



AeroBarrier X3

Aerosol-Applied Waterborne Acrylic Sealant

Environmental Product Declaration

Date of Issue: 02/17/2026

Date of Expiration: 02/16/2031

PRODUCT CATEGORY RULE

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

DECLARED UNIT

1 kg of product

Program Operator	ASTM International 100 Barr Harbor Dr., West Conshohocken, PA 19428 cert@astm.org
General Program Instructions and Version Number	ASTM Program Operator Rules. Version: 8.0, Revised 04/29/20
Manufacturer Name and Address	Aeroseal® 225 Byers Rd. Miamisburg, OH 45342 techinfo@aeroseal.com
Declaration Number	ASTM-EPD 828
Declared Product and Declared Unit	AeroBarrier X3 aerosol-applied, waterborne acrylic sealant Declared Unit: 1 kg of product
Reference PCR and Version Number	ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services.
Product's intended Application and Use	Commercial and residential
Intended Audience	Business-to-Business
Product RSL	N/A
Markets of Applicability	Manufactured in North America, distributed globally.
Date of Issue	02/17/2026
Period of Validity	5 years from date of issue
EPD Type	Manufacturer Specific
EPD Scope	Cradle-to-Gate (A1-A3)
Year of reported manufacturer primary data	2024
LCA Software and Version Number	Sphera LCA for Experts (fka GaBi) 10.9.3
LCI Database and Version Number	Sphera Managed LCA Content (fka GaBi) 2025.2
LCIA Methodology and Version Number	TRACI 2.2, IPCC AR5, EN15804+A2 (EF 3.1), CML 2001 (August 2016, V4.8)
The sub-category PCR review was conducted by:	N/A
Independent verification of the declaration and data, according to ISO 21930:2017 and EN 15804+A2	
☐ Internal ☒ External	Tim Brooke, ASTM International
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	WAP Sustainability Consulting
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Lindita Bushi, PhD, Athena Sustainable Materials Institute
Limitations: • Environmental declarations from different programs (ISO 14025) may not be comparable. • Comparison of the environmental performance of the product 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 as instructed under this PCR. • Full conformance with this PCR allows EPD comparability only 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 for upstream or downstream of the life cycle stages declared.	



General Information

Company Description

Aeroseal® supplies proven air sealing solutions for building envelopes and HVAC ductwork, improving building and home energy efficiency, occupant comfort, indoor air quality, resilience, building envelope and HVAC system performance, and durability. Aeroseal® produces AeroBarrier for building envelope air sealing and Aeroseal® for HVAC duct sealing, providing air sealing guaranteed to meet any requirements and immediately verified on the job site as meeting leakage requirements through a continuous air leakage test simultaneously done while sealing the leaks. Having sealed over 250,000 buildings globally, use of our products spans multifamily buildings, single family homes, and commercial/institutional buildings.



Figure 1: Aeroseal® headquarters

Product Descriptions

AeroBarrier X3 is a stable, non-toxic, aerosol-applied, waterborne acrylic sealant that, after application from the inside of a home or building, dries like a caulk in the air leaks. When AeroBarrier is applied, the sealant begins as a liquid. The building or home interior is pressurized higher than the exterior, and the sealant is then atomized and sprayed into the pressurized interior of a home or building by the automated, computer controlled AeroBarrier system. The higher pressure inside naturally moves the interior air to the exterior by escaping through leaks in the envelope, carrying the sealant to those leaks and sealing them as it passes through. The sealant particles deposit only at the leak locations and build to form a complete and tight seal, remaining firmly in place while staying completely pliable and flexible. For additional information on how the AeroBarrier X3 is used please see the website: <https://aeroseal.com/how/>.

CSI Division: 07 27 00¹

AeroBarrier X3 is intended for use of air sealing to stop hidden air leaks up to 1/2" and as small as a human hair in both residential and commercial buildings. It requires approximately four gallons of AeroBarrier X3 to achieve a common code required air leakage level of 3 ACH50 for an average sized single family house in the United States (2,500 ft²).

Product Composition

No substances required to be reported, per RCRA, Subtitle 3, as hazardous are associated with the production of this product.

¹ AeroBarrier X3 is typically included under this CSI Division and section; however, Aeroseal® is currently developing a proposal to reclassify their product under a new and more representative section of division 7 of the CSI MasterFormat.

Table 1: Product composition

Component	Composition of Product
Water	50-70%
Acrylic Polymer	20-40%
Propylene Glycol	1-5%
Other Additives (Proprietary Materials)	0.1-1%

Technical Requirements

AeroBarrier X3 has been tested to the following industry standards:

Table 2: Technical requirements

	AeroBarrier X3
ASTM	C719, D543, E2357
NFPA	285
CAN/ULC-S	102

LCA Methodology

Declared Unit

Table 3: Declared unit details

	AeroBarrier X3
Declared Unit	1 kg of product
Declared Unit Weight [kg]	1
Density [kg/gal]	3.96
Density [kg/m ³]	1,046
Note: Aeroseal® often speaks about AeroBarrier X3 in terms of Gallons. To this end, cradle-to-gate results per 1 gallon of AeroBarrier X3 are provided in the Embodied Carbon and LCA Results for Alternative Units section of this document.	

System Boundary

Table 4. Description of the system boundary modules

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, ND = Module not Declared



Figure 2: System boundary diagram

Allocation

General principles of allocation were based on ISO 14040/44. To derive a per-unit value for manufacturing electricity, allocation was avoided by calculating electricity consumption specific to the AeroBarrier X3 production line using engineering specifications for the relevant machinery. For the allocation of manufacturing water and waste allocation via production mass was adopted, as this is the basis on which products are processed and sold. As a default, secondary GaBi datasets use a physical basis for allocation. No burdens are allocated across the system boundary with secondary material, secondary fuel, or recovered energy flows arising from waste.

Cut-off Rules

Input and output flows of mass and energy greater than 1% (based on total mass final product and total energy usage of the product system) or greater than 1% of environmental impacts were included within the scope of analysis. Flows less than 1% were included if sufficient data were available to warrant inclusion and/or the flow was thought to have significant environmental impact. Cumulative excluded flows and environmental impacts are less than 5% per module based on total mass, energy usage, and impacts of the product system. Where data gaps were identified, they are filled by conservative assumptions with average, generic, or proxy data and assumptions are documented. No known flows relevant to the product system are deliberately excluded from this LCA and EPD. Overhead consumption of electricity and natural gas were excluded from this LCA and EPD as they were deemed irrelevant to the product system and were excluded via use of engineering specifications to determine production process-specific energy consumption requirements relevant to AeroBarrier X3.

Some material inputs may have been excluded within the Sphera MLC datasets used for this project. All Sphera MLC datasets have been critically reviewed and conform to the exclusion requirement of ISO 21930:2017.

Period Under Review

Data were obtained from Aeroseal® and its manufacturing partner covering May, 2024 through June, 2025 (one complete year).

Technical Information and Scenarios

Manufacturing

In AeroBarrier X3 manufacturing all ingredients are staged and added. First the acrylic polymer is added, the mixer starts, and then the rest of the raw materials are added. The batch is mixed, and the product is distributed into 5-gallon pails. Buckets are palletized and shipped to distribution center or customer.

Packaging

Packaging requirements are presented in Table 5, per declared unit.

Table 5: Packaging per kg of product

Packaging Material	Quantity (kg/gal)	Biogenic Carbon (kg C/kg)*
HDPE Pail	0.0649	N/A
Wooden Skid	0.0278	0.300
Paper Label	0.00306	0.426

Note: To ensure accurate reporting of EN15804+A2 LCIA results, emissions of biogenic carbon from packaging material disposal have been accounted for in A3. As such, the results presented herein conservatively include these emissions allowing biogenic carbon to be balanced within the Cradle-to-Gate scope.

Results

Environmental impacts were calculated using the GaBi software platform. Impact results have been calculated using IPCC AR5, TRACI 2.2, ISO 21930, EN15804+A2, and CML 2001 characterization factors. Results presented in this report are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks.

Table 6: LCIA, Biogenic Carbon, Resource Use, Waste, and Output Flow Indicators

Abbreviation	Parameter	Unit
IPCC AR5 Impact Categories		
GWP, exc.	Global Warming Potential (100 years, excludes biogenic CO ₂)	kg CO ₂ eq
GWP, inc.	Global Warming Potential (100 years, includes biogenic CO ₂)	kg CO ₂ eq
TRACI 2.2 Impact Categories		
AP	Acidification Potential- Air	kg SO ₂ eq
EP-freshwater	Eutrophication Potential- Freshwater	kg P eq
EP-marine	Eutrophication Potential- Marine	kg N eq
GWP, exc.	Global Warming Potential (100 years, excludes biogenic CO ₂)	kg CO ₂ eq
GWP, inc.	Global Warming Potential (100 years, includes biogenic CO ₂)	kg CO ₂ eq
ODP	Ozone Depletion Potential	kg CFC-11 eq
POCP	Photochemical Ozone Formation	kg O ₃ eq
Resource Use Indicators		
RPRE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ, net calorific value (LHV)
RPRM	Use of renewable primary energy resources used as raw materials	MJ, net calorific value
RPRT	Total use of renewable primary energy resources	MJ, net calorific value
NRPRE	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ, net calorific value
NRPRM	Use of non-renewable primary energy resources used as raw materials	MJ, net calorific value
NRPRT	Total use of non-renewable primary energy resources	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
Output Flows and Waste Categories		
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
RWD	Total radioactive waste 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

Abbreviation	Parameter	Unit
EET	Exported Thermal Energy	MJ

Abbreviation	Parameter	Unit
EN15804+A2 Core Environmental Indicators		
GWP-total	Climate Change- Total	kg CO ₂ eq
GWP-fossil	Climate Change- Fossil	kg CO ₂ eq
GWP-biogenic	Climate Change- Biogenic	kg CO ₂ eq
GWP-LULUC	Climate Change- Land Use and Land Use Change	kg CO ₂ eq
ODP	Ozone Depletion Potential	kg CFC-11 eq
AP	Acidification Potential	Mole of H ⁺ eq
EP-freshwater	Eutrophication Potential- Freshwater	kg P eq
EP-marine	Eutrophication Potential- Marine	kg N eq
EP-terrestrial	Eutrophication Potential- Terrestrial	Mole of N eq
POCP	Photochemical Ozone Formation	kg NMVOC eq
ADP-minerals & metals	Resource Use- Minerals and Metals	kg Sb eq
ADP-fossil	Resource Use- Fossil	MJ
WDP	Water Use	m ³ world equiv.
EN15804+A2 (EF 3.1) Additional Environmental Indicators		
PM	Particulate Matter	Disease incidences
IRP	Ionising Radiation Potential	kBq U235 eq
ETP-fw	Ecotoxicity- Freshwater	CTUe
HTP-C	Human Toxicity- Cancer	CTUh
HTP-nc	Human Toxicity- Non-Cancer	CTUh
SQP	Land Use	Pt

Abbreviation	Parameter	Unit
CML 2001 (v4.8) Impact Categories		
GWP, exc.	Global Warming Potential (100 years, excludes biogenic CO ₂)	kg CO ₂ eq
GWP, inc.	Global Warming Potential (100 years, includes biogenic CO ₂)	kg CO ₂ eq
ODP	Ozone Layer Depletion Potential	kg R11 eq
EP	Eutrophication Potential	kg Phosphate eq
AP	Acidification Potential	kg SO ₂ eq
POCP	Photochemical Ozone Creation Potential	kg Ethene eq

LCA Results

Table 7: LCA Results, per 1 kg of AeroBarrier X3 (A1 to A3)

Impact Category	Total (A1-A3)
IPCC AR5 Impact Categories	
GWP, exc. [kg CO ₂ eq.]	1.26E+00
GWP, inc. [kg CO ₂ eq.]	1.29E+00
TRACI 2.2 Impact Categories	
AP [kg SO ₂ eq.]	2.61E-03
EP freshwater [kg N eq.]	8.74E-07
EP marine [kg P eq]	9.52E-04
GWP, exc. [kg CO ₂ eq.]	1.17E+00
GWP, inc. [kg CO ₂ eq.]	1.20E+00
ODP [kg CFC-11 eq]	2.69E-12
POCP [kg O ₃ eq]	3.45E-02
Resource Use Indicators	
RPRE [MJ]	1.32E+00
RPRM [MJ]	2.95E-01
RPRT [MJ]	1.61E+00
NRPRE [MJ]	1.20E+01
NRPRM [MJ]	1.64E+01
NRPRT [MJ]	2.84E+01
SM [kg]	0.00E+00
RSF [MJ]	0.00E+00
NRSF [MJ]	0.00E+00
RE [MJ]	0.00E+00
FW [m3]	5.82E-03
Output Flows and Waste Categories	
HWD [kg]	5.34E-09
NHWD [kg]	2.39E-02
HLRW [kg]	3.42E-07
ILLRW [kg]	2.89E-04
RWD [kg]	2.90E-04
CRU [kg]	0.00E+00
MR [kg]	7.50E-03

Impact Category	Total (A1-A3)
MER [kg]	0.00E+00
EEE [MJ]	1.83E-02
EET [MJ]	9.22E-02

Table 8: EN15804+A2 (EF 3.1) LCA Results per 1 kg of AeroBarrier X3 (A1 to A3)

Impact Category	Total (A1-A3)
Core Environmental Indicators	
GWP-total [kg CO ₂ eq.]	1.24E+00
GWP-fossil [kg CO ₂ eq.]	1.20E+00
GWP-biogenic [kg CO ₂ eq.]	2.99E-02
GWP-LULUC [kg CO ₂ eq.]	8.35E-04
ODP [kg CFC-11 eq.]	2.27E-12
AP [mol H ⁺ eq.]	3.19E-03
EP-freshwater [kg P eq.]	1.90E-06
EP-marine [kg N eq]	5.97E-04
EP-terrestrial [mol N eq.]	6.43E-03
POCP [kg NMVOC eq.]	1.92E-03
ADP-minerals & metals [kg Sb eq.]	2.74E-07
ADP-fossil [MJ]	2.84E+01
WDP [m ³ world equiv.]	1.63E-01
Additional Environmental Indicators	
PM [disease incidences]	2.70E-08
IRP [kBq U235 eq.]	2.46E-02
ETP-fw [CTUe]	8.20E+00
HTP-C [CTUh]	8.48E-10
HTP-nc [CTUh]	3.82E-09
SQP [Pt]	6.15E-01

Table 9: CML 2001 (v4.8) LCA Results per 1 kg of AeroBarrier X3 (A1 to A3)

Impact Category	Total (A1-A3)
CML 2001 Indicators	
GWP, exc. [kg CO ₂ eq.]	2.70E-08
GWP, inc. [kg CO ₂ eq.]	2.46E-02
ODP [kg R11 eq.]	8.20E+00
EP [kg P eq]	8.48E-10
AP [kg SO ₂ eq]	3.82E-09
POCP [kg O ₃ eq.]	6.15E-01

Interpretation

A dominance analysis was performed for AeroBarrier X3 to show which of the life cycle modules contributes to the majority of the impacts. Upstream raw material extraction and processing (A1) was found to be the largest contributor to all impact categories, followed by packaging. Specifically, within upstream raw material extraction and processing, the acrylic polymer used in the product formulation is the primary contributor to most impact categories. It should be noted that due to the proprietary nature of this material, it was modeled using a proxy. Supplier outreach regarding the composition of this material has been undertaken, the results of which may be used to update this LCA/EPD in the future. The majority of packaging impacts stem from the 5-gallon HDPE pail which contains ~15.82 kg of product. Given that the declared unit of this study is 1 kg, ~1/16th of total pail impacts are allocated to each declared unit. Further, note that as this study follows ISO 21930:2017 manufacturing energy has been modeled as part of A3.

Embodied Carbon and LCA Results for Alternative Units

As noted in the body of this document, AeroBarrier X3 is a unique product that is currently not well classified in traditional systems. From an LCA perspective, this led to the use of ISO 21930:2017 as the core PCR for this study with a 1 kg declared unit based on an expired PCR. However, this unit is not commonly used by AeroSeal® in internal nor external communication concerning AeroBarrier X3. To increase the utility of this LCA, cradle-to-gate GWP results (also known as embodied carbon) are presented here in relation to units other than 1 kg. Note that the values shown below are cradle-to-gate and do not account for any product loss or energy consumption during installation; however, they do account for biogenic carbon release from packaging. Values below are extrapolated from GWP results shown in the body of this EPD. Additionally, full LCA results utilizing a declared unit of 1 gallon (extrapolated by mass) are reported in this section as this is a more common unit for AeroSeal® to communicate about the AeroBarrier X3 product.

Table 10: Embodied carbon and conversion factors for alternative units

Unit	Conversion Factor from 1 kg	Embodied Carbon (kg CO ₂ -eq)
1 ounce (oz)	0.02835	0.0357
1 liter (l)	0.084	0.33

Table 11: LCA Results, per 1 gallon of AeroBarrier X3 (A1 to A3)

Impact Category	Total (A1-A3)
IPCC AR5 Impact Categories	
GWP, exc. [kg CO ₂ eq.]	4.98E+00
GWP, inc. [kg CO ₂ eq.]	5.09E+00
TRACI 2.2 Impact Categories	
AP [kg SO ₂ eq.]	1.03E-02
EP freshwater [kg N eq.]	3.46E-06
EP marine [kg P eq]	3.77E-03
GWP, exc. [kg CO ₂ eq.]	4.62E+00
GWP, inc. [kg CO ₂ eq.]	4.73E+00
ODP [kg CFC-11 eq]	1.06E-11
POCP [kg CFC 11 eq.]	1.36E-01
Resource Use Indicators	
RPRE [MJ]	5.21E+00
RPRM [MJ]	1.17E+00
RPRT [MJ]	6.38E+00
NRPRE [MJ]	4.75E+01
NRPRM [MJ]	6.50E+01
NRPRT [MJ]	1.12E+02
SM [kg]	0.00E+00
RSF [MJ]	0.00E+00
NRSF [MJ]	0.00E+00
RE [MJ]	0.00E+00
FW [m3]	2.30E-02
Output Flows and Waste Categories	
HWD [kg]	2.11E-08
NHWD [kg]	9.47E-02
HLRW [kg]	1.35E-06
ILLRW [kg]	1.14E-03
RWD [kg]	0.00E+00

Impact Category	Total (A1-A3)
CRU [kg]	0.00E+00
MR [kg]	2.97E-02
MER [kg]	0.00E+00
EEE [MJ]	7.24E-02
EET [MJ]	3.65E-01

Table 12: EN15804+A2 (EF 3.1) LCA Results per 1 gal of AeroBarrier X3 (A1 to A3)

Impact Category	Total (A1-A3)
Core Environmental Indicators	
GWP-total [kg CO ₂ eq.]	4.89E+00
GWP-fossil [kg CO ₂ eq.]	4.77E+00
GWP-biogenic [kg CO ₂ eq.]	1.18E-01
GWP-LULUC [kg CO ₂ eq.]	3.30E-03
ODP [kg CFC-11 eq.]	8.98E-12
AP [mol H ⁺ eq.]	1.26E-02
EP-freshwater [kg P eq.]	7.53E-06
EP-marine [kg N eq]	2.36E-03
EP-terrestrial [mol N eq.]	2.54E-02
POCP [kg NMVOC eq.]	7.58E-03
ADP-minerals & metals [kg Sb eq.]	1.08E-06
ADP-fossil [MJ]	1.12E+02
WDP [m ³ world equiv.]	6.44E-01
Additional Environmental Indicators	
PM [disease incidences]	1.07E-07
IRP [kBq U235 eq.]	9.74E-02
ETP-fw [CTUe]	3.24E+01
HTP-C [CTUh]	3.36E-09
HTP-nc [CTUh]	1.51E-08
SQP [Pt]	2.43E+00

Table 13: CML 2001 (v4.8) LCA Results per 1 gal of AeroBarrier X3 (A1 to A3)

Impact Category	Total (A1-A3)
CML 2001 Indicators	
GWP, exc. [kg CO ₂ eq.]	4.71E+00
GWP, inc. [kg CO ₂ eq.]	4.82E+00
ODP [kg R11 eq.]	1.05E-11
EP [kg P eq]	1.02E-03
AP [kg SO ₂ eq]	1.04E-02
POCP [kg O ₃ eq.]	1.06E-03

Additional Environmental Information

Benefits provided by AeroBarrier X3 throughout building and home operation:

There are multiple benefits that result from using AeroBarrier to air seal the building envelope and reduce air leakage to any requirement needed. Less air leakage through the building envelope provides energy savings and reduces operational carbon emissions, while also providing improved comfort, indoor air quality, protection from moisture intrusion, and resilience.

- Reduced energy use – less heat loss and gain, requiring less energy to maintain the desired temperature and humidity.
- Less carbon emissions – reducing energy use yields less operational carbon emissions into the atmosphere.
- Improved comfort – fewer drafts and more consistent interior temperatures and humidity.
- Better indoor air quality – pollutants, allergens, dust, other contaminants, and humid air can't get inside the building or home.
- Prevent moisture issues – reduces moisture intrusion and condensation in the exterior wall cavity, protecting from mold and mildew while increasing the durability of exterior wall materials.
- Increased resilience – reduced air leakage and moisture enable homes and buildings to better withstand storms and weather events.

Environment and Health During Installation

All recommendations shall be utilized as indicated by SDS and installation guidelines. Specific product SDS and installation instructions can be requested directly from Aeroseal®.

Environmental Activities and Certifications

AeroBarrier X3 has the following green building certifications:

- [GREENGUARD Gold](#)
- [Home Innovation National Green Building Standard](#)

For additional documentation concerning AeroBarrier X3, please visit Aeroseal's® [website](#).

Supplemental product information:

Additional AeroBarrier X3 documents including a Product Data Sheet, Safety Data Sheet, and Key Benefits summary can be found on the manufacturer's website here <https://aeroseal.com/resource-library/data-sheets/>

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