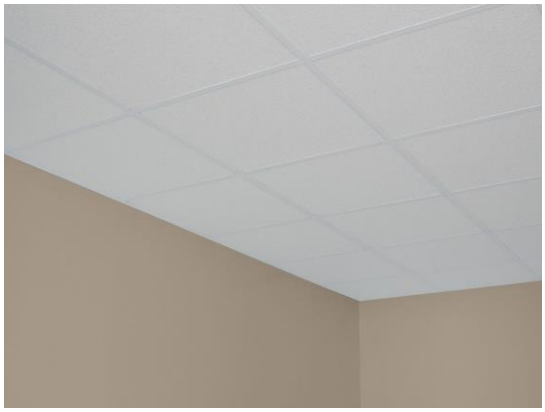
Environmental Product Declaration
USG Premier Hi-Lite™ Acoustical Panels
Greenville, MS

Features and Benefits

- Washable vinyl face for easy maintenance.
- Excellent noise reduction with NRC of 0.70 for greater sound control in open-plan spaces.
- Lightweight fiberglass basemat makes installation fast and easy.
- ClimaPlus™ 30-year limited system warranty against visible sag, mold, and mildew.



TRACI v2.1 Environmental Impacts) – 5/8" Premier Hi-Lite™ Twill Acoustical		
Functional Unit – 1 sf (0.0929 square meters)	**Cradle-to-Gate (A1-A3)**	**Cradle-to-Grave (A1-C4)**
Global Warming Potential (kg CO_2 eq.)	**4.62E-01**	**5.12E-01**
Ozone Depletion Potential (kg CFC-11 eq.)	**4.84E-10**	**5.21E-10**
Acidification Potential (kg SO_2 eq.)	**1.36E-03**	**1.51E-03**
Eutrophication Potential (kg N eq.)	**1.45E-04**	**1.63E-04**
Photochemical Ozone Creation Potential (kg O_3 eq.)	**1.72E-02**	**1.93E-02**
Abiotic Resource Depletion Potential Fossil Fuels (MJ, LHV)	**7.92E-01**	**8.78E-01**

For over a century, sustainable practices have naturally been an inherent part of our business at USG and CGC. Today, they help shape the innovative products that become the homes where we live, the buildings where we work and the arenas where we play. From the product formulations we choose, to the processes we employ, USG and CGC are committed to designing, manufacturing, and distributing products that minimize overall environmental impacts and contribute toward a healthier living space. We believe that transparency of product information is essential for our stakeholders, and Environmental Product Declarations (EPDs) are the next step toward an even more transparent USG and CGC. For additional information, visit usg.com, cgcinc.com and usg.ecomedes.com.

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This declaration is an Environmental Product Declaration (EPD) in accordance with ISO 14025 and ISO 21930; 2017. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc. Accuracy of Results: EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. Comparability: EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.

DECLARATION NUMBER	EPD 714
PROGRAM OPERATOR	ASTM International – 100 Barr Harbor Drive, West Conshohocken, PA USA www.astm.org
DECLARATION HOLDER	USG Corporation - 550 W. Adams St., Chicago, IL USA
EPD Type	Type III Declaration per ISO 14025:2006
DECLARED PRODUCT	0.625 in. Premier Hi-Lite™ Twill Acoustical Panels 0.625 in. Premier Hi-Lite™ Kapok Acoustical Panels
REFERENCE PCR	UL Environment: PCR Guidance for Building-Related Products and Services; Part B: Non-Metal Ceiling Panel EPD Requirements; April 13, 2021
DATE OF ISSUE PERIOD OF VALIDITY	6/1/24 5 Years
CONTENTS OF THE DECLARATION	This EPD is complete and contains the following: • Product System Documentation • Life Cycle Calculation Rules • Life Cycle Assessment Results • Further Information • References
This declaration was independently verified in accordance with ISO 14025 and ISO 21930:2017 □ INTERNAL ☒ EXTERNAL	Tim Brooke, ASTM International
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Thomas P. Gloria, Industrial Ecology Consultants

1. Product System Documentation

1.1 Product Description and Product Identification

Fine-textured Premier Hi-Lite™ Acoustical Panels provide exceptional acoustical absorption and are built to last. Premier Hi-Lite™ Acoustical Panels are mold- and sag-resistant and are easy to install and clean. Their noise reduction properties and high light reflectance values make these tiles perfect for open office plans as well as reception and lobby areas.

The family of fiberglass ceiling products covered by this EPD report consists of a fiberglass basemat laminated with a non- woven veil. These products generally fall under ASTM E1264-2022 Section 5.2 designation as Type XII – Glass fiber base with membrane-faced overlay or ASTM 1264-2023 Section 5.2 designation as Type B1 - Glass fiber base with membrane-faced overlay. This EPD covers the following Premier Hi-Lite™ acoustical products: item nos.: 7050G, 7052G, 7051G, 7053G, 7054G, 7056G, 7055G, and 7057G.

1.2 Designated Application

The products covered by this EPD are designed to be installed in a suitable metal grid system typically designed to accommodate a nominal 2'x2' or 2'x4' panel although other sizes are available. They are suitable for conference rooms and executive areas, gymnasiums and auditoriums, open-office plans, and retail stores.

1.3 Product Technical Data

Table 1: Summary of the technical data

Name	Test Method	5/8" Premier Hi-Lite™ Acoustical Panels	5/8" Premier Hi-Lite™ Acoustical Panels
Noise Reduction Coefficient (NRC)	**C423**	0.50 - 0.70	0.50 – 0.70
Articulation Class (AC)	**E1111 and Classification E1110**	N/A	N/A
Ceiling Attenuation Class (CAC)	**E1414 and Classification E413**	20	20
Fire Rating	**E84**	Class A	Class A
Light Reflectance	**E1477**	0.76	0.76

1.4 Placing on the Market/Application Rules

Acoustical ceiling panels must be installed and maintained in accordance with current USG written instructions, "Acoustical Suspension System: Installation Guide: Suspended Ceiling", and best industry practice, including the CISCA Handbook and ASTM C636.

1.5 Delivery Status

Premier Hi-Lite™ acoustical panels arrive at the jobsite in a shrink-wrapped wrap-around carton.

1.6 Product Composition

Table 2: Product specifications and formula

Material	0.75" Premier Twill Hi-Lite™ Acoustical Panels	1" Premier Kapok Hi-Lite™ Acoustical Panels
Fiberglass Basemat	90.8%	90.6%
Adhesive	2.3%	2.3%
Veil	6.9%	7.1%
Sum	100.0%	100.0%

1.7 Product Manufacture

Fiberglass acoustical ceiling panels consist of a 3rd party supplied fiberglass basemat laminated in-house with a non-woven fiberglass veil . Fabrication of the finished product consists of laminating the fiberglass basemat with the appropriate laminate and painting the product, trimming and packaging. The finishing unit processes are dominated by the use of water-based paint, which contains ingredients such as calcium carbonate, clay, latex, and titanium dioxide (TiO2). Shrink-wrap and corrugated strip are used as packing materials.

1.8 Environment and Health During Manufacturing

USG and CGC lead the building sector in developing and supplying sustainable construction materials. Today, sustainability is integrated into the design and manufacture of every wall, ceiling, and flooring product. In the manufacture of our products, we review and select each material with consideration of environmental protection, health, and safety. Raw materials used in our products are carefully selected and go through a qualification procedure. Raw materials are tested for contaminants by an internal lab and third-party labs.

1.9 Packaging

USG Interiors ceiling panels are packaged using cardboard sleeves and are then wrapped in plastic shrink wrap. Both the production and disposal of these packaging materials were modeled as part of this LCA study.

1.10 Conditions of Use

To insure the longevity of the product, panels should not be exposed to moisture, high humidity, or high temperature. Criteria can be found in the USG warranty information specific to each product.

1.11 Distribution

The default transport distances from the PCR (product transport from the point of manufacture to building site) of 497 miles (800 km) by truck were used in this analysis. Final transportation from the building site to waste processing was assumed to be 22 miles (35 km) by truck.

1.12 Product Installation

The ceiling panels must be installed in accordance with all applicable USG Interiors installation guidelines. Approved installation procedures are provided in the Ceiling Systems Handbook published by the Ceiling and Interior Systems Construction Association and must be followed. Installation of USG's ceiling and grid products is accomplished by manual labor using mostly hand tools. A 7% installation waste factor was used in this study. No material or energy inputs are required on the jobsite. Proper personal protective gear should be worn by the installer for protection.

1.13 Environment and Health During Use Stage

This product is not expected to produce any unusual hazards during normal use.

1.14 Reference Service Life

The reference service life (RSL) and ESL shall be indicated according to Part A, Section 2.8.2. Unless justified otherwise, the default RSL shall be assumed to be 30 years for both ceiling and wall panel systems. Non-metal ceiling and wall panels shall be assumed to not need repainting, maintenance, or repairing and to last the entire duration of the building ESL with no replacement or refurbishment.

1.15 Re-Use Phase

Ceiling panels cannot generally be reused at the end of a building's 75-year life.

1.16 End-of-Life Disposal

USG is helping to preserve natural resources by taking back approved USG ceiling panels and recycling them into new building products. While USG encourages recycling of its ceiling panels through its Take-Back Recycle Program, all ceiling panel waste generated during installation and at end-of-life is assumed to be disposed of in an appropriate landfill.

1.17 Extraordinary Effects

Fire

All ceiling products covered by this EPD are certified to be Class A (flame spread of 25 or less, smoke developed of 50 or less per ASTM C84).

Water

Moisture must not come in contact with the ceiling panel as a result of a leaking roof, a sweating pipe, a leaking radiator, a flood, condensation on windows, condensation on more subtle surfaces where dew points are reached, humidified air from the HVAC system or any other similar causes.

2. LCA Calculation Rules

2.1 Functional Unit

The declared unit for ceiling panels is defined as one square meter with optional reporting of one square foot (12”x12”) of ceiling panel.

Table 3: Functional unit

Material	5/8” Premier Hi-Lite™ Twill Acoustical Panels (metric)	5/8” Premier Hi-Lite™ Kapok Acoustical Panels (metric)
Functional Unit	0.0929 m^2	0.0929 m^2
Declared Thickness	1.66 cm	1.66 cm
Density	61.8 kg/m^3	61.9 kg/m^3
Surface weight per declared unit	0.98 kg/m^2	0.98 kg/m^2

Material	5/8” Premier Hi-Lite™ Twill Acoustical Panels (standard)	5/8” Premier Hi-Lite™ Kapok Acoustical Panels (standard)
Functional Unit	1.00 sf	1.00 sf
Declared Thickness	0.625 in.	0.625 in.
Density	3.85 pcf	3.86 pcf
Surface weight per declared unit	0.200 psf	0.200 psf

2.2 System Boundary

This EPD represents a “cradle-to-grave” LCA analysis for laminated fiberglass acoustical panels. It covers all the production steps from raw material extraction (i.e., the cradle) to end of life disposal (grave).

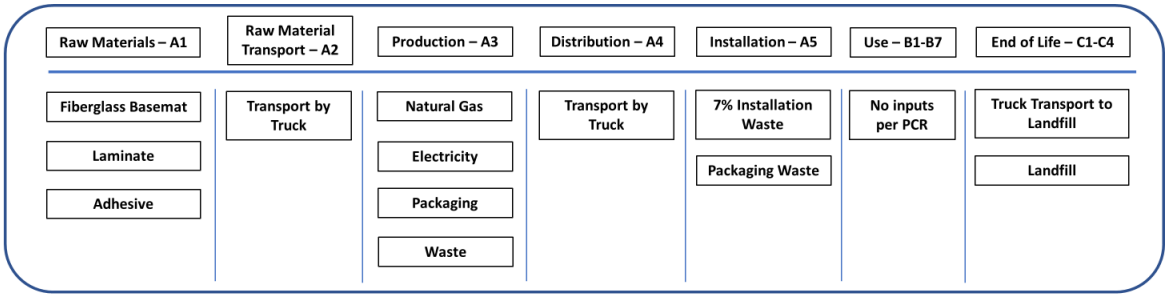


Figure 1: Specific processes covered by this EPD by life cycle stage

2.3 Estimates and Assumptions

Ceiling panel production at the Greenville, MS plant, data collection of energy and raw material inputs were aided by the presence of an extensive computer monitoring system which tracked product formulas by product type. All ceiling product raw material and energy inputs are specific to the particular product produced at the Greenville, MS plant.

Additional data limitations include the use of proxy processes rather than actual supplier generated primary data. In addition, the data is limited in that the primary data was collected during the 2023 year and changes in operations may increase/decrease impacts in the future. Other data limitations include the use of secondary data sets instead of primary data for upstream and downstream processes, local impacts vs. global impacts, possible impacts vs. actual impacts, inherent uncertainty in the data sets, accuracy and precision of impact assessment methodology, etc.

2.4 Cut-off Criteria

All inputs and outputs to a (unit) process were included in the calculation for which data is available. In case of insufficient input data or data gaps for a unit process, the cut-off criteria was 1% of renewable and non-renewable primary energy usage and 1% of the total mass of that unit process. The total neglected input flows did not exceed 5% of energy usage and mass.

2.5 Background Data

All background data was sourced from critically reviewed LCA for Experts databases from Sphera.

2.6 Data Requirements and Data Sources

The LCA model was created using the LCA for Experts software (10.7.1.28) from Sphera. Specific comments related to data quality requirements cited in ISO 14025 Section 4.2.3.6.2 include the following.

Temporal: In the case of fiberglass acoustical panel production, the LCI data was collected from the Greenville,MS plant for the 2023 production year.

Geographical: Where possible, all processes were chosen as being representative of US manufacturing processes.

Technical: The data selected for this study is specific to the technology used in the preparation of the various raw materials.

Precision: The raw material usage amounts were derived from plant quality data on finished products, coatings usage plant data and product formulas.

Completeness: Virtually all the significant raw material flows (> 99%) in fiberglass acoustical panel production have been modeled. The exception consists of transportation of the coating raw materials; the effect of which was determined to be less than 1% of the total.

Representative: Where possible all the data sets were selected to be representative of US-based production, are less than 10 years in age and are representative of the technology being employed.

Consistency: All the manufacturing processes were modeled in a consistent manner throughout this study in accordance with the goal and scope definitions.

Reproducibility: The information contained in this study, including raw material, energy and transportation distance inputs, have been fully documented in the LCA report.

Sources of Data: The sources for the processes used in this study have been fully provided in the LCA report and are representative of the material and energy sources used in actual production. Key raw material LCA results such as for the fiberglass basemats and the nonwoven veil were provided by the suppliers.

Uncertainty: The relative uncertainty associated with this study has been minimized. No significant assumptions have been made.

2.7 Period Under Review

All raw material and energy inputs are for the 2023 calendar year.

2.8 Allocation

The LCI data was collected for the Greenville ceiling tile production plant for the 2023 production year. Raw material inputs are specific to these panels and energy inputs were allocated based on the mass of these panels.

2.9 Comparability

A comparison or evaluation of EPD data is only possible if all data sets to be compared are 1) created according to EN 15804 and 2) are considered in a whole building context or utilize identical defined use stage scenarios. Comparisons are only allowable when EPDs report cradle-to-grave information using a functional unit. Refer to section 5.3 of EN 15804 for further information. Comparison of the environmental performance of ceiling panels 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 the PCR for North American Ceiling Panels allows EPD comparability only when all stages of a ceiling panel life cycle have been considered. However, variations and deviations are possible.

3. LCA: Scenarios and additional technical information

Table 4. Transport to the building site (A4)

NAME	VALUE	UNIT
Fuel type	Diesel	-
Liters of fuel	1.02E-04	l/100km
Vehicle type	US Truck	-
Transport distance	800	km
Capacity	0.67	
Gross density of products transported	62	kg/m^3

Table 5. Installation into the building (A5)

NAME	VALUE	UNIT
Ancillary materials	0	kg
Net freshwater consumption specified by water source and fate	0	m^3
Other resources	0	kg
Electricity consumption	0	kWh
Other energy carriers	0	MJ
Material loss	7% of delivered weight	%
Ceiling Panel Mounting System (CPMS)	8.27E-01	kg/m^2
Output substances following waste treatment on site	7% of delivered weight	%
Dust in the air	~ 0	kg
VOC content	>9	µg/m^3

Table 6. Use or application of the installed product (B1)

NAME	VALUE	UNIT
RSL	75	years
VOC	>9	µg/m^3

Table 7. Maintenance (B2)

NAME	VALUE	UNIT
Maintenance process information	As required by the PCR, a standard Life expectancy for ceiling panels based on historic practices of 75 years shall be used. No maintenance is required.	
Maintenance cycle	0	Number/ RSL
Maintenance cycle	0	Number/ ESL
Water consumption	0	m^3
Auxiliary	0	kg
Other resources	0	kg
Electricity consumption	0	kWh
Other energy carriers	0	MJ
Material loss	0	kg

Table 8. End of Life (C1-C4)

NAME		VALUE	UNIT
Collection process (specified by type)	Collected separately	0	kg
	Collected with mixed construction waste	0.98	kg/ m^2
Recovery (specified by type)	Reuse	0	kg
	Recycling	0	kg
	Landfill	0.98	kg/ m^2
	Incineration	0	kg
	Incineration with energy	0	kg
	Energy conversion efficiency	0	-
Disposal	Product or material for final deposition	0.98	kg/m^2
Removals of biogenic carbon (excluding packaging)		0	kg CO_2

4. Life Cycle Assessment Results

Product stage				Construction process stage				Use stage				End of life stage			
Raw Material Supply	Transport	Manufacturing	Transport	Construction-Installation Process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational water Use	De-construction Demolition	Transport	Waste processing	Disposal
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Figure 2: System Boundary

4.1 Life Cycle Impact Assessment Results

Table 9. 5/8" Premier Hi-Lite™ Twill Acoustical Panels (imperial units)

Life Cycle Environmental Impact Results for 1 Square Foot of 5/8" Premier Hi-Lite™ Twill Acoustical Panels (A1-C4)										
North American LCA Environmental Impact Results										
Impact Assessment Method: TRACI 2.1										
Environmental Impact Category	**Units**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Global Warming Potential (GWP)	kg CO2 eq.	4.62E-01	1.10E-02	3.74E-02	0.00E+00	0.00E+00	1.98E-04	0.00E+00	1.34E-03	5.12E-01
Ozone Depletion Potential (ODP)	kg CFC 11-eq.	4.84E-10	2.55E-17	3.64E-11	0.00E+00	0.00E+00	5.16E-19	0.00E+00	7.40E-17	5.21E-10
Acidification Potential (AP)	kg SO2 eq.	1.36E-03	1.57E-05	1.22E-04	0.00E+00	0.00E+00	4.87E-07	0.00E+00	8.35E-06	1.51E-03
Eutrophication Potential (EP)	kg N eq.	1.45E-04	2.32E-06	1.46E-05	0.00E+00	0.00E+00	5.38E-08	0.00E+00	3.69E-07	1.63E-04
Photochemical Ozone Creation Potential (POCP)	kg O3-Equiv.	1.72E-02	3.54E-04	1.60E-03	0.00E+00	0.00E+00	1.11E-05	0.00E+00	1.59E-04	1.93E-02
Abiotic Depletion Potential (ADP) fossil fuels	MJ surplus energy	7.92E-01	2.15E-02	6.18E-02	0.00E+00	0.00E+00	3.72E-04	0.00E+00	2.31E-03	8.78E-01

Resource and Waste Flows for 1 Square Foot of 5/8" Premier Hi-Lite™ Twill Acoustical Panels (A1-C4)									
Use of Primary Resources		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Renewable primary resources used as an energy carrier (RPRE)	MJ, NCV	4.73E-01	6.31E-03	3.64E-02	0.00E+00	1.12E-04	0.00E+00	2.98E-03	5.18E-01
Renewable primary resources with energy content used as material (RPRM)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable primary resources used as an energy carrier (NRPRE)	MJ, NCV	5.97E+00	1.62E-01	4.66E-01	0.00E+00	2.81E-03	0.00E+00	1.82E-02	6.62E+00
Non-renewable primary resources with energy content used as material (NRPRM)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Secondary material, secondary fuel and recovered energy		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Secondary Material (SM)	kg	6.20E-02	0.00E+00	4.66E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.66E-02
Renewable Secondary Fuel (RSF)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable Secondary Fuel (NRSF)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable Energy (RE)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Consumption of Fresh Water	m3	1.62E-03	2.19E-05	1.25E-04	0.00E+00	3.84E-07	0.00E+00	4.60E-06	1.78E-03
Additional inventory parameters for transparency		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Removals and emissions associated with biogenic carbon content of the bio-based product	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Emission from calcination and uptake from carbonation	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Removals and emissions associated with biogenic carbon content of the bio-based packaging	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Emissions from land use change	kg CO2-eq.	2.04E-05	1.31E-05	3.08E-06	0.00E+00	2.27E-07	0.00E+00	4.25E-06	4.11E-05
Emissions from combustion of waste from renewable sources used in production processes	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Emissions from combustion of waste from non-renewable sources used in production processes	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Indicators describing waste		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Hazardous waste disposed	kg	1.48E-06	4.83E-13	1.11E-07	0.00E+00	8.08E-15	0.00E+00	3.93E-13	1.59E-06
Non-hazardous waste disposed	kg	5.09E-02	1.39E-05	1.15E-02	0.00E+00	2.45E-07	0.00E+00	9.12E-02	1.54E-01
High-level radioactive waste	kg	1.51E-04	3.98E-07	1.15E-05	0.00E+00	8.06E-09	0.00E+00	2.05E-07	1.63E-04
Intermediate and low-level waste	kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Assignments of output flows at the end-of-life		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Components for re-use (CRU)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling (MR)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery (MER)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy exported (EE)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 10. 5/8" Premier Hi-Lite™ Twill Acoustical Panels (metric units)

Life Cycle Environmental Impact Results for 1 Square Meter of 5/8" Premier Hi-Lite™ Twill Acoustical Panels (A1-C4)										
North American LCA Environmental Impact Results										
Impact Assessment Method: TRACI 2.1										
Environmental Impact Category	**Units**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Global Warming Potential (GWP)	kg CO2 eq.	4.97E+00	1.19E-01	4.02E-01	0.00E+00	0.00E+00	2.13E-03	0.00E+00	1.45E-02	5.51E+00
Ozone Depletion Potential (ODP)	kg CFC 11-eq.	5.21E-09	2.75E-16	3.92E-10	0.00E+00	0.00E+00	5.55E-18	0.00E+00	7.97E-16	5.60E-09
Acidification Potential (AP)	kg SO2 eq.	1.46E-02	1.69E-04	1.31E-03	0.00E+00	0.00E+00	5.24E-06	0.00E+00	8.98E-05	1.62E-02
Eutrophication Potential (EP)	kg N eq.	1.56E-03	2.50E-05	1.58E-04	0.00E+00	0.00E+00	5.79E-07	0.00E+00	3.97E-06	1.75E-03
Photochemical Ozone Creation Potential (POCP)	kg O3-Equiv.	1.85E-01	3.80E-03	1.72E-02	0.00E+00	0.00E+00	1.19E-04	0.00E+00	1.71E-03	2.08E-01
Abiotic Depletion Potential (ADP) fossil fuels	MJ surplus energy	8.52E+00	2.31E-01	6.65E-01	0.00E+00	0.00E+00	4.00E-03	0.00E+00	2.48E-02	9.45E+00

Resource and Waste Flows for 1 Square Meter of 5/8" Premier Hi-Lite™ Twill Acoustical Panels (A1-C4)									
Use of Primary Resources		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Renewable primary resources used as an energy carrier (RPRE)	MJ, NCV	5.08E+00	6.79E-02	3.92E-01	0.00E+00	1.21E-03	0.00E+00	3.21E-02	5.58E+00
Renewable primary resources with energy content used as material (RPRM)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable primary resources used as an energy carrier (NRPRE)	MJ, NCV	6.42E+01	1.74E+00	5.01E+00	0.00E+00	3.03E-02	0.00E+00	1.96E-01	7.12E+01
Non-renewable primary resources with energy content used as material (NRPRM)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Secondary material, secondary fuel and recovered energy		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Secondary Material (SM)	kg	6.67E-01	0.00E+00	5.02E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.17E-01
Renewable Secondary Fuel (RSF)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable Secondary Fuel (NRSF)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable Energy (RE)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Consumption of Fresh Water	m3	1.75E-02	2.36E-04	1.34E-03	0.00E+00	4.13E-06	0.00E+00	4.95E-05	1.91E-02
Additional inventory parameters for transparency		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Removals and emissions associated with biogenic carbon content of the bio-based product	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Emission from calcination and uptake from carbonation	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Removals and emissions associated with biogenic carbon content of the bio-based packaging	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Emissions from land use change	kg CO2-eq.	2.20E-04	1.41E-04	3.31E-05	0.00E+00	2.44E-06	0.00E+00	4.58E-05	4.42E-04
Emissions from combustion of waste from renewable sources used in production processes	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Emissions from combustion of waste from non-renewable sources used in production processes	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Indicators describing waste		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Hazardous waste disposed	kg	1.59E-05	5.20E-12	1.20E-06	0.00E+00	8.70E-14	0.00E+00	4.22E-12	1.71E-05
Non-hazardous waste disposed	kg	5.48E-01	1.50E-04	1.24E-01	0.00E+00	2.63E-06	0.00E+00	9.81E-01	1.65E+00
High-level radioactive waste	kg	1.63E-03	4.28E-06	1.23E-04	0.00E+00	8.67E-08	0.00E+00	2.20E-06	1.76E-03
Intermediate and low-level waste	kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Assignments of output flows at the end-of-life		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Components for re-use (CRU)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling (MR)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery (MER)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy exported (EE)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 11. 1" Premier Hi-Lite™ Kapok Acoustical Panels (imperial units)

Life Cycle Environmental Impact Results for 1 Square Foot of 5/8" Premier Hi-Lite™ Kapok Acoustical Panels (A1-C4)										
North American LCA Environmental Impact Results										
Impact Assessment Method: TRACI 2.1										
Environmental Impact Category	**Units**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Global Warming Potential (GWP)	kg CO2 eq.	4.62E-01	1.11E-02	3.74E-02	0.00E+00	0.00E+00	1.99E-04	0.00E+00	1.35E-03	5.12E-01
Ozone Depletion Potential (ODP)	kg CFC 11-eq.	4.85E-10	2.56E-17	3.65E-11	0.00E+00	0.00E+00	5.17E-19	0.00E+00	7.42E-17	5.21E-10
Acidification Potential (AP) (AP)	kg SO2 eq.	1.36E-03	1.58E-05	1.22E-04	0.00E+00	0.00E+00	4.88E-07	0.00E+00	8.37E-06	1.51E-03
Eutrophication Potential (EP)	kg N eq.	1.46E-04	2.33E-06	1.47E-05	0.00E+00	0.00E+00	5.39E-08	0.00E+00	3.70E-07	1.63E-04
Photochemical Ozone Creation Potential (POCP)	kg O3-Equiv.	1.72E-02	3.55E-04	1.60E-03	0.00E+00	0.00E+00	1.11E-05	0.00E+00	1.59E-04	1.93E-02
Abiotic Depletion Potential (ADP) fossil fuels	MJ surplus energy	7.94E-01	2.15E-02	6.20E-02	0.00E+00	0.00E+00	3.73E-04	0.00E+00	2.31E-03	8.80E-01

Resource and Waste Flows for 1 Square Foot of 5/8" Premier Hi-Lite™ Kapok Acoustical Panels (A1-C4)									
Use of Primary Resources		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Renewable primary resources used as an energy carrier (RPRE)	MJ, NCV	4.73E-01	6.33E-03	3.65E-02	0.00E+00	1.12E-04	0.00E+00	2.99E-03	5.19E-01
Renewable primary resources with energy content used as material (RPRM)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable primary resources used as an energy carrier (NRPRE)	MJ, NCV	5.98E+00	1.62E-01	4.67E-01	0.00E+00	2.82E-03	0.00E+00	1.83E-02	6.63E+00
Non-renewable primary resources with energy content used as material (NRPRM)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Secondary material, secondary fuel and recovered energy		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Secondary Material (SM)	kg	6.20E-02	0.00E+00	4.66E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.66E-02
Renewable Secondary Fuel (RSF)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable Secondary Fuel (NRSF)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable Energy (RE)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Consumption of Fresh Water	m3	1.63E-03	2.20E-05	1.25E-04	0.00E+00	3.85E-07	0.00E+00	4.61E-06	1.78E-03
Additional inventory parameters for transparency		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Removals and emissions associated with biogenic carbon content of the bio-based product	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Emission from calcination and uptake from carbonation	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Removals and emissions associated with biogenic carbon content of the bio-based packaging	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Emissions from land use change	kg CO2-eq.	2.05E-05	1.32E-05	3.09E-06	0.00E+00	2.27E-07	0.00E+00	4.26E-06	4.13E-05
Emissions from combustion of waste from renewable sources used in production processes	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Emissions from combustion of waste from non-renewable sources used in production processes	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Indicators describing waste		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Hazardous waste disposed	kg	1.48E-06	4.85E-13	1.11E-07	0.00E+00	8.10E-15	0.00E+00	3.93E-13	1.59E-06
Non-hazardous waste disposed	kg	5.14E-02	1.40E-05	1.15E-02	0.00E+00	2.45E-07	0.00E+00	9.14E-02	1.54E-01
High-level radioactive waste	kg	1.52E-04	3.99E-07	1.15E-05	0.00E+00	8.08E-09	0.00E+00	2.05E-07	1.64E-04
Intermediate and low-level waste	kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Assignments of output flows at the end-of-life		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Components for re-use (CRU)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling (MR)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery (MER)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy exported (EE)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 12. 1" Premier Hi-Lite™ Kapok Acoustical Panels (metric units)

Life Cycle Environmental Impact Results for 1 Square Meter of 5/8" Premier Hi-Lite™ Kapok Acoustical Panels (A1-C4)										
North American LCA Environmental Impact Results										
Impact Assessment Method: TRACI 2.1										
Environmental Impact Category	**Units**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Global Warming Potential (GWP)	kg CO2 eq.	4.98E+00	1.19E-01	4.03E-01	0.00E+00	0.00E+00	2.14E-03	0.00E+00	1.45E-02	5.51E+00
Ozone Depletion Potential (ODP)	kg CFC 11-eq.	5.21E-09	2.76E-16	3.92E-10	0.00E+00	0.00E+00	5.56E-18	0.00E+00	7.98E-16	5.61E-09
Acidification Potential (AP)	kg SO2 eq.	1.47E-02	1.70E-04	1.32E-03	0.00E+00	0.00E+00	5.25E-06	0.00E+00	9.00E-05	1.62E-02
Eutrophication Potential (EP)	kg N eq.	1.57E-03	2.50E-05	1.58E-04	0.00E+00	0.00E+00	5.80E-07	0.00E+00	3.98E-06	1.75E-03
Photochemical Ozone Creation Potential (POCP)	kg O3-Equiv.	1.85E-01	3.81E-03	1.72E-02	0.00E+00	0.00E+00	1.20E-04	0.00E+00	1.71E-03	2.08E-01
Abiotic Depletion Potential (ADP) fossil fuels	MJ surplus energy	8.54E+00	2.32E-01	6.67E-01	0.00E+00	0.00E+00	4.01E-03	0.00E+00	2.49E-02	9.47E+00

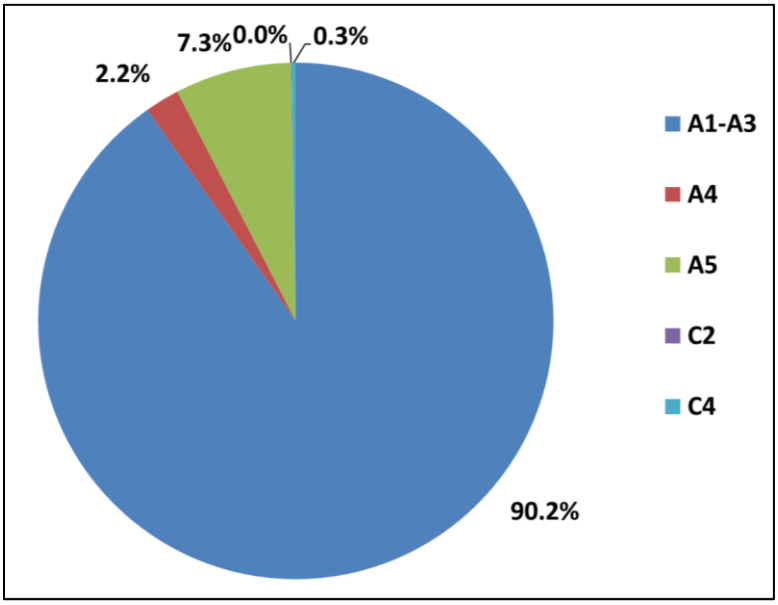
Resource and Waste Flows for 1 Square Meter of 5/8" Premier Hi-Lite™ Kapok Acoustical Panels (A1-C4)									
Use of Primary Resources		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Renewable primary resources used as an energy carrier (RPRE)	MJ, NCV	5.09E+00	6.81E-02	3.93E-01	0.00E+00	1.21E-03	0.00E+00	3.21E-02	5.59E+00
Renewable primary resources with energy content used as material (RPRM)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable primary resources used as an energy carrier (NRPRE)	MJ, NCV	6.43E+01	1.75E+00	5.02E+00	0.00E+00	3.03E-02	0.00E+00	1.97E-01	7.13E+01
Non-renewable primary resources with energy content used as material (NRPRM)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Secondary material, secondary fuel and recovered energy		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Secondary Material (SM)	kg	6.67E-01	0.00E+00	5.02E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.17E-01
Renewable Secondary Fuel (RSF)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable Secondary Fuel (NRSF)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable Energy (RE)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Consumption of Fresh Water	m3	1.75E-02	2.37E-04	1.34E-03	0.00E+00	4.14E-06	0.00E+00	4.96E-05	1.91E-02
Additional inventory parameters for transparency		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Removals and emissions associated with biogenic carbon content of the bio-based product	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Emission from calcination and uptake from carbonation	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Removals and emissions associated with biogenic carbon content of the bio-based packaging	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Emissions from land use change	kg CO2-eq.	2.21E-04	1.42E-04	3.32E-05	0.00E+00	2.45E-06	0.00E+00	4.59E-05	4.44E-04
Emissions from combustion of waste from renewable sources used in production processes	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Emissions from combustion of waste from non-renewable sources used in production processes	kg CO2-eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Indicators describing waste		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Hazardous waste disposed	kg	1.59E-05	5.22E-12	1.20E-06	0.00E+00	8.72E-14	0.00E+00	4.23E-12	1.71E-05
Non-hazardous waste disposed	kg	5.53E-01	1.50E-04	1.24E-01	0.00E+00	2.64E-06	0.00E+00	9.83E-01	1.66E+00
High-level radioactive waste	kg	1.63E-03	4.30E-06	1.23E-04	0.00E+00	8.69E-08	0.00E+00	2.21E-06	1.76E-03
Intermediate and low-level waste	kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Assignments of output flows at the end-of-life		**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**Total A1-C4**
Components for re-use (CRU)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling (MR)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery (MER)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy exported (EE)	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building or construction works has been specified. Comparisons may be made between product-specific or industry average EPDs at the time of product purchase only when product or construction works performance and specifications have been established and serve as a functional unit for comparison. Environmental impact results shall be converted to a functional unit basis before any comparison is attempted. Any comparison of EPDs shall be subject to the requirements of ISO 21930 or EN 15804. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries, are based on different product category rules or are missing relevant environmental impacts. Such comparisons can be inaccurate and could lead to erroneous selection of materials or products that are higher-impact, at least in some impact categories.

5. LCA Interpretation

The LCA results for the production of fiberglass acoustical panels were dominated by the fiberglass basemat.

Figure 3: Process Dominance Analysis for GWP for the Production of 1 Square Foot of 1 in. Premier Hi-Lite™ Acoustical Panels



6. References

LCA Report

A Cradle-to-Gate (A1-A3) and Cradle-to-Grave (A1-C4) Life Cycle Assessment of USG Fiberglass Acoustical Panels, 4/16/24. USG (Confidential)

Product PCR

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

PCR for Building-Related Products and Services - Part A: Calculation Rules for the LCA and Requirements, ULE 10010, v.3.2

Part B: Non-Metal Ceiling Panel EPD Requirements ULE 10010-26, V2.0 April 2021

Sustainability Reporting Standards

ISO 14020: 2000 – Environmental labels and declarations

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

ISO 14040:2006/Amended 1:2020 - Environmental management – Life cycle assessment – Principles and framework

ISO 14044:2006/amended 2: 2020 - Environmental management – Life cycle assessment – Requirements and guidelines

ISO/TS 14071: 2014 – Environmental management – Life cycle assessment – Critical review processes and reviewer competencies: Additional requirements to ISO 14044: 2006

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

The ASTM International General Program Instructions v8.0 April 2020.