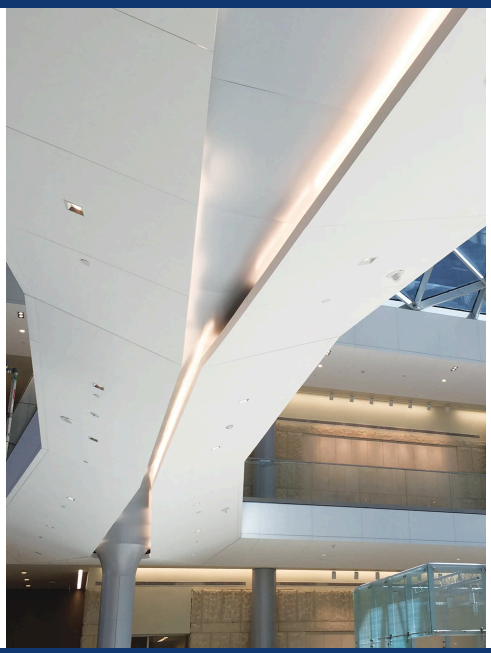
ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH ISO 14025:2006 AND ISO 21930:2017

SmartEPD-2024-047-0219-01.1

Decoustics 2” Claro



Date of Issue:	Expiration:	Last updated:
Dec 04, 2024	Dec 04, 2029	Oct 26, 2026

Refer to the EPD Library at **www.smartepd.com** for the latest EPD listing information

General Information

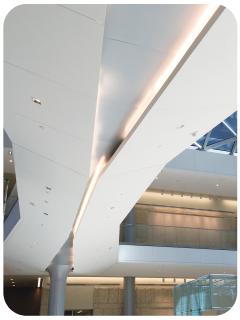
CertainTeed Saint-Gobain

20 Moores Rd, Malvern, PA 19355

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Sustainability@Saint-Gobain.com

certainteed.com



Product Name:	Decoustics 2” Claro
Functional Unit:	0.093 m2
Declaration Number:	SmartEPD-2024-047-0219-01.1
Date of Issue:	December 04, 2024
Expiration:	December 04, 2029
Last updated:	October 26, 2026
EPD Scope:	Cradle to gate with other options A1 - A3, A4, A5, C1 - C4
Market(s) of Applicability:	North America

General Organization Information

CertainTeed Corporation, a subsidiary of Saint-Gobain, is a leading North American manufacturer of interior building materials including gypsum, ceilings, and insulation as well as exterior building materials which include roofing and vinyl siding.

CertainTeed respects the environment through the responsible development of sustainable building products and systems. Architects, contractors, and manufacturers continue to look for ways to reduce our industry’s impact on the environment while meeting customer demand for products that deliver beauty, comfort, and performance. CertainTeed’s respect for the environment is reflected in our ongoing emphasis on sustainable building products and systems. Open sharing of the data we gather on these effects – as embodied in Environmental Product Declarations – is central to the process and sets CertainTeed apart.

Further information can be found at: http://www.certainteed.com

Limitations, Liability and Ownership

Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of the environmental performance of 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 whole building life cycle. EPD comparability is only possible 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 results for upstream or downstream of the life cycle stages declared. The EPD owner has sole ownership, liability, and responsibility for the EPD.

Reference Standards

Standard(s):	ISO 14025:2006 and ISO 21930:2017

Core PCR:	UL Part A PCR for Building-Related Products and Services v4
	Date of issue: March 01, 2022
Sub-category PCR:	UL Part B: Non-Metal Ceiling and Interior Wall Panels v2
	Date of issue: April 13, 2021
	Valid until: April 13, 2026
Sub-category PCR review panel:	Contact Smart EPD for more information.
General Program Instructions:	Smart EPD General Program Instructions v.1.0, November 2022

Verification Information

LCA Author/Creator:	Saint-Gobain North American ESG Sustainability Group
	sustainability@saint-gobain.com
EPD Program Operator:	Smart EPD
	info@smartepd.com
	www.smartepd.com
	585 Grove St., Ste. 145, Herndon, VA 20170, USA
Verification:	Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071: External
	Brandie Sebastian | John Beath Environmental LLC
	brandie.sebastian@beath.us
	Independent external verification of EPD, according to ISO 14025 and reference PCR(s): External
	Brandie Sebastian | John Beath Environmental LLC
	brandie.sebastian@beath.us

Product Information

Functional Unit:	0.093 m2
Mass:	0.74 kg
Reference Service Life:	30 Years
Product Specificity:	✗ Product Average
	✓ Product Specific

Product Description

Fiberglass acoustical ceiling panel with an acoustically transparent finish that mimics the appearance of drywall/plaster. Additional features include: custom color available, provides excellent light reflectance, provides excellent acoustical absorption, and is available in flat and 2D pre-curved panels. This product can also be in conjunction with the Decoustics’ Ceilencio mounting system. The Ceilencio mounting system was included within the Life Cycle Assessment. Please note that the values in the material composition section are presented as ranges to protect confidential business information.

Product Specifications

Product Classification Codes:	EC3 - Finishes -> CeilingPanel -> AcousticalCeilings
Sound absorption coefficient (NRC) (ASTM C423):	Up to 0.95
Light reflectance (ASTM E1477):	Varies %
Interzone Attenuation of Open Office Components (AC):	N/A
Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum (CAC)(ASTM E1414 and Classification E413):	33 dB
Surface burning characteristics of building materials (ASTM E84, ASTM E1264):	Class A flame spread/smoke developed
Declared thickness:	5.23 cm
Surface weight per declared unit:	7.98 kg/m2

Material Composition

Material/Component Category	Origin	% Mass
Fiberglass	Confidential	53-63
Adhesives	Confidential	5-11
Screws	Confidential	0.1-1
Aluminum Extrusion	Confidential	11-21
Vapor Barrier	Confidential	0.1-1
High Density Fiberglass Layer	Confidential	3-9
Fiberglass Veil	Confidential	1-5
Aluminum Grid	Confidential	3-10
Aluminum Butterflies	Confidential	0.1-2
Steel Spring Retainers	Confidential	0.1-1
Steel Springs	Confidential	0.1-1

Packaging Material	Origin	kg Mass
Pallet	Canada	4.91E-02
Cardboard	United States	2.23E-02

Biogenic Carbon Content	kg C per 0.093 m2
Biogenic carbon content in product	0

Biogenic Carbon Content	kg C per 0.093 m2
Biogenic carbon content in accompanying packaging	0.003

Hazardous Materials
No substances required to be reported as hazardous are associated with the production of this product

EPD Data Specificity

Primary Data Year: 2023

Manufacturing Specificity:

- ✗ Industry Average
- ✗ Manufacturer Average
- ✓ Facility Specific

Averaging:

Averaging was not conducted for this EPD.

System Boundary

Production	A1	Raw material supply	✓
	A2	Transport	✓
	A3	Manufacturing	✓
Construction	A4	Transport to site	✓
	A5	Assembly / Install	✓
Use	B1	Use	ND
	B2	Maintenance	ND
	B3	Repair	ND
	B4	Replacement	ND
	B5	Refurbishment	ND
	B6	Operational Energy Use	ND
	B7	Operational Water Use	ND

End of Life	C1	Deconstruction	✓
	C2	Transport	✓
	C3	Waste Processing	✓
	C4	Disposal	✓
Benefits & Loads Beyond System Boundary	D	Recycling, Reuse Recovery Potential	ND

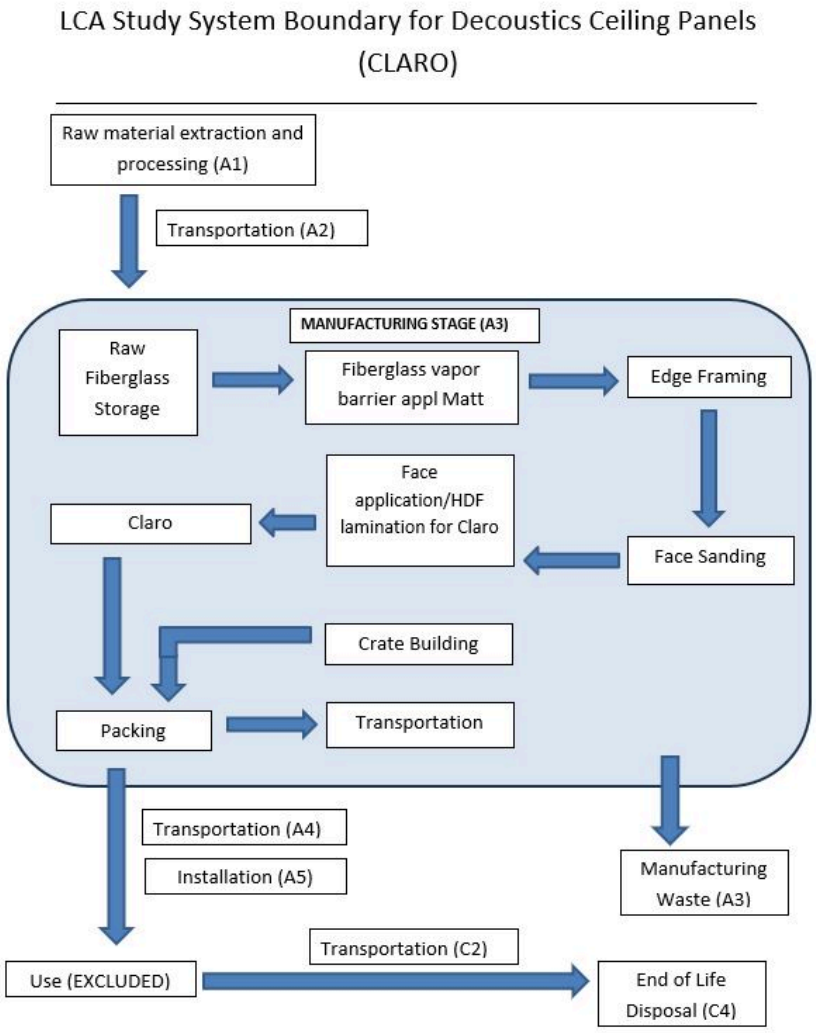
Note:

ND = Module not declared

Plants

CertainTeed Architectural 61 Royal Group Crescent, Woodbridge, Vaughan, ON, Canada

Product Flow Diagram



Software And Database

LCA Software: Sphera LCA for Experts (formerly GaBi) v. 10.8

LCI Foreground Database(s): GaBi Professional Database v. 2022

LCI Background Database(s): Ecoinvent v. 3.9.1

A foreground LCI database is the database used to model the primary, site-specific data collected for this EPD. A background LCI database is the database used to model generic or non-specific data.

Data Quality

Wherever secondary data is used, the study adopts critically reviewed data for consistency, precision, and reproducibility to limit uncertainty. The data sources used are complete and representative of North America (depending on the material source) in terms of the geographic and technological coverage and are less than ten years old. Any deviations from these initial data quality requirements for secondary data are documented in the report.

When looking for sufficient datasets for the raw materials used for these products, it can be difficult to find one that is entirely accurate. We take great measure to ensure that we are choosing the most updated dataset, but also want to outline where we had to use older datasets for this LCA. For example, the fiberglass duct board dataset is currently more than 10 years old. We are currently waiting for the newest industry version to be integrated within Sphera.

The results of an LCA are only as good as the quality of input data used. Important data quality factors include precision (measured, calculated, or estimated), completeness, consistency, and reproducibility. The primary data from the manufacturing facilities was from January 2023 to December 2023. Each background dataset used was taken from the Sphera LCA FE, US LCI, and Ecoinvent v3.9.1 databases. These databases are widely distributed and referenced within the LCA community and are either partially or fully critically reviewed

Life Cycle Module Description

Raw Materials (Module A1)
A thorough analysis of the material inputs was completed for the inventory of this study.

Raw Material Transportation (Module A2)
Raw materials are transported to the manufacturing sites by standard freight truck or ocean freighters. Unless otherwise noted, transport vehicles are fueled with diesel fuel.

Manufacturing (Module A3)

A detailed analysis of the ceiling tile manufacturing process was completed by the Saint-Gobain North American Environmental, Social and Governance (ESG) department to observe and understand the manufacturing processes for the Decoustics ceiling panels.

Raw fiberglass sheets are inventoried and stored as they arrive to the facility. Next, the fiberglass undergoes a water jet cutting process to shape the sheet, followed by a sanding process. If the panel includes a metal edge, a slit is then cut into the side of the fiberglass sheet in order to facilitate the application of aluminum edge, and the faces/edges are sanded. Next, High-Density Fiberglass (HDF)edges are trimmed, and the facing material is applied, either with a pre-coated fiberglass veil or edge-turned fabric. Once the face material is applied, the product is packaged in a crate made from cardboard/wooden skid, prior to shipment.

Packaging (Module A3)
Packaging of the final product after production is included in the life cycle assessment. The product is packaged in crate made from cardboard/wooden skid before being shipped. The weight of each material per square foot of finished product was calculated.

Final Product Transportation (Module A4)
Final products are transported on trucks throughout the United States and Canada. This study assumed an average of 800 km for the final shipment of product based on the assumption within the PCR.

Installation (Module A5)
The Decoustics panels must be installed in accordance with all applicable CertainTeed installation guidelines at the time of installation. Approved installation procedures are in the Ceilings/Wall Systems Handbook published by the Ceilings & Interior Systems Construction Association must be followed. Please follow

link to handbook https://www.cisca.org/i4a/pages/index.cfm?pageid=3281

Installation of Decoustics is accomplished by manual labor and typically does not require any additional materials. If necessary, cutting is done by hand using handheld cutting tools.

There are no apparent risks involved with the installation of Decoustics' panels since no additional coating or finishing is required. The installer should wear safety glasses while installing the panels to avoid debris from falling into the eyes as well as approved gloves.

Based on discussions with Decoustics personnel, a scrap rate of 1% was used for this study, due to the highly custom nature of the product and the resulting minimal product loss per functional unit was generated by calculating the total scrap rate for each product. The waste materials at the construction site before waste processing included the product loss per functional unit and packaging waste.

Within the LCA FE model, transportation of installation waste and disposal of packaging and product loss were included within this study. All installation waste disposal is based off Part A (Product Category Rules for Building-Related Product and Services: Part A – Life Cycle Assessment Calculation Rules and Report Requirements. Version 4. March 2022. UL Environment) guidance.

Use Phase (Modules B1-B5)
The use phase is excluded from the study.

End of Life (Modules C1-C4)
This study assumes a product service life of 30 years. The selected service life used in this study reflects the indicated in the PCR. Per Part A (Part A: Life Cycle Assessment Calculation Rules and Report Requirements UL Environment December 2018, version 3.2) guidance, see end of life disposal assumptions in Table 4-9. For this study all scrap rate materials were considered “Other materials.”

Deconstruction of Decoustics is accomplished by manual labor and typically does not require any additional materials. If necessary, cutting is done by hand using handheld cutting tools. No additional electricity is required for deconstruction.

LCA Discussion

Allocation Procedure

The Woodbridge, ON facility is the only location that produces the Decoustics Ceiling Panel product lines in Canada for CertainTeed Corporation. However, there are additional products produced at this location. The wood ceiling products are excluded from the study. The allocation for this Life Cycle Assessment (LCA) was based on production area, which can limit the accuracy of results when production mass plays a significant role in resource consumption or environmental impact. Relying solely on production area may overlook critical factors related to the scale of production, so it is important to consider that when using the results from this report. When looking for sufficient datasets for the raw materials used for these products, it can be difficult to find one that is entirely accurate. We take great measure to ensure that we are choosing the most updated dataset, but also want to outline where we had to use older datasets for this LCA. For example, the fiberglass duct board dataset is currently more than 10 years old. We are currently waiting for the newest industry version to be integrated within Sphera.

The study used the cut-off approach. No credit was taken for recycled content at end of life.

Cut-off Procedure

All inputs and outputs to a process shall be included in the calculation of results, for which data are available. Any data gaps are filled by conservative assumptions with average, generic, or proxy data.

We take great measure to ensure that we are choosing the most updated dataset, but also want to outline where we had to use older datasets for this LCA. For example, the fiberglass duct board dataset is currently more than 10 years old. We are currently waiting for the newest industry version to be integrated within Sphera.

For hazardous substances, as defined by the U.S. Resource Conservation and Recovery Act (RCRA), the following requirements apply:

- The Life Cycle Inventory (LCI) of hazardous substances will be included if the inventory is available.
- If the LCI for a hazardous substance is not available, the substance will appear as an input in the LCI of the product, if its mass represents more than 0.1% of the product composition.
- If the LCI of a hazardous substance is approximated by modeling another substance, documentation will be provided.

This LCA is in compliance with the cut-off criteria since no known processes were neglected or excluded from this analysis outside of the specific items outside the system boundary.

Renewable Electricity

Energy Attribute Certificates (EACs) such as Renewable Energy Certificates (RECs) or Power Purchase Agreements (PPAs) are included in the baseline reported results:	✕ No

Scenarios

Transport to the building/construction site (A4)

A4 Module

Fuel Type:	Diesel
Liters of Fuel:	30 l/100km
Vehicle Type:	Standard Freight Trailer
Transport Distance:	800 km
Capacity Utilization:	85 %
Packaging Mass:	0.07 kg
Capacity utilization volume factor:	<1
Assumptions for scenario development:	Final products are transported on trucks throughout the United States. This study assumed an average of 800 km for the final shipment of product based on the assumption within the PCR.

Installation in to the building/construction site (A5)

A5 Module

Installation Scrap Rate Assumed:	1 %
Product Lost per Declared/Functional Unit:	0.0074 kg
Waste Materials at the Construction Site Before Waste Processing:	0.0297 kg
Biogenic Carbon Contained in Packaging (kg C):	0.0030 kg
Assumptions for scenario development:	The Decoustics panels must be installed in accordance with all applicable CertainTeed installation guidelines at the time of installation. Approved installation procedures are in the

Ceilings/Wall Systems Handbook published by the Ceilings & Interior Systems Construction Association must be followed. Please follow link to handbook https://www.cisca.org/i4a/pages/index.cfm?pageid=3281 Installation of Decoustics is accomplished by manual labor and typically does not require any additional materials. If necessary, cutting is done by hand using handheld cutting tools. There are no apparent risks involved with the installation of Decoustics’ panels since no additional coating or finishing is required. The installer should wear safety glasses while installing the panels to avoid debris from falling into the eyes as well as approved gloves.

End of Life (C1 - C4)

C1 - C4 Modules

Recovery

Recycling: 0.2130 kg

Disposal

Product or Material for Final Disposal: 0.5270 kg

Assumptions for scenario development:
This study assumes a product service life of 30 years. The selected service life used in this study reflects the indicated in the PCR. Per Part A (Part A: Life Cycle Assessment Calculation Rules and Report Requirements UL Environment December 2018, version 3.2) guidance, see end of life disposal assumptions in Table 4 9. For this study all scrap rate materials were considered “Other materials.” Deconstruction of Decoustics is accomplished by manual labor and typically does not require any additional materials. If necessary, cutting is done by hand using handheld cutting tools. No additional electricity is required for deconstruction.

Results

Environmental Impact Assessment Results

IPCC AR5 GWP 100, EF3.0 , TRACI 2.1, CML 2016 v4.8

per 0.093 m2 of product.

LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

Impact Category	Unit	Method	A1 - A3	A4	A5	C1	C2	C3	C4
GWP-total [including biogenic carbon]	kg CO2 eq	IPCC AR5 GWP 100	4.08e+0	5.58e-2	1.46e-2	0	2.44e-3	0	3.48e-2
GWP-fossil [excluding biogenic carbon]	kg CO2 eq	EF3.0	4.33e+0	5.58e-2	1.25e-2	0	2.44e-3	0	3.49e-2
ODP	kg CFC 11 eq	TRACI 2.1	1.09e-7	2.08e-12	5.00e-14	0	9.11e-14	0	8.66e-13
AP	kg SO2 eq	TRACI 2.1	1.56e-2	3.31e-4	5.99e-5	0	1.45e-5	0	1.96e-4
EP	kg N eq	TRACI 2.1	1.02e-3	1.83e-5	1.90e-5	0	8.02e-7	0	1.02e-5
POCP	kg O3 eq	TRACI 2.1	1.91e-1	9.10e-3	3.52e-4	0	3.98e-4	0	4.84e-3
ADP-fossil	MJ	CML 2016 v4.8	5.92e+1	7.02e-1	2.44e-2	0	3.07e-2	0	4.59e-1

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

GWP = Global Warming Potential, 100 years (may also be denoted as GWP-total, GWP-fossil (fossil fuels), GWP-biogenic (biogenic sources), GWP-luluc (land use and land use change)), ODP = Ozone Depletion Potential, AP = Acidification Potential, EP = Eutrophication Potential, SFP = Smog Formation Potential, POCP = Photochemical oxidant creation potential, ADP-Fossil = Abiotic depletion potential for fossil resources, ADP-Minerals&Metals = Abiotic depletion potential for non-fossil resources, WDP = Water deprivation potential, PM = Particular Matter Emissions, IRP = Ionizing radiation, human health, ETP-fw = Eco-toxicity (freshwater), HTP-c = Human toxicity (cancer), HTP-nc = Human toxicity (non-cancer), SQP = Soil quality index.

Global Warming Potential or Climate Change is an indicator aimed at including in a single value the added effect of all the substances contributing to the greenhouse effect.Global Warming Potential (GWP-total) includes biogenic carbon, fossil carbon, land use, and land use change. To calculate GWP-total within the above table, the equation below is used:GWP-total = GWP-biogenic + GWP-fossil + GWP-luluc

- GWP-total or GWPtotal (including biogenic) is the sum of GWP-biogenic, GWP-fossil, and GWP-luluc.
- GWP-biogenic only includes biogenic carbon, which is carbon that is stored in bio-sourced materials, like plants, trees, and soil. This excludes fossil.
- GWP-fossil or GWPtotal (excluding biogenic) only includes fossil carbon, which is the carbon dioxide emitted when fossil fuels like coal, oil, or natural gas are combusted. This excludes biogenic.
- GWP-luluc only includes the greenhouse gas emissions that arise in connection with changes in the specified carbon stock as a result of land use and land use change, such as deforestation.

Depending on the required or optional standards, GWP can be reported with different methods and indicators, including United States Environmental Tool for Reduction and Assessment of Chemicals and Other Environmental Impacts (TRACI 2.1, etc.), Intergovernmental Panel on Climate Change (IPCC) Assessment Report (AR5, AR6, etc.), Environmental Footprint (EF 3.0, 3.1), and/or EN 15804.GWP can be reported on a time frame such as GWP 100 for a 100-year time horizon.

Resource Use Indicator

per 0.093 m2 of product.

Indicator	Unit	A1 - A3	A4	A5	C1	C2	C3	C4
PERE	MJ	ND	ND	ND	ND	ND	ND	ND
PERM	MJ	ND	ND	ND	ND	ND	ND	ND
PERT	MJ	ND	ND	ND	ND	ND	ND	ND
PENRE	MJ	ND	ND	ND	ND	ND	ND	ND
PENRM	MJ	ND	ND	ND	ND	ND	ND	ND
PENRT	MJ	ND	ND	ND	ND	ND	ND	ND
RPRE	MJ	1.40e+1	0	9.66e-4	0	0	0	2.14e-2
RPRM	MJ	3.23e-1	0	0	0	0	0	0
RPRT	MJ	ND	ND	ND	ND	ND	ND	ND
NRPRE	MJ	7.26e+1	7.09e-1	2.48e-2	0	3.10e-2	0	4.67e-1
NRPRM	MJ	2.25e-1	0	0	0	0	0	0
NRPRT	MJ	ND	ND	ND	ND	ND	ND	ND
ADP-fossil	MJ	ND	ND	ND	ND	ND	ND	ND
SM	kg	1.25e-1	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0
FW	m3	3.77e-2	0	2.17e-6	0	0	0	2.23e-5
RE	MJ	0	0	0	0	0	0	0

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

RPRE or PERE = Renewable primary resources used as energy carrier (fuel), RPRM or PERM = Renewable primary resources with energy content used as material, RPRT or PERT = Total use of renewable primary resources with energy content, NRPRE or PENRE = Non-renewable primary resources used as an energy carrier (fuel), NRPRM or PENRM = Non-renewable primary resources with energy content used as material, NRPRT or PENRT = Total non-renewable primary resources with energy content, SM = Secondary materials, RSF = Renewable secondary fuels, NRSF = Non-renewable secondary fuels, RE = Recovered energy, ADPF = Abiotic depletion potential, FW = Use of net freshwater resources, VOCs = Volatile Organic Compounds.

Waste and Output Flow Indicators

per 0.093 m2 of product.

Indicator	Unit	A1 - A3	A4	A5	C1	C2	C3	C4
HWD	kg	1.45e-7	0	1.92e-12	0	0	0	4.27e-11
NHWD	kg	3.99e-1	0	2.07e-2	0	0	0	5.28e-1
RWD	kg	0	0	0	0	0	0	0
HLRW	kg	6.30e-6	0	9.27e-11	0	0	0	2.05e-9
ILLRW	kg	4.74e-3	0	8.28e-8	0	0	0	1.83e-6
CRU	kg	0	0	0	0	0	0	0
MFR	kg	0	0	5.95e-3	0	0	2.13e-1	0
MER	kg	0	0	0	0	0	0	0
MNER	kg	ND	ND	ND	ND	ND	ND	ND
EEE	MJ	ND	ND	ND	ND	ND	ND	ND
EET	MJ	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

HWD = Hazardous waste disposed, NHWD = Non-hazardous waste disposed, RWD = Radioactive waste disposed, HLRW = High-level radioactive waste, ILLRW = Intermediate- and low-level radioactive waste, CRU = Components for re-use, MFR or MR = Materials for recycling, MER = Materials for energy recovery, MNER = Materials for incineration, no energy recovery, EE or EEE = Recovered energy exported from the product system, EET = Exported thermal energy.

Carbon Emissions and Removals

per 0.093 m2 of product.

Indicator	Unit	A1 - A3	A4	A5	C1	C2	C3	C4
BCRP	kg CO2	0	0	0	0	0	0	0
BCEP	kg CO2	0	0	0	0	0	0	0
BCRK	kg CO2	-1.10e-2	0	0	0	0	0	0
BCEK	kg CO2	0	0	1.10e-2	0	0	0	0
BCEW	kg CO2	0	0	0	0	0	0	0
CCE	kg CO2	ND	ND	ND	ND	ND	ND	ND
CCR	kg CO2	ND	ND	ND	ND	ND	ND	ND
CWNR	kg CO2	ND	ND	ND	ND	ND	ND	ND

Note:

Not all abbreviated indicators listed below may be present in the results above. The inclusion of indicators varies based on PCR requirements.

Abbreviations:

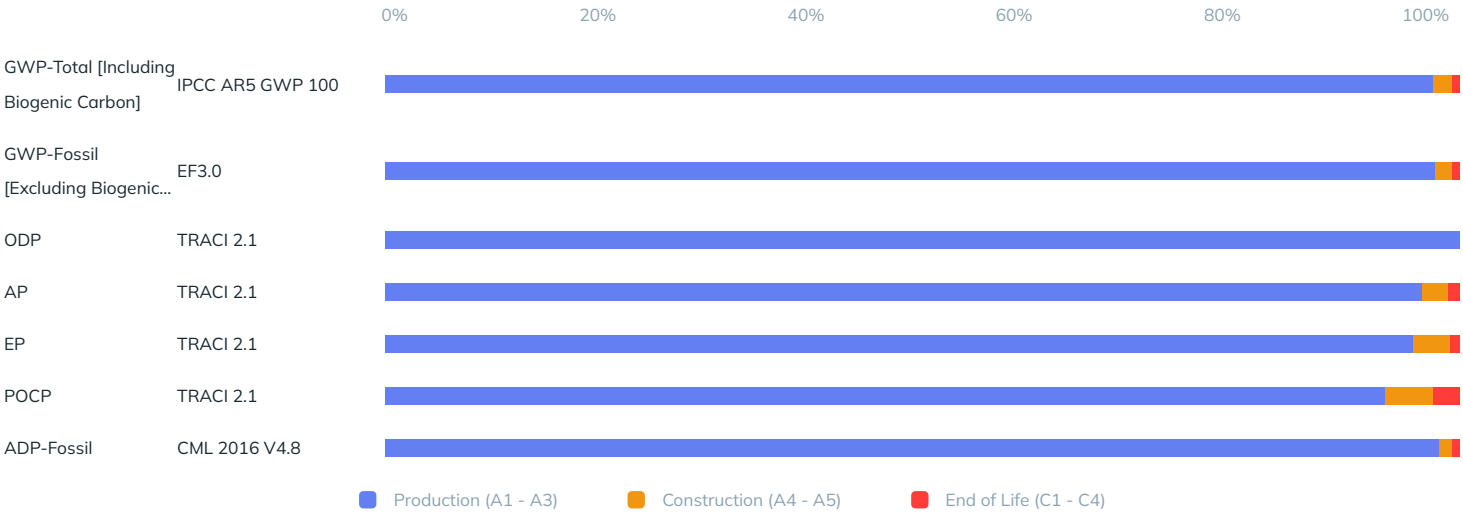
BCRP = Biogenic Carbon Removal from Product, BCEP = Biogenic Carbon Emission from Product, BCRK = Biogenic Carbon Removal from Packaging, BCEK = Biogenic Carbon Emission from Packaging, BCEW = Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes, CCE = Calcination Carbon Emissions, CCR = Carbonation Carbon Removals, CWNR = Carbon Emissions from Combustion of Waste from Non-Renewable Sources used in Production Processes, GWP-luc = Carbon Emissions from Land-use Change.

Interpretation

Based on the results from the life cycle assessment, the life cycle impacts are strongly driven by the raw materials and manufacturing processes. These two stages account for nearly 98% of the entire Global Warming Potential (GWP) for the Decoustics 2” Claro product.

Since the manufacturing stage accounts for about 30% of the GWP, it would be recommended to increase energy efficiency to help reduce the overall impacts for the products. Within the manufacturing stage, natural gas consumption makes up nearly 89% of the impacts. Switching to renewable energy sources would be recommended to decrease the GWP impacts of manufacturing.

If possible, incorporating more recycled content, replacing virgin aluminum and fiberglass, into the product will help reduce the environmental impacts of the raw materials stage in the life cycle of the ceiling panels. As recycled content increases, the raw materials driving impacts will decrease, thus improving the overall environmental impacts. The aluminum and the fiberglass board were both the largest contributor to the raw material impacts for the ceiling product line. These materials were responsible for more than 89% of the environmental impact potentials in the global warming category. Fiberglass was also the leading raw material impact (up to 99%) within the Ozone Depletion Potential, Acidification Potential, Eutrophication Potential, Photochemical Oxidant Creation Potential, and Abiotic Resource Depletion of fossil energy resources impact categories for all products. We take great measure to ensure that we are choosing the most updated dataset, but also want to outline where we had to use older datasets for this LCA. For example, the fiberglass duct board dataset is currently more than 10 years old. We are currently waiting for the newest industry version to be integrated within Sphera.



Modified Impact Results: Renewable Electricity

per 0.093 m2 of product.

Impact Category	Unit	Method	A1 - A3	A4	A5	C1	C2	C3	C4
GWP-total	kg CO2 eq	IPCC AR5 GWP 100	4.04e+0	5.58e-2	1.46e-2	0	2.44e-3	0	3.48e-2
ODP	kg CFC 11 eq	TRACI 2.1	1.09e-7	2.08e-12	5.00e-14	0	9.11e-14	0	8.66e-13
AP	kg SO2 eq	TRACI 2.1	1.56e-2	3.31e-4	5.99e-5	0	1.45e-5	0	1.96e-4
EP	kg N eq	TRACI 2.1	1.05e-3	1.83e-5	1.90e-5	0	8.02e-7	0	1.02e-5
POCP	kg O3 eq	TRACI 2.1	1.91e-1	9.10e-3	3.52e-4	0	3.98e-4	0	4.84e-3
ADP-fossil	MJ	TRACI 2.1	ND	ND	ND	ND	ND	ND	ND
GWP-fossil	kg CO2 eq	IPCC AR5 GWP 100	4.29e+0	5.58e-2	1.25e-2	0	2.44e-3	0	3.49e-2
ADP-fossil	MJ	CML 2016 v4.8	5.85e+1	7.02e-1	2.44e-2	0	3.07e-2	0	4.59e-1

Note:

Abbreviations:

GWP = Global Warming Potential, 100 years (may also be denoted as GWP-total, GWP-fossil (fossil fuels), GWP-biogenic (biogenic sources), GWP-luluc (land use and land use change)), ODP = Ozone Depletion Potential, AP = Acidification Potential, EP = Eutrophication Potential, SFP = Smog Formation Potential, POCP = Photochemical oxidant creation potential, ADP-Fossil = Abiotic depletion potential for fossil resources, ADP-Minerals&Metals = Abiotic depletion potential for non-fossil resources, WDP = Water deprivation potential, PM = Particular Matter Emissions, IRP = Ionizing radiation, human health, ETP-fw = Eco-toxicity (freshwater), HTP-c = Human toxicity (cancer), HTP-nc = Human toxicity (non-cancer), SQP = Soil quality index.

Saint-Gobain is committed to achieving Carbon Neutrality by 2050. In January 2021, Saint-Gobain North America started receiving Renewable Energy Certificates (RECs) from a 12-year virtual power purchase agreement (vPPA) with the Blooming Grove Wind Farm in McLean County, Illinois. Each year within the agreement, the company receives and retires these RECs, effectively reducing CO2 equivalent emissions from electricity usage in the United States and Canada.

The updated results incorporate the impact of RECs on the electricity used in the manufacturing process (A3). The reduced impacts resulting from allocated RECs at the Woodbridge, Ontario site were calculated using 100% wind-generated electricity, covering 47% of the plant’s electricity consumption in 2023. The REC data was modeled using the ‘US-SERC Electricity production, wind, 1-3MW turbine, onshore’ dataset, with a carbon intensity of 13.2 kg CO2e/MWh*. Any remaining energy not covered by RECs was modeled based on local energy grid information for the manufacturing site(s).

References

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