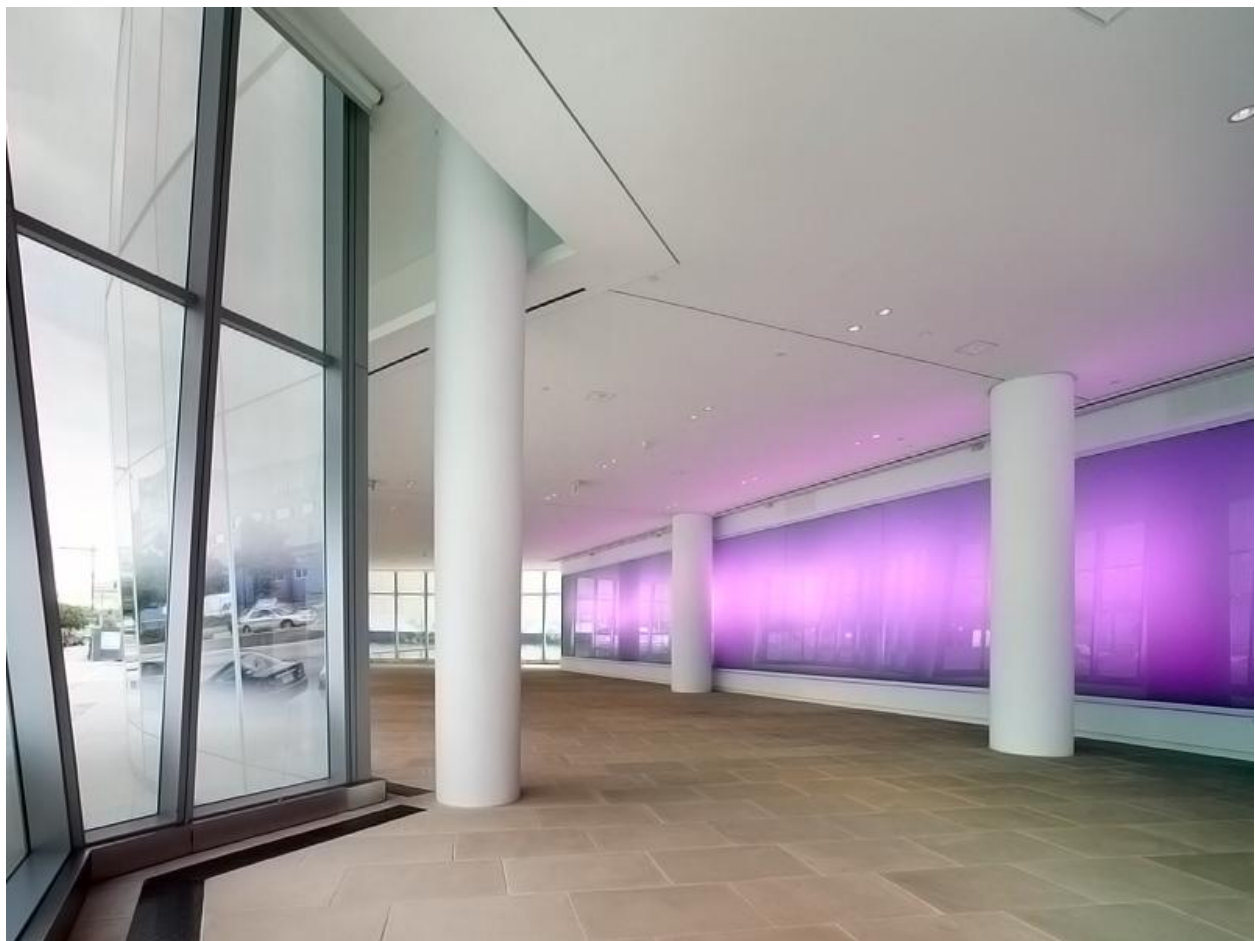


P Y R O K™

Environmental Product Declaration

In accordance with ISO 14025:2006 and ISO 21930:2017



Environmental Product Declaration for StarSilent Acoustic Insulation Plaster products by Pyrok, Inc.

ADMINISTRATIVE INFORMATION

International Certified Environmental Product Declaration

Declared Product and Declared Unit:	This Environmental Product Declaration (EPD) covers acoustic insulation plaster products produced by Pyrok Inc., declared unit: 0.093 m ² (1 sq ft) of acoustic insulation plaster for walls and ceilings	
Declaration Owner:	Pyrok, Inc.	PYROK™
	24 Barry Drive NE	
	White, Georgia 30184, USA	
	https://www.pyrok.com/	
Program Operator:	Labeling Sustainability	 LABELING sustainability
	200 S.Rosemary	
	West Palm Beach, FL	
	https://www.labelingsustainability.com/	
Product Category Rule:	Product Category Rules for Building-Related Products and Services Published by UL Environment Part A: Life Cycle Assessment Calculation Rules and Report Requirements, UL 10010 v4.0, and Part B: Non-Metal Ceiling and Interior Wall Panel System EPD Requirements, version 2	
	PCR Program Operator: UL	
	PCR review was conducted by: Dr. Lindita Bushi, Dr. Tom Gloria and Olivia Palmer	
	ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services	
	ISO 14040:2006 Environmental Management - Life Cycle Assessment - Principles and Framework	
	ISO 14044:2006 Environmental Management - Life Cycle Assessment - Requirements and Guidelines	
Market of Applicability	North America	
EPD Scope	Cradle-to-gate (A1-A3)	
EPD Type	Manufacturer-Specific EPD	
LCIA Method and Version	TRACI 2.1, IPCC 2013 (AR5) CML-IA v4.8 (2016)	
Independent LCA Reviewer and EPD Verifier:	This declaration was independently verified in accordance with ISO 14025:2006	
	Independent verification of the declaration, according to ISO 14025:2006	
	External: X	
	Third Party Verifier	
	Hammad Ur Rehman, Certified 3rd Party Verifier under Labeling Sustainability Program (www.labelingsustainability.com)	
Date of Issue:	31 August 2025	
Period of Validity:	5 years; valid until 31 August 2030	
EPD Number:	AIPPRIN20250831	

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COMPANY DESCRIPTION

Pyrok, Inc. provides seamless and durable sound-absorbing wall and ceiling treatments for architectural design. It is their mission to assist architectural, consulting and contracting clients on how to integrate Pyrok's sound-absorbing products into design projects. Pyrok, Inc. prides itself on taking a sustainable and proactive approach to acoustical considerations in the design phase. They provide unsurpassed service starting in the design phase and continuing during the construction phase. Pyrok, Inc. also offers assistance with cleaning and repair years after a project has been occupied.

STUDY GOAL

The intended application of the background life cycle assessment (LCA) study was to comply with the procedures for creating a Type III environmental product declaration (EPD) and publish the EPD for public review on the website, <https://www.labelingsustainability.com/epd-registry>. This level of study is in accordance with the product category rule (PCR) for building-related products and services published by UL Environment, Part A: Life Cycle Assessment Calculation Rules and Report Requirements, v4.0, Part B: Non-Metal Ceiling and Interior Wall Panel System EPD Requirements, version2, ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services, ISO 14044:2006 Environmental management, Life cycle assessment- Requirements and guidelines; and ISO 14040:2006 Environmental management, Life cycle assessment-Principles and framework. The performance of this study and its subsequent publishing is in alignment with the business-to-business (B2B) communication requirements for the environmental assessment of building products. This study does not intend to support comparative assertions and is intended to be disclosed to the public.

The project report was commissioned to differentiate Pyrok, Inc. from their competition for the following reasons: generate an advantage for the organization; offer customers information to help them make informed product decisions; identify and quantify the environmental impacts associated with Pyrok Acoustic insulation plaster products to support future strategies for impact reduction based on measurable data and to strengthen Pyrok, Inc.'s license to operate in the community. The intended audience for this EPD report is Pyrok, Inc.'s employees, their suppliers, project specifiers of their products, architects, and engineers. The EPD report is also available for policymakers, government officials interested in sustainability, academic professors, and LCA professionals. This EPD report does not include product comparisons from other facilities.

PRODUCT DESCRIPTION AND APPLICATION

StarSilent seamless acoustical plaster ceiling is comprised of a sound-absorbing board that allows jointless areas of up to 1800 square feet. The substrate is then coated with StarSilent smooth acoustic fiber-free plaster, resulting in an aesthetically pleasing and smooth finish. The StarSilent system is a smooth, seamless, sound-absorbing, and durable plaster finish system for interior and suspended ceilings, as well as wall structures, where both acoustic performance and a seamless architectural finish are desired. The StarSilent panel is a sound-absorbing panel made of post-consumer, recycled, crushed glass bottles and coated with sound-permeable plaster.

DECLARED PRODUCT

Declared unit: 0.093 m² (1 square foot) of acoustic insulation plaster with thicknesses as specified in Table 1.

The following table highlights the technical parameters, including mass, thickness and density of the acoustic insulation plaster products covered in this study.

Table 1: **Declared unit parameters.**

Product	Declared thickness (cm)	Surface weight (kg/m ²)	Density (kg/m ³)
StarSilent 25mm - smooth	2.5	6.875	275
StarSilent 25mm - superfine	2.5	6.875	275
StarSilent 15mm - smooth	1.5	4.125	275
StarSilent 15mm - superfine	1.5	4.125	275
StarSilent 10mm - smooth	1.0	2.750	275
StarSilent 10mm - superfine	1.0	2.750	275

ACOUSTIC INSULATION PLASTER DESIGN SUMMARY

The following table provides a list of the acoustic insulation plaster products considered in this EPD, along with key performance parameters.

Table 2: **Product specifications.**

Pro d#	Product	Short description	Product type	Unit, m ²	Density, dry kg/DU	bio-carbon content, kg C/DU dry basis
1	StarSilent 25mm - smooth	StarSilent is a seamless, sound-absorbing acoustical panel system (made from glass) that is installed on wall and ceiling framing.	Acoustic Plaster	0.093	0.639	0.00
2	StarSilent 25mm - superfine	StarSilent is a seamless, sound-absorbing acoustical panel system	Acoustic Plaster	0.093	0.639	0.00

		(made from glass) that is installed on wall and ceiling framing.				
3	StarSilent 15mm - smooth	StarSilent is a seamless, sound-absorbing acoustical panel system (made from glass) that is installed on wall and ceiling framing.	Acoustic Plaster	0.093	0.384	0.00
4	StarSilent 15mm - superfine	StarSilent is a seamless, sound-absorbing acoustical panel system (made from glass) that is installed on wall and ceiling framing.	Acoustic Plaster	0.093	0.384	0.00
5	StarSilent 10mm - smooth	StarSilent is a seamless, sound-absorbing acoustical panel system (made from glass) that is installed on wall and ceiling framing.	Acoustic Plaster	0.093	0.256	0.00
6	StarSilent 10mm - superfine	StarSilent is a seamless, sound-absorbing acoustical panel system (made from glass) that is installed on wall and ceiling framing.	Acoustic Plaster	0.093	0.256	0.00

DESIGN COMPOSITION

The following table provides the material composition of the acoustic insulation plaster products by mass percentage.

Table 3: **Product design composition.**

Materials	Value	Unit
Expanded glass granulate	80 - 90	% by mass
Fleece	1.5 - 3.0	% by mass
Glass fiber, nonwoven	6.0 - 9.0	% by mass

TECHNICAL DATA

The following table outlines the technical data of the acoustic insulation plaster products discussed in the study.

Table 4: **Technical data.**

Name & Test Method	Unit	StarSilent 25mm- smooth	StarSilent 25mm- superfine	StarSilent 15mm- smooth	StarSilent 15mm- superfine	StarSilent 10mm- smooth	StarSilent 10mm- superfine
Sound Absorption Coefficient (NRC), ASTM C423	NRC	0.85	0.80	0.65	0.60	0.75	0.70
Light Reflectance (LR), L-value	%	89	89	89	89	89	89
Articulation Class (AR), ASTM E1111 & E1110	n/a	-	-	-	-	-	-
Sound Transmission Class (STC), ASTM E413 & E90	dB	-	-	-	-	-	-
Ceiling Attenuation Class (CAC), ASTM E1414 & E1413	dB	-	-	-	-	-	-
Surface burning characteristics of building materials, ASTM E84 & E1264	flame spread/ smoke develop	Class A	Class A	Class A	Class A	Class A	Class A
Available length	cm	120	120	120	120	120	120
Available width	cm	62.5	62.5	240	240	80	80
Available thickness	cm	2.5	2.5	1.5	1.5	1.0	1.0

FLOW DIAGRAM

The following figure illustrates the general operational activities carried out by the Pyrok for the acoustic insulation product system.

Figure 1: **Process flow diagram for the acoustic insulation product system.**

Acoustic insulation panels are produced in Europe, while Pyrok manages the warehousing operations prior to the distribution at its facility located in White, Georgia. These activities include storage, packaging as required, and final preparation for shipment. The products are secured on wooden pallets, wrapped in shrink film to ensure stability and protection during transport, and made ready for delivery to job sites.

SYSTEM BOUNDARIES

The following figure depicts the cradle-to-gate (A1-A3) system boundary considered in this study:

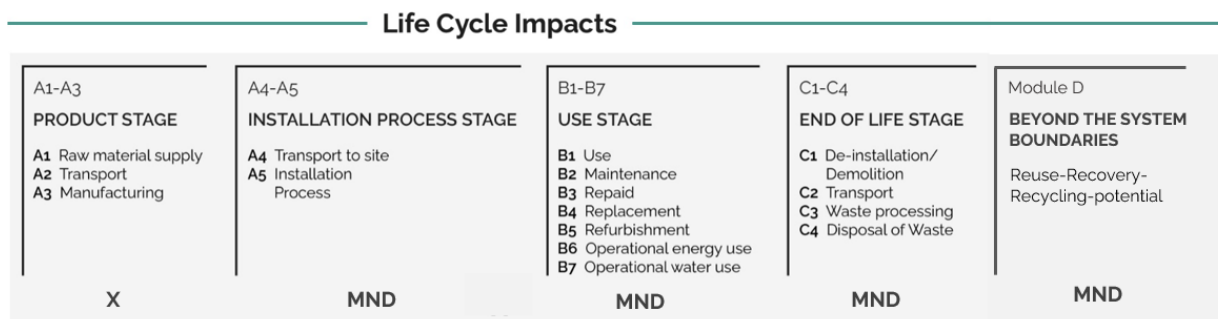


Figure 2: General life cycle phases for consideration in a construction works system. (X = declared module, MND = module not declared).

The following figure depicts the system boundary considered in this EPD and the general activities and input requirements for producing acoustic insulation plaster products, and it is not necessarily exhaustive.

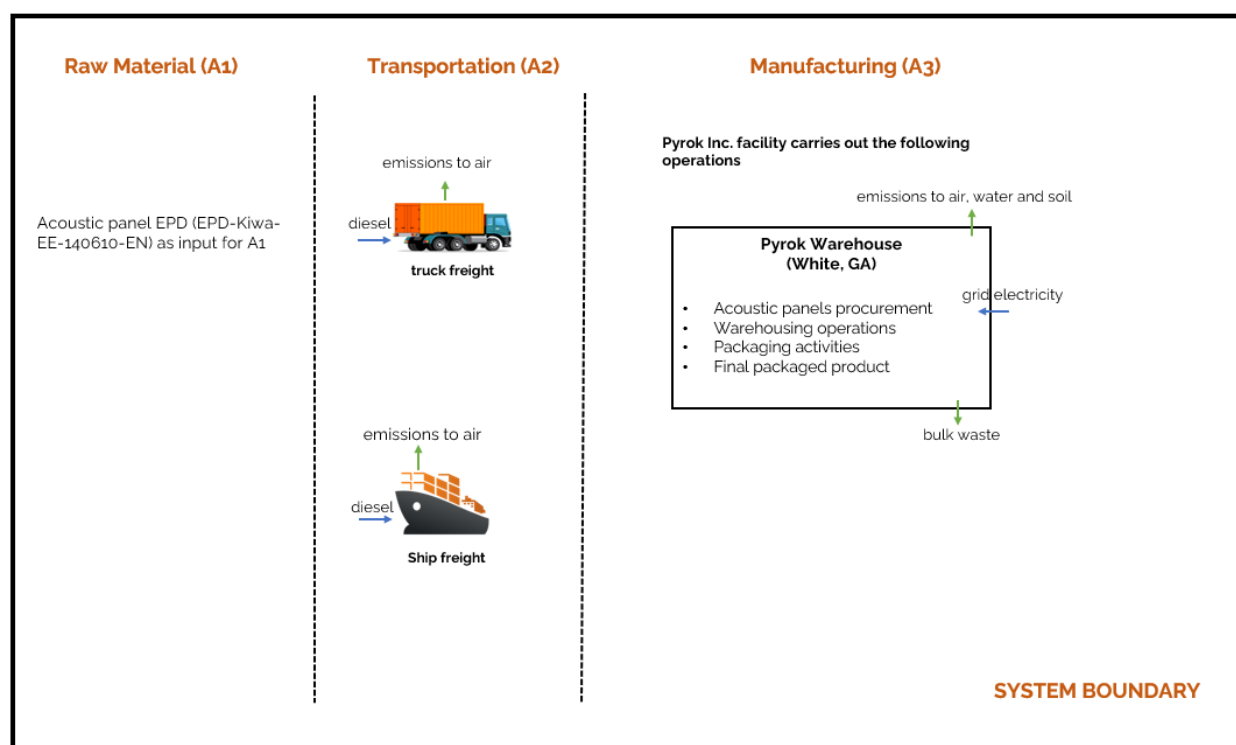


Figure 3: General system inputs considered in the product system and categorized by modules in scope.

The following life cycle stages are included in this EPD:

- A1: Raw material supply (upstream processes) - Extraction, handling, and processing of the materials used in the manufacturing of the declared products.
- A2: Transportation - Transportation of A1 materials from the supplier to the "gate" of the manufacturing facility (i.e., A3).
- A3: Manufacturing (core processes)- The energy and other utility inputs used to store, move, and manufacture the declared products and to operate the facility.

The life cycle stages or modules not covered by this EPD include the product distribution stage (A4), installation (A5), use stage (B1-B7), end-of-life (C1-C4), and Module D.

In addition, according to the relevant PCR, the following requirements are excluded from this study:

- Production, manufacture, and construction of A3 building/capital goods and infrastructure.
- Personnel-related activities (travel, furniture, office supplies);
- Energy use is related to company management and sales activities.
- Packaging of incoming raw materials (e.g, plastic bags, pallets, etc.) is excluded as it accounts for less than 1% of the product's mass.
- Research and development activities.
- Long-term emissions.

REPORTING PERIOD

This study is based on data representative of 12 months under review (January 1, 2024, to December 31, 2024) for the product system.

CUT-OFF CRITERIA

ISO 14044:2006 and the focus PCR require the LCA model to contain a minimum of 95% of the total inflows (mass and energy) to the upstream and core modules to be included in this study. The cut-off criteria were applied to all other processes unless otherwise noted above as follows. A 1% cut-off is applied to all renewable and non-renewable primary energy consumption, as well as the total mass of inputs within a unit process, provided that the total of the neglected inputs does not exceed 5%.

ALLOCATION

This EPD follows the allocation guidelines of ISO 14044, ISO 21930, and the reference PCR.

Where possible, allocation was avoided. When allocation was necessary, both the reference EPD (EPD-Kiwa-EE-140610-EN) and this EPD allocate inputs and outputs based on physical relationships, i.e., on an area basis. For secondary material inputs, both EPDs adhere to the polluter-pays principle. Accordingly, the environmental impacts attributed to these materials are limited to the treatment and transportation required for their use as a material input.

As a default, secondary ecoinvent datasets apply allocation on a physical mass basis. The processing and recycling of the net amount of scrap existing in the system, defined as the difference between scrap outputs and secondary material inputs, fall outside the scope of this study.

The system boundary of this EPD is defined in accordance with the modularity principle as outlined in ISO 21930. All environmental impacts are assigned to the life cycle stages in which they occur, without allocation to other stages.

COMPARABILITY

Environmental declarations from different programs (Iso 14025) may not be comparable. EPDs are comparable only if prepared from cradle-to-grave life cycle results and based on the same function, quantified by the same functional unit, and taking account of replacement based on the product reference service life (RSL) relative to an assumed building service life, can be used to assist purchasers and users in making informed comparisons between products. This EPD is meant for B2B communication.

No known flows are deliberately excluded from this EPD.

DATA SOURCES AND DATA QUALITY ASSESSMENT

No on-site energy is recovered at this facility.

The following statements explain how the above facility requirements/generation were derived:

Raw material transport:

For A1 raw material inputs, Pyrok Inc. provided all the necessary details. The transportation of these materials to the Pyrok's warehouse was determined based on the actual distance from the supplier(s). Logistics for A2 requirements relied on primary data to document transportation specifics, including the exact distance, mode of transport, and location details such as city, state, and country.

Electricity:

Electricity consumption for warehousing activities was modeled using a default factor of 30 kWh/m²/year, as referenced in the Product Environmental Footprint method (Zampori L & Pant, 2019). The total consumption was scaled to the warehouse storage area and subsequently allocated to the declared unit based on surface area normalization.

National production mix from imports, medium voltage (production of transmission lines, in addition to direct emissions and losses in the grid) of applied electricity for the warehouse storage (A3).

Electricity mix	Source	Amount	Unit
market for electricity, medium voltage/electricity, medium voltage/US-SERC/kWh	Ecoinvent 3.10.1	506.66	g CO ₂ -eq/kWh

Process/space heating:

The facility does not use any fuel for space heating requirements.

Waste generation:

Waste generated at the Pyrok warehouse (A3) includes packaging waste of incoming materials (e.g., pallets, shrink wrap), which was accounted for and incorporated into module A3. Transportation defaults were used because the driver's route and ultimate final destination are unknown. Therefore, the exact mileage could not be confirmed by the waste hauler.

Packaging waste:

Packaging materials account for 1.4%-3.6% of the mass of the main products per the declared unit. The packaging materials used for acoustic insulation products include plastic shrink-wrap and wooden pallets.

Table 5: **End-of-life scenarios and biogenic carbon content of packaging per the declared unit.**

Name	Unit	EoL scenario, worst-case	StarSilent 25mm-smooth	StarSilent 25mm-superfine	StarSilent 15mm-smooth	StarSilent 15mm-superfine	StarSilent 10mm-smooth	StarSilent 10mm-superfine
Shrink-wrap	kg	100% landfilled	3.66E-04	3.66E-04	3.66E-04	3.66E-04	3.66E-04	3.66E-04
Pallet	units	100% landfilled	7.32E-04	7.32E-04	7.32E-04	7.32E-04	7.32E-04	7.32E-04
Biogenic carbon content, plastic	kg C	-	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon content, wooden pallet	kg C	-	8.79E-03	8.79E-03	8.79E-03	8.79E-03	8.79E-03	8.79E-03
Shrink-wrap	kg	100% landfilled	3.66E-04	3.66E-04	3.66E-04	3.66E-04	3.66E-04	3.66E-04

Recovered energy:

No on-site energy is recovered on site.

Module A1 material losses:

A default material loss of 0.2% was considered during transportation.

Direct A3 emissions accounting:

Direct emissions were modeled with the best available ecoinvent processes.

Transport to the building site (A4):

Outside the scope of this EPD.

Installation into the building (A5):

Outside the scope of this EPD.

Use (B1-B5):

Outside the scope of this EPD.

End-of-life (C1-C4):

Outside the scope of this EPD.

Reference service life:

This EPD does not cover the product use stage, and therefore, no claims regarding the product's service life are included in this study.

Preferred waste management:

At the end of the product service life, acoustic plaster products should follow a sustainable cycle through responsible recycling wherever feasible. Materials that are not suitable for recycling shall be managed through appropriate waste treatment and disposal practices. The disposal should follow industry standard practices and regional waste management regulations. Waste materials may be directed to municipal landfills or commercial incineration facilities, ensuring full compliance with local, state, and federal requirements.

DATA SOURCES

The manufacturer provides specific data for the product composition. The data represent the production of the declared product and were collected for EPD development during the study year. Background data is based on EPDs according to ISO 21930, EN 15804, and different LCA databases. The data quality of the raw materials in A1 is presented in the table below. There are no data gaps in the study; if any gaps are identified, they are addressed on a case-by-case basis.

Table 6: LCI inputs assumed for module A1 (i.e., raw material inputs)

Input	Source	Data Quality	Year
Acoustic panel	EPD-Kiwa-EE-140610-EN	3rd-party verified EPD	2023

DATA QUALITY ASSESSMENT

Data quality/variability requirements, as specified in the PCR, are applied. This section describes the achieved data quality relative to the ISO 14044:2006 requirements. Data quality is evaluated based on its precision (measured, calculated, or estimated), completeness (e.g., unreported emissions), consistency (the degree of uniformity in the methodology applied within a study serving as a data source), and representativeness (geographical, temporal, and technological).

Precision:

Through measurement and calculation, the manufacturer collected and provided primary data on their annual production. All A1 inputs in this EPD were modeled using a third-party verified reference EPD, with no additional modeling other than unit conversions. For accuracy, the LCA practitioner and 3rd Party verifier validated the plant gate-to-gate data.

Completeness:

All relevant specific processes, including inputs (raw materials, energy, and ancillary materials) and outputs (emissions and production volume), were considered and modeled to represent the specified and declared products. The majority of relevant background materials and processes were sourced from the ecoinvent LCI datasets, which utilize relatively recent region-specific electricity inputs.

Consistency:

To ensure consistency, the same modeling structure across the respective product systems was utilized for all inputs, which consisted of raw material inputs and ancillary material, energy flows, water resource inputs, product and co-products outputs, returned and recovered materials, emissions to air, water, and soil, and waste recycling and treatment. The same background LCI datasets from the ecoinvent database were used across all product systems. Cross-checks concerning the plausibility of mass and energy flows were continuously conducted. The LCA team conducted mass and energy balances at both the plant and process levels to maintain a high level of consistency.

Reproducibility:

Internal reproducibility is possible since the data and the models are stored and available in a machine-readable project file for all foreground and background processes. A considerable level of transparency is provided throughout the detailed LCA report as the specifications and material quantity make-up for the declared products are presented, and key primary and secondary LCI data sources are summarized. The provision of more detailed, publicly accessible data to allow full external reproducibility was not possible due to confidentiality reasons.

Representativeness:

The representativeness of the data is summarized as follows:

- Time-related coverage of the manufacturing processes' primary collected data from January 1, 2024, to December 31, 2024.
- Upstream (background) LCI data were either the PCR-specified default (if applicable) or more appropriate LCI datasets as found in the country-adjusted ecoinvent database.
- The geographical coverage for inputs required by the A3 facility is representative of its region of focus. Other upstream and background processes are based on US, North American, or global average data and adjusted to regional electricity mixes when relevant.
- Technological coverage is typical or average and specific to the participating facilities for all primary data.

Treatment of Missing Data:

In this study, missing data were not imputed as zeros; instead, data gaps were addressed using default assumptions provided by the Product Category Rules (PCR) or through verified sources, such as the ecoinvent database. Secondary sources such as LCA databases (e.g., ecoinvent) and industry-specific literature were consulted when primary data were unavailable. In cases where neither primary nor secondary data was accessible, analogous processes or materials were selected as proxies, ensuring that their selection was well-reasoned and appropriately justified. Missing data were minimized to the

extent possible. Any remaining data gaps were filled with conservative estimates that do not significantly influence the overall LCA results.

Sources of Data:

All manufacturing processes were based on primary data. For raw materials, facility-specific supplier-provided data or third-party verified EPD was utilized whenever it was accessible. In the absence of primary data, relevant secondary data from the ecoinvent database was used to represent the supply chain of the product system under study.

Uncertainty:

Primary data was collected for over 95% of the processes involved. As such, uncertainty is considered low and does not significantly influence the overall LCA results. In instances where primary data was unavailable, representative datasets were employed that closely reflect the regional and temporal scope of the project.

ASSUMPTIONS AND ESTIMATES

All estimates and assumptions are within the requirements of ISO 14040/44. Certain assumptions made in this study may have influenced the results:

- The weights of each packaging material used were estimated based on industry averages.
- Region-specific electricity was modeled to represent the electricity mix, using the ecoinvent database v3.10.1.
- The allocation of inputs and outputs is based on physical characteristics, i.e., area basis.
- Electricity consumption for warehouse storage (A3) was modeled following the Product Environmental Footprint method (Zampori L & Pant, 2019).

ENVIRONMENTAL INDICATORS AND INVENTORY METRICS

Per the PCR, this EPD supports the life cycle impact assessment indicators and inventory metrics as listed in the tables below. Additionally, the PCR requires a set of inventory metrics to be reported with the LCIA indicators (see tables below).

*The background data (EPD-Kiwa-EE-140610-EN) used for A1 inputs reports results in accordance with EN 15804+A2 indicators. As TRACI indicators are not provided and no standardized conversion methodology exists between EN and TRACI characterization models, recalculation is not possible without LCI data. Therefore, the EN results have been applied as reported, with the understanding that TRACI indicators may not fully represent this input.

Life cycle inventory (LCI) results for modules A2 (Transportation) and A3 (Manufacturing) were reported using the following LCIA methods:

- IPCC 2013 developed the Intergovernmental Panel on Climate Change based on Fifth Assessment Report (AR5).
- TRACI (Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts), developed by the U.S. EPA.
- CML-IA, developed at Leiden University.

Characterization factors were applied using established LCIA methods, including TRACI 2.1 (Bare et al., 2012), CML-IA (v4.8, 2016) (Guinée et al., 2016), and IPCC 2013 (AR5) to convert inventory data into potential environmental impacts.

Table 7: **Life cycle impact categories and life cycle inventory metrics.**

ID	LCIA indicators	Abbreviations	Units
1	Climate change: global warming potential	GWP100	kg CO ₂ -eq
2	Ozone depletion: ozone depletion potential (ODP)	ODP	kg CFC-11-eq
3	Acidification: acidification potential (AP)	AP	kg SO ₂ -eq
4	Eutrophication: eutrophication potential	EP	kg N-eq
5	Smog formation potential	SFP	kg O ₃ -eq
6	Energy resources: non-renewable: abiotic depletion potential (ADP): fossil fuels	ADP _{fossil}	MJ
Inventory metrics			
7	Inventory indicators ISO21930: Cumulative Energy Demand - renewable energy resources	RPRE	MJ
8	Inventory indicators ISO21930: Renewable primary resources with energy content used as material (i.e., PERM)	RPRM	MJ
9	Inventory indicators ISO21930: Cumulative Energy Demand - non-renewable energy resources	NRPPE	MJ
10	Inventory indicators ISO21930: Non-renewable primary resources with energy content used as material (i.e., PENRM)	NRPRM	MJ
11	Inventory indicators ISO21930: use of secondary material	SM	kg
12	Inventory indicators ISO21930: use of renewable secondary fuels	RSF	MJ
13	Inventory indicators ISO21930: use of non-renewable secondary fuels	NRSF	MJ
14	Inventory indicators ISO21930: recovered energy	RE	MJ
15	Inventory indicators ISO21930: use of net fresh water	FW	m ³
16	Inventory indicators ISO21930: hazardous waste disposed	HWD	kg
17	Inventory indicators ISO21930: non-hazardous waste disposed	NHWD	kg
18	Inventory indicators ISO21930: radioactive waste disposed	RWD	kg
19	Inventory indicators ISO21930: materials for recycling	MR	kg
20	Inventory indicators ISO21930: materials for energy recovery	MER	kg
21	Inventory indicators ISO21930: exported energy - electricity	EE _{el}	MJ
22	Inventory indicators ISO21930: exported energy - heat	EE _{heat}	MJ

It should be noted that emerging LCA impact categories and inventory items are still under development and may have high levels of uncertainty, which preclude international acceptance pending further development. Use caution when interpreting data in any of the following categories.

- Renewable primary energy resources as energy (fuel);
- Renewable primary resources as material;
- Non-renewable primary resources as energy (fuel);
- Non-renewable primary resources as material;
- Secondary Materials;
- Renewable secondary fuels;
- Non-renewable secondary fuels;
- Recovered energy;
- Abiotic depletion potential for non-fossil mineral resources.
- Land use-related impacts, for example on biodiversity and/or soil fertility;
- Toxicological aspects;
- Emissions from land use change [GWP 100 (land-use change)];
- Hazardous waste disposed;
- Non-hazardous waste disposed;
- Radioactive waste disposed;
- Components for reuse;
- Materials for recycling;
- Materials for energy recovery;
- Recovered energy exported from the product system.

TOTAL IMPACT SUMMARY

The following table presents the total LCA results for each acoustic insulation plaster product produced at a specific facility, reported on a per declared unit basis.

The 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. Toxicity impacts shall be reported under "Additional Environmental Information".

Table 8: Total life cycle (across modules in scope) impact results for all declared products, on a per declared unit (0.093 m2) basis.

a) Midpoint Impact Categories:

Indicator/LCI Metric	aGWP100 (kg CO2-eq)			
Module	*A1	A2	A3	Total (A1-A3)
StarSilent 25mm – smooth	3.58E-01	1.24E-01	3.29E-02	5.15E-01
StarSilent 25mm – superfine	3.58E-01	1.24E-01	3.29E-02	5.15E-01
StarSilent 15mm – smooth	2.15E-01	7.47E-02	3.29E-02	3.23E-01
StarSilent 15mm – superfine	2.15E-01	7.47E-02	3.29E-02	3.23E-01
StarSilent 10mm – smooth	1.43E-01	4.98E-02	3.29E-02	2.26E-01
StarSilent 10mm – superfine	1.43E-01	4.98E-02	3.29E-02	2.26E-01
ODP (kg CFC-11-eq)				
StarSilent 25mm – smooth	3.87E-08	1.52E-09	5.74E-10	4.08E-08
StarSilent 25mm – superfine	3.87E-08	1.52E-09	5.74E-10	4.08E-08
StarSilent 15mm – smooth	2.32E-08	9.15E-10	5.74E-10	2.47E-08
StarSilent 15mm – superfine	2.32E-08	9.15E-10	5.74E-10	2.47E-08
StarSilent 10mm – smooth	1.55E-08	6.10E-10	5.74E-10	1.67E-08
StarSilent 10mm – superfine	1.55E-08	6.10E-10	5.74E-10	1.67E-08
AP (kg SO2-eq)				
StarSilent 25mm – smooth	1.67E-03	1.35E-03	1.16E-04	3.14E-03
StarSilent 25mm – superfine	1.67E-03	1.35E-03	1.16E-04	3.14E-03
StarSilent 15mm – smooth	1.00E-03	8.10E-04	1.16E-04	1.93E-03
StarSilent 15mm – superfine	1.00E-03	8.10E-04	1.16E-04	1.93E-03
StarSilent 10mm – smooth	6.69E-04	5.40E-04	1.16E-04	1.33E-03
StarSilent 10mm – superfine	6.69E-04	5.40E-04	1.16E-04	1.33E-03
EP (kg N-eq)				
StarSilent 25mm – smooth	4.60E-04	1.38E-04	2.21E-01	2.22E-01
StarSilent 25mm – superfine	4.60E-04	1.38E-04	2.21E-01	2.22E-01
StarSilent 15mm – smooth	2.76E-04	8.31E-05	2.21E-01	2.21E-01
StarSilent 15mm – superfine	2.76E-04	8.31E-05	2.21E-01	2.21E-01
StarSilent 10mm – smooth	1.84E-04	5.54E-05	2.21E-01	2.21E-01
StarSilent 10mm – superfine	1.84E-04	5.54E-05	2.21E-01	2.21E-01
SFP (kg O3-eq)				
StarSilent 25mm – smooth	1.38E-03	2.60E-02	1.95E-03	2.93E-02
StarSilent 25mm – superfine	1.38E-03	2.60E-02	1.95E-03	2.93E-02
StarSilent 15mm – smooth	8.26E-04	1.56E-02	1.95E-03	1.84E-02
StarSilent 15mm – superfine	8.26E-04	1.56E-02	1.95E-03	1.84E-02
StarSilent 10mm – smooth	5.51E-04	1.04E-02	1.95E-03	1.29E-02
StarSilent 10mm – superfine	5.51E-04	1.04E-02	1.95E-03	1.29E-02
bADPfossil (MJ)				
StarSilent 25mm – smooth	9.97E+00	1.76E+00	6.87E-01	1.24E+01
StarSilent 25mm – superfine	9.97E+00	1.76E+00	6.87E-01	1.24E+01
StarSilent 15mm – smooth	5.99E+00	1.06E+00	6.87E-01	7.74E+00
StarSilent 15mm – superfine	5.99E+00	1.06E+00	6.87E-01	7.74E+00
StarSilent 10mm – smooth	3.99E+00	7.06E-01	6.87E-01	5.38E+00
StarSilent 10mm – superfine	3.99E+00	7.06E-01	6.87E-01	5.38E+00

^aGWP100 was reported using the IPCC 2013 (AR5) LCIA methodology and it did not include biogenic carbon removals and emissions (GWP-biogenic) and emissions from land use and land use change (GWP-LULUC).

^bADP_{fossil} was reported using the most recent version of CML i.e., CML-IA v4.8 (2016), along with updated characterization factors.

b) Resource Inventory Metrics:

Indicator/LCI Metric	RPRE (MJ)			
Module	A1	A2	A3	Total (A1-A3)
StarSilent 25mm - smooth	3.39E+00	2.07E-02	2.61E-01	3.67E+00
StarSilent 25mm - superfine	3.39E+00	2.07E-02	2.61E-01	3.67E+00
StarSilent 15mm - smooth	2.04E+00	1.24E-02	2.61E-01	2.31E+00
StarSilent 15mm - superfine	2.04E+00	1.24E-02	2.61E-01	2.31E+00
StarSilent 10mm - smooth	1.36E+00	8.28E-03	2.61E-01	1.63E+00
StarSilent 10mm - superfine	1.36E+00	8.28E-03	2.61E-01	1.63E+00
RPRM (MJ)				
StarSilent 25mm - smooth	1.51E+00	0.00E+00	2.29E-01	1.74E+00
StarSilent 25mm - superfine	1.51E+00	0.00E+00	2.29E-01	1.74E+00
StarSilent 15mm - smooth	9.10E-01	0.00E+00	2.29E-01	1.14E+00
StarSilent 15mm - superfine	9.10E-01	0.00E+00	2.29E-01	1.14E+00
StarSilent 10mm - smooth	6.06E-01	0.00E+00	2.29E-01	8.35E-01
StarSilent 10mm - superfine	6.06E-01	0.00E+00	2.29E-01	8.35E-01
NRPRE (MJ)				
StarSilent 25mm - smooth	9.18E+00	1.76E+00	5.13E-01	1.15E+01
StarSilent 25mm - superfine	9.18E+00	1.76E+00	5.13E-01	1.15E+01
StarSilent 15mm - smooth	5.52E+00	1.06E+00	5.13E-01	7.09E+00
StarSilent 15mm - superfine	5.52E+00	1.06E+00	5.13E-01	7.09E+00
StarSilent 10mm - smooth	3.68E+00	7.07E-01	5.13E-01	4.90E+00
StarSilent 10mm - superfine	3.68E+00	7.07E-01	5.13E-01	4.90E+00
NRPRM (MJ)				
StarSilent 25mm - smooth	1.40E+00	0.00E+00	1.74E-01	1.57E+00
StarSilent 25mm - superfine	1.40E+00	0.00E+00	1.74E-01	1.57E+00
StarSilent 15mm - smooth	8.43E-01	0.00E+00	1.74E-01	1.02E+00
StarSilent 15mm - superfine	8.43E-01	0.00E+00	1.74E-01	1.02E+00
StarSilent 10mm - smooth	5.62E-01	0.00E+00	1.74E-01	7.36E-01
StarSilent 10mm - superfine	5.62E-01	0.00E+00	1.74E-01	7.36E-01
SM (kg)				
StarSilent 25mm - smooth	7.72E-01	0.00E+00	7.04E-04	7.73E-01
StarSilent 25mm - superfine	7.72E-01	0.00E+00	7.04E-04	7.73E-01
StarSilent 15mm - smooth	4.64E-01	0.00E+00	7.04E-04	4.65E-01
StarSilent 15mm - superfine	4.64E-01	0.00E+00	7.04E-04	4.65E-01
StarSilent 10mm - smooth	3.09E-01	0.00E+00	7.04E-04	3.10E-01
StarSilent 10mm - superfine	3.09E-01	0.00E+00	7.04E-04	3.10E-01
RSF (MJ)				
StarSilent 25mm - smooth	0.00E+00	7.02E-06	6.18E-03	6.19E-03
StarSilent 25mm - superfine	0.00E+00	7.02E-06	6.18E-03	6.19E-03
StarSilent 15mm - smooth	0.00E+00	4.22E-06	6.18E-03	6.18E-03
StarSilent 15mm - superfine	0.00E+00	4.22E-06	6.18E-03	6.18E-03

StarSilent 10mm - smooth	0.00E+00	2.81E-06	6.18E-03	6.18E-03
StarSilent 10mm - superfine	0.00E+00	2.81E-06	6.18E-03	6.18E-03
NRSF (MJ)				
StarSilent 25mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 25mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 15mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 15mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 10mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 10mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW (m3)				
StarSilent 25mm - smooth	3.19E-03	2.18E-04	3.14E-04	3.72E-03
StarSilent 25mm - superfine	3.19E-03	2.18E-04	3.14E-04	3.72E-03
StarSilent 15mm - smooth	1.92E-03	1.31E-04	3.14E-04	2.37E-03
StarSilent 15mm - superfine	1.92E-03	1.31E-04	3.14E-04	2.37E-03
StarSilent 10mm - smooth	1.28E-03	8.72E-05	3.14E-04	1.68E-03
StarSilent 10mm - superfine	1.28E-03	8.72E-05	3.14E-04	1.68E-03

c) Waste/output Inventory Metrics:

Indicator/LCI Metric	HWD (kg)			
Module	*A1	A2	A3	Total (A1-A3)
StarSilent 25mm - smooth	7.12E-06	2.76E-03	2.39E-03	5.16E-03
StarSilent 25mm - superfine	7.12E-06	2.76E-03	2.39E-03	5.16E-03
StarSilent 15mm - smooth	4.28E-06	1.66E-03	2.39E-03	4.05E-03
StarSilent 15mm - superfine	4.28E-06	1.66E-03	2.39E-03	4.05E-03
StarSilent 10mm - smooth	2.85E-06	1.11E-03	2.39E-03	3.50E-03
StarSilent 10mm - superfine	2.85E-06	1.11E-03	2.39E-03	3.50E-03
NHWD (kg)				
StarSilent 25mm - smooth	7.62E-02	4.73E-02	1.20E-01	2.44E-01
StarSilent 25mm - superfine	7.62E-02	4.73E-02	1.20E-01	2.44E-01
StarSilent 15mm - smooth	4.58E-02	2.84E-02	1.20E-01	1.94E-01
StarSilent 15mm - superfine	4.58E-02	2.84E-02	1.20E-01	1.94E-01
StarSilent 10mm - smooth	3.05E-02	1.90E-02	1.20E-01	1.70E-01
StarSilent 10mm - superfine	3.05E-02	1.90E-02	1.20E-01	1.70E-01
RWD (kg)				
StarSilent 25mm - smooth	4.98E-05	0.00E+00	1.04E-06	5.08E-05
StarSilent 25mm - superfine	4.98E-05	0.00E+00	1.04E-06	5.08E-05
StarSilent 15mm - smooth	2.99E-05	0.00E+00	1.04E-06	3.09E-05
StarSilent 15mm - superfine	2.99E-05	0.00E+00	1.04E-06	3.09E-05
StarSilent 10mm - smooth	2.00E-05	0.00E+00	1.04E-06	2.10E-05
StarSilent 10mm - superfine	2.00E-05	0.00E+00	1.04E-06	2.10E-05
CRU (kg)				
StarSilent 25mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 25mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 15mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 15mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 10mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 10mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00

MR (kg)				
StarSilent 25mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 25mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 15mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 15mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 10mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 10mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE (MJ)				
StarSilent 25mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 25mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 15mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 15mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 10mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 10mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER (MJ)				
StarSilent 25mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 25mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 15mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 15mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 10mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 10mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE (MJ)				
StarSilent 25mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 25mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 15mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 15mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 10mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 10mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET (MJ)				
StarSilent 25mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 25mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 15mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 15mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 10mm - smooth	0.00E+00	0.00E+00	0.00E+00	0.00E+00
StarSilent 10mm - superfine	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Interpretation:

This study evaluates the environmental impacts of acoustic insulation plaster products on a per-declared-unit basis. The results indicate that the most significant contributor to the products' GWP values, expressed in kg CO₂-eq, is Module A1 (Raw Material Supply), which accounts for approximately 63% to 70% of the total emissions. This result is attributable to the use of an acoustic panel EPD for A1 inputs, which encompasses raw materials, packaging, and energy consumption associated with the production of acoustic panels across Modules A1–A3.

Following this, the second most significant source of GWP emissions stems from Module A2 (Transportation), which highlights lorry transport responsible for approximately 14%–15% of the total emissions, while ocean freight contributes an additional impact of 8%–9%. Furthermore, Module A3 (Manufacturing), which includes warehousing operations primarily driven by electricity, accounts for 2.5% to 5.5% of the total emissions.

ADDITIONAL ENVIRONMENTAL INFO

- Product use and installation shall comply with the SDS, and installation guidelines as recommended.
- The products do not contain any substance(s) of very high concern (SVHC) as defined by the REACH Regulation (EC) No. 1907/2006, at a concentration above 0.1% by mass.
- The products are free from indoor air emissions, gamma or ionizing radiation, and the release of chemicals into the air, water, or soil.
- Delayed emissions were not considered in this study,
- Further information can be found at <https://www.pyrok.com/>

EXTRAORDINARY EFFECTS

Fire Performance: ASTM E84, Class A (FSI 20, SDI 5).

Water Resistance: No performance data available.

Mechanical destruction: ASTM E761, compressive strength >200 psi, highest durability among seamless acoustical plaster systems.

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