

FeltWorks® – VarAffix®

9mm PET Felt

Life Cycle Impact Categories (A1-A3) for 1 ft²

Cradle-to-Gate environmental impacts for 1 ft² of FeltWorks – VarAffix 9mm PET Felt



Embodied Carbon (GWP)
1.67E+00 kg CO₂ eq.



Acidification Potential
6.42E-03 kg SO₂ eq.



Photochemical Oxidation Formation
1.12E-01 kg O₃ eq.



Eutrophication Potential
2.43E-03 kg N_{eq}.



Ozone Depletion Potential
6.25E-08 kg CFC 11 eq.



Primary Energy
2.84E+00 MJ, LHV

FeltWorks® – VarAffix®
Reinforced Rectangular



Armstrong®
World Industries

In Accordance with
ISO 14025 and ISO 21930:2017

Committed to Sustainability

Armstrong World Industries leads in delivering solutions that meet today's most stringent industry sustainability standards. We are committed to environmental responsibility in all aspects of our business, and carbon reduction is part of our 2030 Company goals and ambitions. We were one of the first companies to create and publish the Environmental Product Declaration (EPD) in the ceiling industry. We have over a decade of experience using Life Cycle Assessment (LCA) to evaluate environmental impacts of our products starting with design, to raw materials, and through our operations. We are constantly working to optimize our operations and products to reduce their environmental impact. We believe the use of LCA and our commitment to transparency of our products' carbon footprint is critical to contributing to decarbonization of the built environment.

Contents

Performance features like acoustics, light reflectance, and durability

Product application and use

Product ingredients and their sources

How the product is produced

LCA results, including global warming potential and primary energy usage

Total impacts over the product life cycle

For more information visit
armstrongceilings.com/transparency





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1. CONTENT OF THE EPD

EPD Program & Program Operator Name, Address, Logo, and Website	ASTM International – 100 Barr Harbor Drive West Conshohocken, PA, 19428, USA
General Program Instructions & Version Number	ASTM Program Operator for Product Category Rules (PCR) and Environmental Product Declarations (EPDs), General Program Instructions, Version: 8.0, Revised 04/29/20
Manufacturer Name & Address	Armstrong World Industries 2500 Columbia Avenue Lancaster, PA 17603
Declaration Number	EPD 1122
Declared Product & Declared Unit	0.093 m ² (1ft ²) of installed ceiling panel, with a product Reference Service Life (RSL) of 30 years
Reference PCR & Version Number	PCR for Building-Related Products and Services – Part A: LCA Calculation Rules and Report Requirements, UL 10010, UL v.4.0, March 2022 PCR Guidance for Building-Related Products and Services – Part B: Non-Metal Ceiling and Interior Wall Panel EPD Requirements, UL Environment, v2, 04/2021
Description of Product's Intended Application & Use (As Identified When Determining Product RSL)	FeltWorks® – VarAffix® are PET Felt ceiling and wall panels
Product RSL Description (if appl.)	30 Years
Markets of Applicability	Commercial and Residential Interior Furnishing
Date of Issue	2/10/2026
Period of Validity	5 years
EPD Type	Product-Specific
Dataset Variability	Industry Average Only
EPD Scope	Cradle to Gate with Options
Year(S) of Reported Manufacturer Primary Data	2023
LCA Software & Version Number	GaBi 10.7 by Sphera Inc
LCI Database(S) & Version Number	GaBi Database 2023.1 by Sphera Inc
LCIA Methodology & Version Number	TRACI 2.1
The Sub-Category PCR Review Was Conducted By:	EPD Review Panel Chair Lindita Bushi, PhD (Chair) EPD@ul.com
This Declaration Was Independently Verified In Accordance with ISO 14025: 2006. The UL Environment "Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report," Serves as the Core PCR. □ Internal <input checked="" type="checkbox"/> External	Tim Brooke, ASTM International 
The EPD conforms with (select one):	<input checked="" type="checkbox"/> ISO 21930:2017 <input type="checkbox"/> EN 15804:2013+A1:2014 <input type="checkbox"/> EN 15804:2013+A2:2019
This Life Cycle Assessment Was Conducted in Accordance with ISO 14044 and The Reference PCR by:	Armstrong World Industries, Inc.
This Life Cycle Assessment was Independently Verified in Accordance with ISO 14044 and the Reference PCR by:	Lindita Bushi, PhD Athena Sustainable Materials Institute lindita.bushi@athenaasm.org 
Limitations	

Environmental declarations from different programs (ISO 14025) may not be comparable.

Comparison of the environmental performance of Non-Metal Ceiling and Wall System 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 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.





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2. GENERAL INFORMATION

2.1 DESCRIPTION OF ORGANIZATION

Armstrong World Industries, Inc. (AWI) is a leader in the design and manufacture of innovative commercial and residential ceiling, wall and suspension system solutions in the Americas. At home, at work, in healthcare facilities, classrooms, stores, or restaurants, Armstrong World Industries offers interior solutions that help to enhance comfort, save time, improve building efficiency and overall performance, and create beautiful spaces.

2.2 PRODUCT DESCRIPTION

FeltWorks® – VarAffix® are made from polyester felt (PET) fibers, with color throughout, and finished on all edges and surface. FeltWorks® – VarAffix® are 9mm acoustical felt designed to be suspended in a variety of methods.

2.2.1 Product-Specific EPD

FeltWorks – VarAffix is classified as Type I under ASTM E1264-23, Standard Classification for Acoustical Ceiling Products, Section 5. This report covers all FeltWorks – VarAffix 9mm PET Felt ceiling and wall products. FeltWorks – VarAffix products are manufactured in Gilberts, Illinois.

2.2.2 Flow Diagram

FeltWorks – VarAffix based ceiling and wall products are manufactured from PET (Polyethylene) acoustical sheets. PET sheets are cut to required shape, labeled, and if needed, hardware components are added. After packaging, the products are shipped and installed.





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2.3 PRODUCT AVERAGE

2.3.1 Product-Specific EPD

This EPD is specific to FeltWorks – VarAffix products produced. A weighted average approach was applied. Inputs were developed based on 2023 production volumes and weights.

2.4 APPLICATION

The products covered by this EPD are designed to be installed in a suitable metal grid system.

2.5 MATERIAL COMPOSITION

FeltWorks – VarAffix are made from 60% recycled polyester felt (PET) fibers.

Table 1. Material Composition

Material	FeltWorks – VarAffix
Polyester (PET) Felt	100%

2.6 TECHNICAL REQUIREMENTS

Table 2. Technical Data

Property	Test Method	FeltWorks – VarAffix 9mm PET Felt
Sound absorption coefficient (NRC)	ASTM C423	Varies based on spacing
Interzone attenuation of open office components (AC)	ASTM E1111, ASTM E1110	–
Sound Transmission Class (STC)	ASTM E413, ASTM E90	–
Sound attenuation between rooms sharing a common ceiling plenum (CAC)	ASTM E1414, ASTM E413	N/A
Light reflectance	ASTM E1477	Varies based on color
Flame spread/smoke development	ASTM E84, ASTM E1264	Class A

2.7 PROPERTIES OF DECLARED PRODUCT AS DELIVERED

The final EPD is available on the Armstrong website (armstrongceilings.com/epd) and is under the Finish category in the EC3 Tool (buildingtransparency.org).

3. METHODOLOGICAL FRAMEWORK

This study provides life cycle inventory and environmental impacts relevant to Armstrong® suspended ceilings. The LCA follows an attributional approach as outlined in ISO 21930 Section 7.1 – see also PCR Part A-6.

3.1 DECLARED UNIT

The declaration refers to the declared unit of 0.093 m² (1 ft²) of installed ceiling panel, as defined by the PCR.

3.2 FUNCTIONAL/DECLARED UNIT PROPERTIES

Table 3. Functional or Declared Unit Properties

	FeltWorks VarAffix® 9mm PET Felt
Declared Unit – m ² (ft ²)	0.093 (1)
Declared Thickness – cm (in)	0.9 (0.354)
Surface Weight – kg/0.093 m ² (lbs/ft ²)	0.239 (0.527)
Density – kg/m ³ (lbs/ft ³)	30.73 (8.43)

3.3 SYSTEM BOUNDARY

The scope of the study includes production, installation, and end of life. Production of capital equipment, facilities, and infrastructure required for manufacture are outside the scope of this assessment. Details of inclusions and exclusions from the system boundary are listed below.

Table 4. Elements Included in the Cradle To Gate with Options Study

Includes

- Raw materials production (A1)
- Inbound transport of raw materials to production facility (A2)
- Manufacturing of panels (A3)
- Electricity and fuel combustion (A3)
- Packaging of final products (A3)
- Transportation to the job site (A4)
- Installation and installation waste (A5)
- Deconstruction – manual, no impact (C1)
- End of life, including transport (C2-C4)

Excludes

- Construction of capital equipment and other infrastructure flows
- Maintenance and operation of support equipment
- Human labor and employee transport
- Manufacture and transport of packaging materials not associated with final product
- Use Phase (B1 to B7)
- Benefits and loads beyond the system boundary (D)





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3.4 PRODUCT-SPECIFIC CALCULATIONS FOR END-OF-LIFE PHASE (MODULES C1-C4)

At this time, there is no industry consensus for product-specific assumption behind reported scenarios for information in modules C1-C4. Armstrong facilitates ceiling panels recycling through our Takeback program. The recovery data is based on internal averages for commingled ceiling panels that arrived at Armstrong factories from the construction and demolition site at end of product life. Remaining panels were assumed to be landfilled as per standard industry practice.

3.5 REFERENCE SERVICE LIFE AND ESTIMATED BUILDING SERVICE LIFE

In accordance with the PCR, the Reference Service Life (RSL) for this study was assumed to be 30 years.

3.6 ALLOCATION

Allocation at the manufacturing plant was based on production volume. Allocation of background data (energy and materials) taken from the Sphera® MLC databases.

3.7 CUT-OFF RULES

No known flows are deliberately excluded from this EPD. The system boundary was defined based on relevance to the goal of the study. For the processes within the system boundary, all available energy and material flow data have been included in the model. In cases where no matching life cycle inventories are available to represent a flow, proxy data have been applied based on conservative assumptions regarding environmental impacts.

3.8 DATA SOURCES

Primary data for this study was collected from the manufacturing facility for 2023 and datasets for materials upstream from manufacturing were obtained from the Sphera MLC database version 10.7.0.183.

3.9 DATA QUALITY

The data quality ranges from good to very good. The temporal quality of the data is very good with both manufacturing-specific data and MLC Database (formerly GaBi) background data from 2023. Because primary and secondary data were collected specifically to the location of manufacture when possible, geographical representativeness is considered to be good.

3.10 PERIOD UNDER REVIEW

All the primary data in the scope of this analysis was collected from Armstrong manufacturing facilities during 2023.

3.11 COMPARABILITY AND BENCHMARKING

We do not have any data on comparable non-competitive products to report.

3.12 ESTIMATES AND ASSUMPTIONS

The datasets for materials upstream from manufacturing are from the Sphera LCA FE database. When inventories were not available for materials, conservative proxy datasets were chosen based on similarity of material. Additionally and consistent with the PCR, the following assumptions in Table 5 related to transport, installation, and deconstruction procedures were made.

Table 5. Transport, Installation, & Deconstruction Procedures

Product transport from point of manufacture to building site	Mode: Diesel-powered truck/trailer Distance: 800 km
Product transport from building site to waste processing	Mode: Diesel-powered truck/trailer Distance: 35 km
Installation & deconstruction procedures	Manual (no operational energy use)

3.13 UNITS

Units commonly used in the North American market are included in addition to the required SI units.



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4. TECHNICAL INFORMATION & SCENARIOS

The majority of Armstrong® Ceiling products are distributed within 800 kilometers of the respective manufacturing plants. Transportation emissions and fuels throughout the life cycle phases are included. All transportation associated with raw materials reflect the actual modes of transportation and mileage.

4.1 MANUFACTURING

The manufacturing process has been described in a simple flow chart in Section 2.2.4. FeltWorks – VarAffix are manufactured from acoustical PET sheets. PET sheets are cut to shape, labeled, and necessary hardware components are added, if needed. Products are packaged and shipped for installation. Any manufacturing waste was reported in the primary data for this study.

4.2 PACKAGING

FeltWorks – VarAffix products are well packaged in a variety wooden pallets, cardboard, and LDPE film.

4.3 TRANSPORTATION

The following information specifies any transport after the manufacturing gate. Details of type of transport, type of vehicle, distance, type, and amount of energy carrier are listed. These values are consistent with industry standard assumptions.

Table 6. Transport to the Building Site (A4)

Material	FeltWorks – VarAffix® 9mm PET Felt	Unit
Liters of fuel (Diesel)	0.00314	L/100km/m ³
Transport distance	805	km
Capacity utilization (including empty runs)	67	%
Gross density of products transported	464.45	kg/m ³
Capacity utilization volume factor	1	–



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4.4 PRODUCT INSTALLATION

The ceiling system must be installed in accordance with Armstrong Ceilings installation guidelines. Our ceiling system installation brochure, "Installing Suspended Ceilings", is a general application overview, covering essential steps of a basic suspended ceiling installation. You can reference this document at armstrongceilings.com/installationinstructions

Table 7. Installation Into The Building (A5)

Name	FeltWorks – VarAffix® 9mm PET Felt	Unit
Ancillary materials	0	kg
Net freshwater consumption specified by water source and fate (X m ³ river water evaporated, X m ³ city water disposed to sewer)	0	m ³
Other resources	0	kg
Electricity consumption	0	kWh
Other energy carriers	0	MJ
Product loss per declared unit	0	kg
Waste materials at the construction site before waste processing, generated by product installation	0.063	kg
Output materials resulting from on-site waste processing	0	kg
Mass of packaging waste specified by type		
Plastic	0.0035	kg
Metal	0	kg
Cardboard	0.0344	kg
Wood	0.0253	kg
Biogenic carbon contained in packaging	0.000	kg CO ₂ eq.
Direct emissions to ambient air, soil and water	–	kg
VOC emissions	≤ 0.5	mg/m ³

4.5 USE

A product's RSL depends on the product properties and reference in-use conditions. The default RSL assumed in this PCR is 30 years for both ceiling and wall products.

4.6 DISPOSAL

End of Life

The end-of-life phase for the ceiling panels was included in the study. End-of-life impacts include landfill disposal of ceiling panels.

Table 8. End of Life (C1-C4)

Name	FeltWorks – VarAffix® 9mm PET Felt	Unit
Collection process (specified by type)		
Collected separately	0	kg
Collected with mixed construction waste	0	kg
Reuse	0	kg
Recycling	0	kg
Recovery (specified by type)		
Incineration	0	kg
Incineration with energy recovery	0	kg
Energy conversion (specify efficiency rate)	0	kg
Disposal (specified by type)		
Product or material for final disposal	0.239	kg
Removals of biogenic carbon (excluding packaging)	0	kg CO ₂

4.7 REUSE PHASE

Table 9. Reuse, Recovery, and/or Recycling Potentials (D), Relevant Scenario Information

Name	Value	Unit
Net energy benefit from energy recovery from waste treatment declared as exported energy in C3 (R>0.6)	0	MJ
Net energy benefit from thermal energy due to treatment of waste declared as exported energy in C4 (R<0.6)	0	MJ
Net energy benefit from material flow declared in C3 for energy recovery	0	MJ
Process and conversion efficiencies	–	
Further assumptions for scenario development	–	



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5. ENVIRONMENTAL INDICATORS DERIVED FROM LCA

5.1 LCA RESULTS FROM LCIA

The Life Cycle Assessment (LCA) was performed according to ISO 14040 guidelines and follows the specific PCR instructions. The cradle-to-gate with options LCA consists of raw material production, transport of raw materials to production facility prior to processing, manufacturing of ceiling and wall panels, packaging; transportation to job site and installation, and end of life.

5.2 LCA RESULTS FROM LCIA

Life cycle impacts reported below are based on TRACI 2.1 methodology. Results are provided in reference to the declared unit. For the other impact categories, results are presented in the tables below using the ISO 21930 standard and for the declared unit. Because products include biobased content, they store or sequester carbon. Table 11 includes both Global Warming Potential (GWP) excluding biogenic and GWP including biogenic carbon. LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks. These six impact categories are globally deemed mature enough to be included in Type III environmental declarations. Other categories are being developed and defined and LCA should continue making advances in their development. However, the EPD users shall not use additional measures for comparative purposes.

Table 10. Description of the System Boundary Modules*

			EPD Type Cradle to Gate w/ Options		
(X = INCLUDED IN LCA; MND = MODULE NOT DECLARED)					
Production	A1	Raw Material Supply	×		
	A2	Transport	×		
	A3	Manufacturing	×		
Construction	A4	Transport to site	×		
	A5	Assembly/Install	×		
Use	B1	Use	B6 Operational Energy Use of Building Integrated System During Product Use	B7 Operational Water Use of Building Integrated System During Product Use	
	B2	Maintenance			
	B3	Repair			
	B4	Replacement			
	B5	Refurbishment			
	B6	Operational Energy Use	MND		
End of Life	B7	Deconstruction	MND		
	C1	Deconstruction	×		
	C2	Transport	×		
	C3	Waste processing	×		
Benefits & Loads Beyond System Boundary	C4	Disposal	×		
	D	Reuse, Recovery, Recycling Potential	MND		

* Results for modules A1-A3 results are aggregated, as described in the PCR.

Table 11. TRACI 2.2 Impact Assessment for 0.093 m² (1 ft²) of FeltWorks – VarAffix® 9mm PET Felt *

Parameter	Source	Unit	A1	A2	A3	A4	A5	C2	C4
GWP, excluding biogenic	TRACI 2.2	kg CO ₂ eq.	1.25E+00	4.66E-02	3.67E-01	7.43E-03	9.84E-03	3.24E-04	2.45E-03
ODP	TRACI 2.2	kg CFC 11 eq.	6.25E-08	1.11E-16	1.11E-14	1.93E-17	2.97E-17	8.43E-19	1.20E-16
AP	TRACI 2.2	kg SO ₂ eq.	5.42E-03	8.41E-04	1.61E-04	3.44E-05	8.38E-05	9.11E-07	1.29E-05
EP	TRACI 2.2	kg N ₂ eq.	2.39E-03	3.69E-05	8.47E-06	3.05E-06	3.96E-05	9.54E-07	2.07E-05
SFP	TRACI 2.2	kg O ₃ eq.	9.10E-02	1.90E-02	1.73E-03	7.97E-04	1.77E-04	2.08E-05	2.36E-04
FFD	TRACI 2.2	kg CO ₂ eq.	2.63E+00	8.40E-02	1.23E-01	1.39E-02	1.36E-03	6.08E-04	4.91E-03

* Modules C1 and C3 are null





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5.3 LCA RESULTS FROM LCI

Table 12. LCA Results – Resource Use for 0.093 m² (1 ft²) of FeltWorks – VarAffix® 9mm PET Felt *

Parameter		Unit	A1	A2	A3	A4	A5	C2	C4
RPRe	Renewable primary resources used as energy carrier (fuel)	MJ, LHV	1.55E-01	1.57E-02	2.97E-01	4.18E-03	1.17E-03	1.83E-04	4.57E-03
RPRM	Renewable primary resources with energy content used as material	MJ, LHV	0.00E+00						
NRPRE	Non-renewable primary resources used as an energy carrier (fuel)	MJ, LHV	4.39E-01	6.35E-01	1.45E+00	1.05E-01	1.07E-02	4.60E-03	3.90E-02
NRPRM	Non-renewable primary resources with energy content used as material	MJ, LHV	0.00E+00						
SM	Secondary materials	kg	0.00E+00						
RSF	Renewable secondary fuels	kg	0.00E+00						
NRDF	Non-renewable secondary fuels	m ³	0.00E+00						
RE	Recovered Energy	MJ, LHV	0.00E+00						
FW	Use of net fresh water	m ³	1.50E-04	5.05E-05	9.42E-04	1.44E-05	2.66E-06	6.28E-07	4.84E-06

* Modules C1 and C3 are null

Table 13. LCA Results – Output Flows & Waste Categories for 0.093 m² (1 ft²) of FeltWorks – VarAffix® 9mm PET Felt *

Parameter		Unit	A1	A2	A3	A4	A5	C2	C4
HWD	Hazardous waste disposed	kg	3.30E-05	1.78E-12	4.82E-11	3.02E-13	2.43E-13	1.32E-14	9.73E-13
NHWD	NHWD Non-hazardous waste disposed	kg	1.09E-01	4.38E-05	2.69E-02	9.14E-06	2.45E-02	4.00E-07	1.16E-01
RWD	Radioactive waste disposal	kg	1.78E-06	1.78E-06	1.45E-04	3.01E-07	1.10E-07	1.32E-08	4.32E-07
HLRW	HLRW High-level radioactive waste, conditioned, to final repository	kg	2.13E-09	2.09E-09	1.73E-07	3.57E-10	1.23E-10	1.56E-11	4.83E-10
ILLRW	Intermediate- and low-level radioactive waste, conditioned, to final repository	kg	1.78E-06	1.75E-06	1.44E-04	3.01E-07	1.09E-07	1.32E-08	4.32E-07
CRU	Components for re-use	kg	0.00E+00						
MFR	Materials for recycling	kg	0.00E+00						
MER	Materials for energy recovery	kg	0.00E+00						
EE	Recovered energy exported from the product system	MJ	0.00E+00						

* Modules C1 and C3 are null



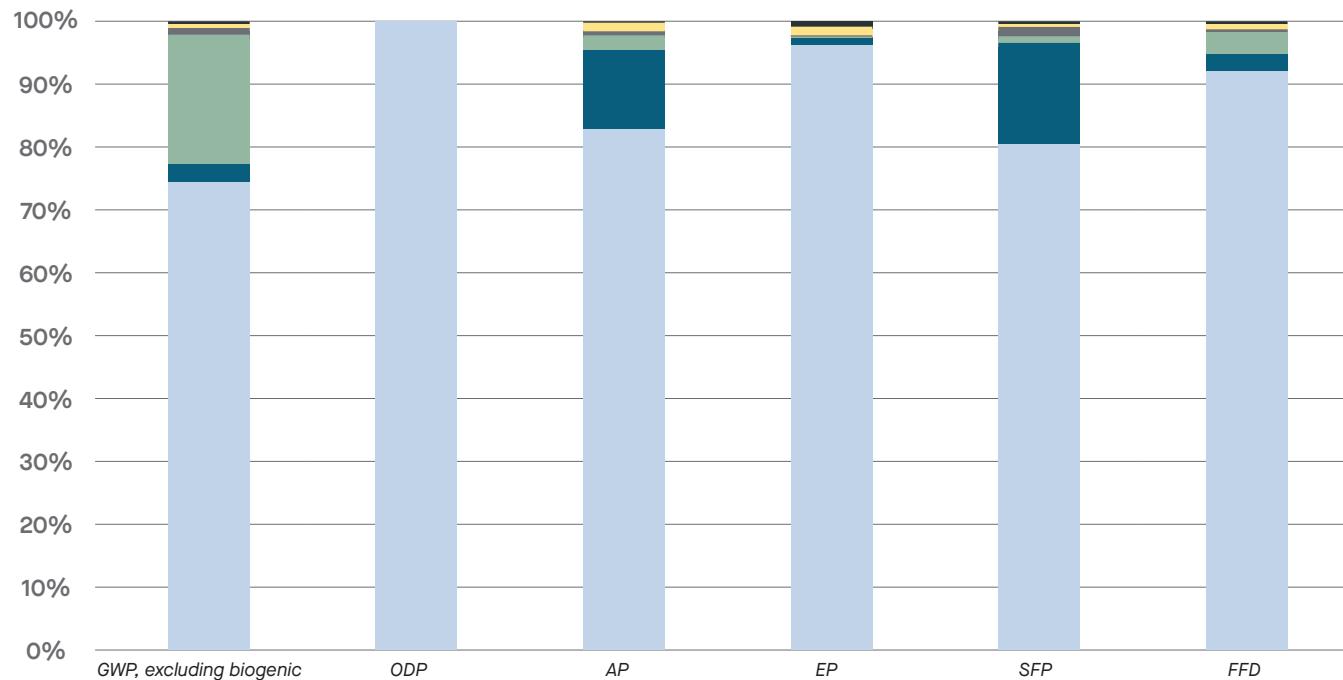
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6. LCA: INTERPRETATION

The ceiling life cycle covered in this study concluded that the ceiling panel manufacturing process and raw materials in the ceiling panel have the greatest impact on “carbon footprint” as represented by Global Warming Potential [GWP].



● A1

Life Cycle Impact Assessment of the ceiling panels' relative importance in percentage terms for the Production, Construction, and End-of-Life stages for the ceiling panel.

● A2

¹ Based on U.S. EPA TRACI 2.2 Impact Factors

● A3

● A4

● A5

● C2

● C4



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7. ADDITIONAL ENVIRONMENTAL INFORMATION

7.1 ENVIRONMENT & HEALTH DURING MANUFACTURING

Armstrong World Industries has a comprehensive environmental, health, and safety management program. Risk reduction begins in the product design process. All products go through a safety, health, and environmental review prior to sale. Armstrong also has a long-standing commitment to the safety and health of all our employees.

Armstrong World Industries is equally committed to reducing our environmental impact. As with safety goals, each manufacturing facility has environmental initiatives focused on responsible use of energy and water, and on waste reduction.

7.2 ENVIRONMENT & HEALTH DURING INSTALLATION

All recommendations shall be utilized as indicated by SDS and installation guidelines. Specific product SDS and installation instructions can be downloaded at: armstrongceilings.com/pdbupimages-clg/217521.pdf

7.3 ENVIRONMENTAL ACTIVITIES & CERTIFICATIONS

All environmental certifications can be found at: armstrongceilings.com

7.4 FURTHER INFORMATION

Additional Information can be found at: armstrongceilings.com/varaffix

8. PROJECT REPORT & SUPPORTING DOCUMENTATION

This study provides life cycle inventory and environmental impacts relevant to Armstrong® suspended ceilings. This report is intended to fulfill the reporting requirements in Section 5 of ISO 14044 and Product Category Rules Guidance for Building-Related Products and Services UL® Environments (2021) Part B: Non-Metal Ceiling and Interior Wall Panel EPD Requirements, UL® Environment, v.2 04/2021.

Armstrong World Industries has a robust internal Quality Assurance process that is based on industry-accepted best practices and is led by a team of quality professionals who have been certified by the American Society for Quality. The process involves several hundred different measures made throughout the manufacturing processes. In addition, our products are UL® labeled for fire and acoustical performance – a process which involves strict oversight by Underwriters Laboratories. The Armstrong Ceilings acoustical laboratory is ISO 17025 certified and is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

9. REFERENCE

Armstrong World Industries. [2024]. TURF DESIGN 3mm, 5mm, and 9mm Polyester (PET) Felt Panels and VarAffix Felt Panels. [Internal unpublished report]

ASTM International General Program instructions, v8.0, April 29, 2020

CML v 4.7 August 2016

ISO 14025:2006 – Environmental labels and declarations – Type III environmental declarations – Principles and procedures

ISO 14040/Amd1:2020 – Environmental management – Life Cycle Assessment – Principles and framework

ISO 14044:2006/Amd2:2020/Environmental management – Life cycle assessment – Requirements and guidelines

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

Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers Version 1.2, January 2017

Product Category Rules for Building Related Products and Services – Part A: LCA Calculation Rules and Report Requirements, UL 10010, UL v 4.0, March 2022

Product Category Rules Guidance for Building Related Products & Services – Part B: Non-Metal Ceiling and Interior Wall Panel EPD Requirements, UL Environment, v2.04/2021