm) or 75-foot (10mm) rolls.

» Life Cycle Assessment Results

As prescribed by the PCR, TRACI 2.1 impact characterization methodology and IPCC 5th assessment report are adopted to calculate the environment impacts. Table 4 provides the acronym key of the impact indicators declared in this EPD.

Table 5: LCIA impact category and LCI Indicator keys

Abbreviation	Parameter	Unit
IPCC AR5		
GWP	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		
ADPF	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

» Sto DrainScreen®

The LCIA results presented below are for 1 m² of Sto DrainScreen®.

Impact Category	A1	A2	A3	Total
IPCC AR5				
GWP [kg CO ₂ eq]	1.07E+00	2.76E-02	5.02E-02	1.15E+00
TRACI LCIA Impacts (North America)				
AP [kg SO ₂ eq]	2.63E-03	1.26E-04	1.93E-04	2.95E-03
EP [kg N eq]	1.41E-04	1.11E-05	4.12E-05	1.93E-04
ODP [kg CFC 11 eq]	6.20E-14	7.04E-17	2.49E-14	8.69E-14
SFP [kg O ₃ eq]	3.41E-02	2.91E-03	3.54E-03	4.05E-02
CML 2001-Jan 2016				
ADPF [MJ]	3.28E+01	3.81E-01	1.92E+00	3.51E+01
Carbon Emissions and Uptake				
BCRP [kg CO ₂]	0	0	0	0
BCEP [kg CO ₂]	0	0	0	0
BCRK [kg CO ₂]	0	0	7.84E-02	7.84E-02
BCEK [kg CO ₂]	0	0	0	0
BCEW [kg CO ₂]	0	0	0	0
CCE [kg CO ₂]	0	0	0	0
CCR [kg CO ₂]	0	0	0	0
CWNR [kg CO ₂]	0	0	0	0

The LCI results presented below are for 1 m² of Sto DrainScreen®.

Impact Category	A1	A2	A3	Total
Resource Use Indicators				
RPR _E [MJ]	2.00E+00	1.53E-02	2.82E-01	2.30E+00
RPR _M [MJ]	0	0	5.55E-01	5.55E-01
NRPR _E [MJ]	4.56E-01	3.84E-01	2.97E+00	3.81E+00
NRPR _M [MJ]	1.69E+01	0	4.15E-02	1.70E+01
SM [kg]	0	0	0	0
RSF [MJ]	0	0	0	0
NRSF [MJ]	0	0	0	0
RE [MJ]	0	0	0	0
FW [m ³]	5.36E-03	5.24E-05	8.79E-04	6.29E-03
Output Flows and Waste Categories				
HWD [kg]	1.31E-09	1.10E-12	2.97E-10	1.60E-09
NHWD [kg]	4.55E-02	3.34E-05	7.85E-02	1.24E-01
HLRW [kg]	4.48E-07	1.31E-09	4.80E-07	9.30E-07
ILLRW [kg]	5.32E-04	1.10E-06	4.03E-04	9.36E-04
CRU [kg]	0	0	0	0
MR [kg]	0	0	0	0
MER [kg]	0	0	0	0
EE [MJ]	0	0	0	0

» Interpretation

For the product in study, the largest contributor of the environmental impacts is the raw material sourcing stage, indicating efforts in reducing manufacturing scrap and improving material efficiency will help improve all the evaluated environmental impacts.

» Reference

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