ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH ISO 14025 AND ISO 21930:2017

SmartEPD-2024-027-0141-01.2

Lanaé Sustainable Insulation™ and NoiseReducer™ (Canada)

certainteed
SAINT-GOBAIN

SMART EPD
CERTIFIED
ENVIRONMENTAL PRODUCT DECLARATION

Date of Issue:
Apr 28, 2025

Expiration:
Apr 28, 2030

Last updated:
Apr 28, 2025

General Information

CertainTeed

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Product Name:	Lanaé Sustainable Insulation™ and NoiseReducer™ (Canada)
Functional Unit:	1 m2 of material with RSI = 1m2K/W
Declaration Number:	SmartEPD-2024-027-0141-01.2
Date of Issue:	April 28, 2025
Expiration:	April 28, 2030
Last updated:	April 28, 2025
EPD Scope:	Cradle to gate with other options A1 - A3, A4, A5, C1 - C4
Market(s) of Applicability:	North America

General Organization Information

About CertainTeed With innovative building solutions made possible through its comprehensive offering of interior and exterior products, CertainTeed is transforming how the industry builds. As leaders in building science and sustainable construction, CertainTeed makes it easier than ever to create high-performance, energy-efficient places to live, work and play, so that together we can make the world a better home. A subsidiary of Saint-Gobain, one of the world's largest and oldest building products companies, CertainTeed has more than 6,900 employees and more than 60 manufacturing facilities throughout the United States and Canada.

Further information can be found at: https://www.certainteed.ca/

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 and ISO 21930:2017
Core PCR:	PCR for Building-Related Products and Services Part A Date of issue: March 01, 2022

Sub-category PCR:	Part B: Building Envelope Thermal Insulation Products v.3 Date of issue: April 10, 2023 Valid until: October 10, 2024
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 PMB 966, Herndon, VA 20170, USA
Verification:	Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071: External Anni Oviir | anni.oviir@lcasupport.com Independent external verification of EPD, according to ISO 14025 and reference PCR(s): External Anni Oviir | anni.oviir@lcasupport.com

Product Information

Functional Unit:	1 m2 of material with RSI = 1m2K/W
Mass:	0.47 kg
Reference Service Life:	75 Years
Product Specificity:	✓ Product Average ✗ Product Specific

Product Description

CertainTeed is dedicated to Making the World a Better Home with insulation products that are produced with a commitment to minimizing environmental impact and improving energy savings. CertainTeed's insulation products included in this EPD are: Lana Sustainable Insulation, NoiseReducer, and UltraTherm Glass Fibre Blowing Insulation. The sizes for the products in this EPD range from R-8 to R-60. These values indicate the insulation's resistance to heat transfer, with higher values indicating better insulation performance.

CertainTeed's insulation acts as both thermal and acoustical insulation in ceilings, walls and floors. The function of the products reported in this document is 1 square meter of insulation material with a thickness that provides an average thermal resistance Rsi = 1m2 K/W (Rus=5.68). Sustainable Insulation is used for increased thermal performance and reduced noise levels. NoiseReducer products are designed for use in commercial and residential wall and ceiling assemblies to effectively reduce transmission of airborne sound and provide thermal insulation. UltraTherm is a bindered loose-fill fibre glass insulation with the same formula as the Sustainable Insulation, designed for pneumatic application in a horizontal open blow and used in residential construction as a thermal insulation. This product is non-combustible, noncorrosive and odor free. In addition, UltraTherm won't settle, contains no chemicals to cause mildew and fungus growth, provides no sustenance for vermin, contains no asbestos, won't rot or decay, and won't absorb moisture.

Further information can be found at: https://www.certainteed.ca/products/building-insulation-products/sustainable-insulation-canada
https://www.certainteed.ca/products/building-insulation-products/noisereducer

Product Specifications

Product Classification Codes:	UNSPSC - ThermalMoistureProtection >> Insulation >> BlanketInsulation EC3 - ThermalMoistureProtection -> Insulation -> BlanketInsulation
Form Factor:	ThermalMoistureProtection >> Insulation >> BlanketInsulation
Insulation type:	Glass Fibre
Density:	10.43 kg/m3
Thickness for R value of 1:	43 mm
Intended Application:	Wall & General
Thermal resistance:	1 m2K/W

Material Composition

Material/Component Category	Origin	% Mass
Borax	None	9-11
External Glass Cullet - Externally Sourced Recycled Content (Secondary Material)	None	43-67
Limestone	None	0-4
Internal Glass Cullet - Reprocessed within the manufacturing plant	None	16-17
Sand	None	0-20
Binder	None	4-5
Soda Ash	None	2-10
Additional	None	0-5

Packaging Material	Origin	kg Mass
Plastic Bags	None	1.30e-2
Stretch Film	None	5.50e-4
Strapping	None	7.82e-4

Hazardous Materials
No regulated hazardous or dangerous substances are included in this product.

EPD Data Specificity

Primary Data Year: 2021

Manufacturing Specificity:

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

Averaging:

The EPD used a weighted averaged based on mass of production at the included facilities.

System Boundary

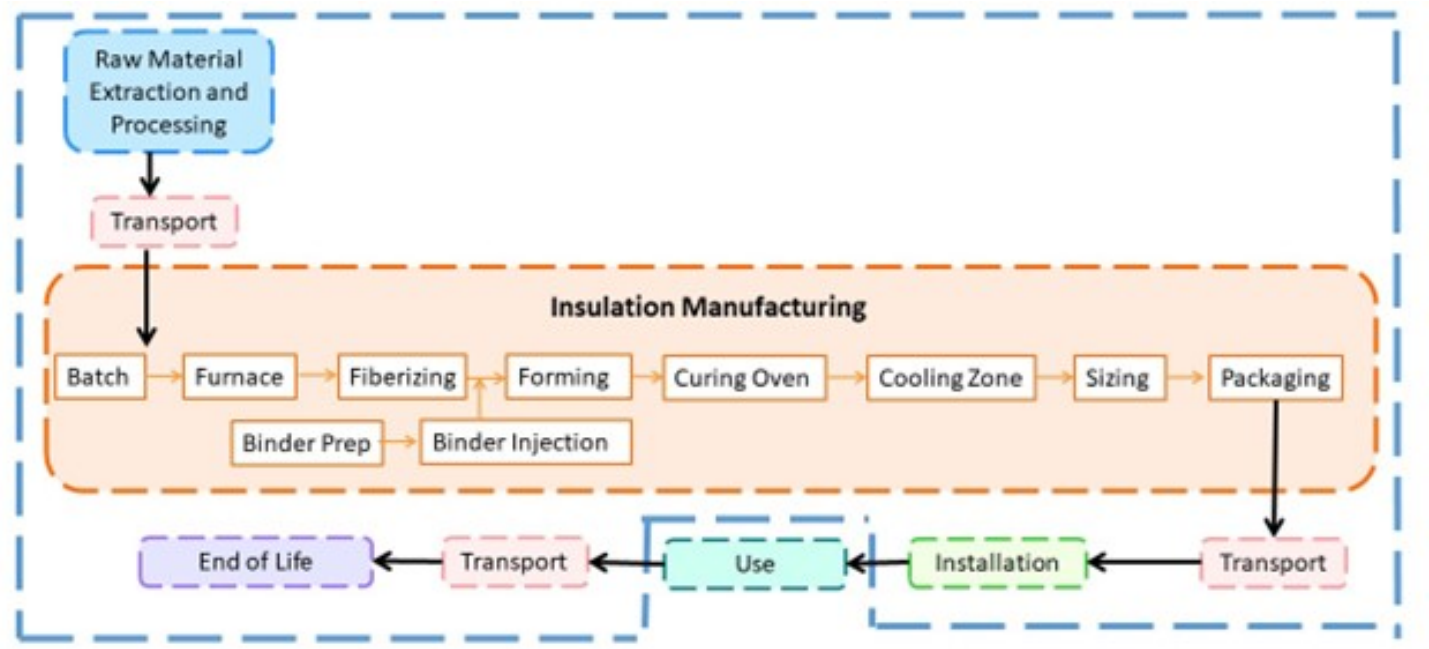
Production	A1	Raw material supply	✓
	A2	Transport	✓
	A3	Manufacturing	✓
Construction	A4	Transport to site	✓
	A5	Assembly / Install	✓
Use	B1	Use	ND
	B2	Maintenance	ND
	B3	Repair	ND
	B4	Replacement	ND
	B5	Refurbishment	ND
	B6	Operational Energy Use	ND
	B7	Operational Water Use	ND
End of Life	C1	Deconstruction	✓
	C2	Transport	✓
	C3	Waste Processing	✓
	C4	Disposal	✓
Benefits & Loads Beyond System Boundary	D	Recycling, Reuse Recovery Potential	ND

Plants

CertainTeed
Ottawa, ON, Canada

Redcliff, AB
101 1 St NE, Redcliff, AB T0J 2P0, Canada

Product Flow Diagram



Software and Database

LCA Software:	GaBi v. 10.0
LCI Foreground Database(s):	GaBi Professional Database v. 2022 | North America / Global | Mass
LCI Background Database(s):	Ecoinvent v. 3.9.1 | North America / Global | Mass

Data Quality

For the data used in this EPD, the data quality is considered to be of good to high quality. The data and datasets cover all relevant process steps and technologies over the supply chain of the represented Sustainable Insulation products.Wherever secondary data is used, the study adopts critically reviewed data for consistency, precision, and reproducibility to limit uncertainty. Since the inventory flows for the utilized databases are very often accompanied by a series of data quality ratings, a general indication of precision can be inferred. Using these ratings, the data sets used generally have medium-to-high precision. The Saint-Gobain North American ESG Department collected specific data on energy and material inputs, wastes, water use, emissions, and transportation impacts from the two CertainTeed manufacturing facilities (Ottawa, ON and Redcliff, AB).

Life Cycle Module Descriptions

This EPD study is characterized as a cradle-to-gate with options study, examining the Sustainable Insulation product line from the two CertainTeed manufacturing facilities (Ottawa, ON and Redcliff, AB). The production stage encompasses a range of processes, including the extraction and processing of raw materials, the processing of secondary materials, the transportation of raw materials to the manufacturing site, manufacturing and processing, the consumption of materials, energy, and water, the waste and loss rate during the installation of the product in the building, and the disposal of the product at the end of its life.

- **Raw Materials and Product Recipe (Modules A1)**

A thorough analysis of the material inputs was completed for the inventory of this study. The Sustainable Insulation product component percentages. The Sustainable Insulation product component percentages for the finished product are included in the study for the combined average product of the two facilities (Ottawa, ON and Redcliff, AB).

- **Raw Material Transportation (Module A2)**

Raw materials are transported to the manufacturing sites by standard freight truck or ocean. Unless otherwise noted, transport vehicles are fueled with diesel fuel.

- **Manufacturing Process Overview (Module A3)**

A detailed analysis of the Sustainable Insulation manufacturing process was completed by the Saint-Gobain North American Environmental, Social and Governance (ESG) department to observe and understand the manufacturing processes for Sustainable Insulation. A process flow diagram is attached above and illustrates all process steps, inputs, and outputs including material, energy, emissions, and wastes. To produce Sustainable Insulation, the glass component raw materials are melted and formed into the final product. The binder component raw materials are mixed and injected into the process, after which the product with the combined components is cured, sized, and then packaged.

- **Packaging (Module A3)**

Packaging of the final product after production is included in the life cycle assessment. The product is packaged in a pre-printed plastic bag. If the bag is not pre-printed, thermal transfer labels are used. The bags are stacked with other bagged product, held together with plastic straps, and then the stack is wrapped in shrink-wrap before final shipping. The packaging for the final product is assumed to the same at both the Ottawa and Redcliff facilities. The average weight of each packaging component was provided by personnel at the Ottawa facility.

- **Product Distribution (Module A4)**

Final products are transported on trucks throughout the United States and Canada. This study assumed an average of 3,570 km for the final shipment of product.

- **Installation (Module A5)**

This study assumes a no scrap generated from the installation of the product as the installation is done by hand. While construction or installation waste is included in this stage of the system boundary, this study assumes no scrap generated from the installation of the product since contractors typically use scrap pieces to fill gaps, leaving very little to no waste from the installation. In addition, disposal of the packaging material is included in the installation phase.

- **Use (Modules B1-B7)**

The use phase is excluded from the study.

- **End of life (Modules C1-C4)**

Just as the installation of the Sustainable Insulation is done by hand, the deconstruction (module C1) is also assumed to be by hand, so this study assumes the deconstruction module of the end-of-life stage to be burden free. The product's end-of-life is assumed to be inert in a landfill. At this time there are no recycling scenarios for the Sustainable Insulation at the end of its service life, so the waste processing module (C3) of the end-of-life stage is also assumed to be burden free. Disposal in a municipal landfill or in commercial incineration facilities is permissible and should be done in accordance with local, provincial, and federal regulations.

LCA Discussion

Allocation Procedure

Energy and water allocation for both facilities is based on production mass. Both facilities produce Sustainable Insulation, however, Sustainable Insulation is not the only product made at each of the facilities. Production of the Sustainable Insulation at both facilities is based on mass of production. Results were calculated based on a weighted average of the two facilities. The manufacturing flow data was combined with resource extraction, processing, transportation, installation, and deposition to landfill.

Cut-off Procedure

Processes whose total contribution to the final result, with respect to their mass and in relation to all considered impact categories, is less than 1% can be neglected. The sum of the neglected processes may not exceed 5% by mass of the considered impact categories. For that a documented assumption is admissible.

For Hazardous Substances as defined by the U.S. Occupational Health and Safety Act 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 EPD is in compliance with the cut-off criteria. No known flows were deliberately excluded. Capital items for the production processes (machines, buildings, etc.) were not taken into consideration..

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:	3750 km
Capacity Utilization:	85 %
Packaging Mass:	0.03 kg
Gross density of products transported:	10.43 kg/m3
Weight of products transported:	0.45 kg
Capacity utilization volume factor:	=1
Assumptions for scenario development:	Final products are transported on trucks throughout North America. This study assumed an average 3,570 km for the final shipment of product which was a weighted average of the transport distances from Ottawa and Redcliff.

Installation in to the building/construction site (A5)

A5 Module

Mass of Packaging Waste Specified by Type:	0.03 kg

End of Life (C1 - C4)

C1 - C4 Modules

Collection Process

Collected with Mixed Construction Waste:	0.45 kg

Recovery

Landfill:	0.45 kg

Disposal

Product or Material for Final Disposal:	0.45 kg

Results

Environmental Impact Assessment Results

IPCC AR5 GWP 100, TRACI 2.1

per 1 m2 of material with RSI = 1m2K/W 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	Method	Unit	A1A2A3	A4	A5	C1	C2	C3	C4
GWP-total [including biogenic carbon]	IPCC AR5 GWP 100	kg CO2 eq	5.30e-1	4.27e-5	1.37e-5	0	1.37e-5	0	9.81e-3
GWP-fossil [excluding biogenic carbon]	TRACI 2.1	kg CO2 eq	5.03e-1	4.21e-5	5.02e-3	0	9.53e-3	0	1.35e-5
ODP	TRACI 2.1	kg CFC 11 eq	2.55e-7	1.59e-15	1.56e-17	0	5.12e-16	0	4.67e-16
AP	TRACI 2.1	kg SO2 eq	1.09e-3	2.53e-7	3.31e-5	0	8.13e-8	0	5.04e-5
EP	TRACI 2.1	kg N eq	3.17e-4	1.40e-8	1.18e-5	0	4.50e-9	0	2.21e-6
POCP	TRACI 2.1	kg O3 eq	2.44e-2	6.97e-6	8.55e-5	0	2.24e-6	0	9.20e-4
ADP-fossil	TRACI 2.1	MJ	1.10e+0	7.45e-5	6.39e-4	0	2.39e-5	0	1.91e-2

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 (AR 5, AR 6, 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 100-year time horizon.

Comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building has been specified. Comparisons may be made between product-specific or industry average EPDs at the time of product purchase when product 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. 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 comparison can be inaccurate, and could lead to erroneous selection of materials or products which are higher-impact, at least in some impact categories.

Resource Use Indicators

per 1 m2 of material with RSI = 1m2K/W of product .

Indicator	Unit	A1A2A3	A4	A5	C1	C2	C3	C4
PERE	MJ	1.09e-1	ND	5.94e-4	ND	ND	ND	1.78e-2
PERM	MJ	0	ND	ND	ND	ND	ND	ND
PERT	MJ	1.09e-1	ND	5.94e-4	ND	ND	ND	1.78e-2
PENRE	MJ	8.15e+0	5.42e-4	5.07e-3	ND	1.74e-4	ND	1.52e-1
PENRM	MJ	ND	ND	ND	ND	ND	ND	ND
PENRT	MJ	8.15e+0	5.42e-4	5.07e-3	ND	1.74e-4	ND	1.52e-1
SM	kg	2.55e-1	ND	ND	ND	ND	ND	ND
RSF	MJ	0	ND	ND	ND	ND	ND	ND
NRSF	MJ	0	ND	ND	ND	ND	ND	ND
RE	MJ	0	ND	ND	ND	ND	ND	ND
FW	m3	5.00e-4	ND	ND	ND	ND	1.20e-3	ND
ADPF	MJ, LHV	1.10e+0	7.45e-5	6.39e-4	ND	2.39e-5	ND	1.91e-2

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 1 m2 of material with RSI = 1m2K/W of product .

Indicator	Unit	A1A2A3	A4	A5	C1	C2	C3	C4
HWD	kg	3.55e-10	ND	1.27e-13	ND	ND	ND	3.79e-12
NHWD	kg	1.75e-2	ND	ND	ND	ND	ND	ND
RWD	kg	8.44e-7	ND	5.62e-8	ND	ND	ND	1.68e-6
CRU	kg	2.62e-1	ND	ND	ND	ND	ND	ND
MFR	kg	ND	ND	ND	ND	ND	ND	ND
MER	kg	ND	ND	ND	ND	ND	ND	ND
EEE	MJ, LHV	ND	ND	ND	ND	ND	ND	ND
EET	MJ, LHV	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 1 m2 of material with RSI = 1m2K/W of product .

Indicator	Unit	A1A2A3	A4	A5	C1	C2	C3	C4
BCRP	kg CO2	0	ND	ND	ND	ND	ND	ND
BCEP	kg CO2	0	ND	ND	ND	ND	ND	ND
BCRK	kg CO2	0	ND	ND	ND	ND	ND	ND
BCEK	kg CO2	0	ND	ND	ND	ND	ND	ND
BCEW	kg CO2	0	ND	ND	ND	ND	ND	ND
CCE	kg CO2	0	ND	ND	ND	ND	ND	ND
CCR	kg CO2	0	ND	ND	ND	ND	ND	ND
CWNR	kg CO2	0	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:

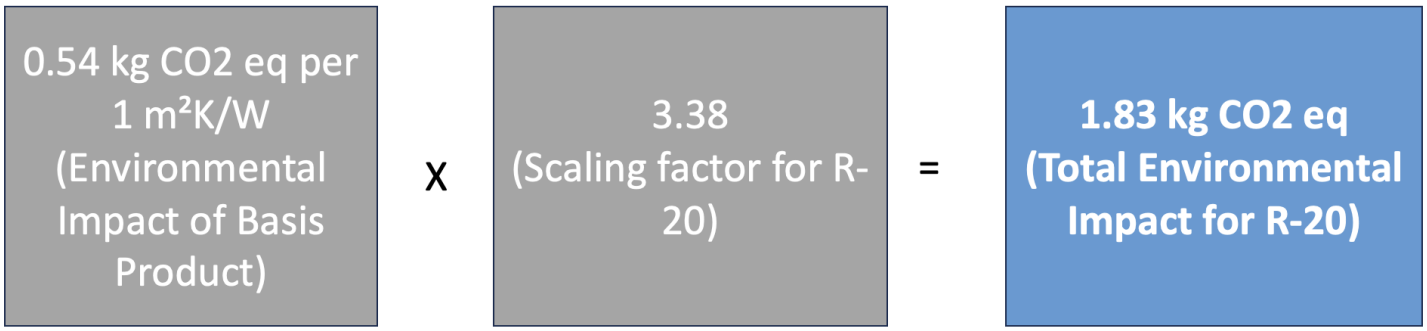
BCRP = Biogenic Carbon Removal from Product, BCEP = Biogenic Carbon Emission from Product, BCRK = Biogenic Carbon Removal from Packaging, BCEK = Biogenic Carbon Emission from Packaging, BCEW = Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes, CCE = 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.

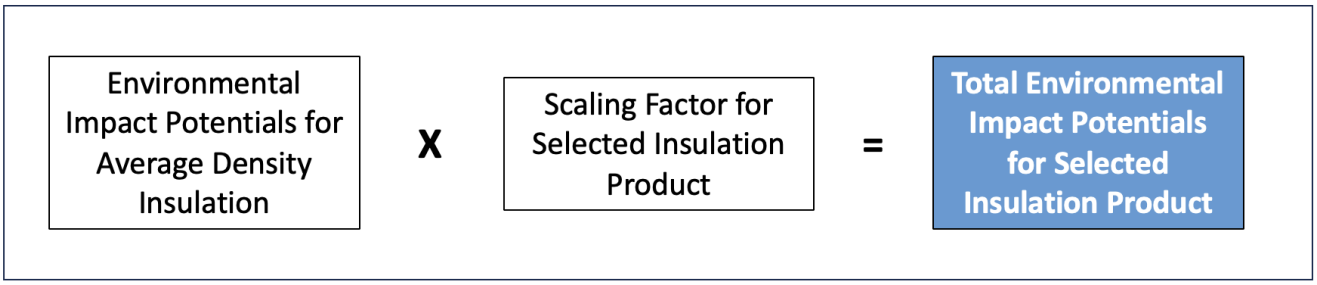
Impact Scaling Factors

R-Value	Thickness (in)	Thickness (mm)	RSI	Scaling Factor	Product Name
5.68 (Basis product for RSI =1)	1.71	43	1	1	Basis Product for RSI = 1
8, 8NR	2.75	70	1.4	1.68	Sustalnable Insulation, Noise Reducer
10	3.5	89	1.8	2.06	Sustalnable Insulation
12, 12NR	3.5	89	2.1	2.15	Sustalnable Insulation, Noise Reducer
14	3.5	89	2.4	3.79	Sustalnable Insulation
20, 20 NR	6	152	3.5	3.38	Sustalnable Insulation, Noise Reducer
22	5.5	140	3.8	5.55	Sustalnable Insulation
24	5.5	140	4.2	6.74	Sustalnable Insulation
28	8.5	216	4.9	5.09	Sustalnable Insulation
28 HD	7.5	191	4.9	6.49	Sustalnable Insulation
31	9.5	241	5.4	6.04	Sustalnable Insulation
35	10.75	273	6.1	6.53	Sustalnable Insulation
40	12	305	7	7.53	Sustalnable Insulation

R-Value	RSI	Thickness lin)	Thickness (mm)	Scaling Factor	Product Name
8	1.4	3	76	2.34	UltraTherm
10	1.8	3.7	95	2.98	UltraTherm
12	2.1	4.5	114	3.62	UltraTherm
14	2.5	5.2	133	4.26	UltraTherm
16	2.8	6	152	4.89	UltraTherm
20	3.5	7.5	190	6.17	UltraTherm
24	4.2	9	228	7.23	UltraTherm
28	4.9	10.5	267	8.51	UltraTherm
30	5.3	11.2	286	9.15	UltraTherm
32	5.6	12	305	9.79	UltraTherm
34	6	12.7	324	10.43	UltraTherm
36	6.3	13.5	343	11.06	UltraTherm
40	7	15	381	12.13	UltraTherm
42	7.4	15.7	400	12.77	UltraTherm
44	7.7	16.5	419	13.40	UltraTherm
46	8.1	17.2	438	14.04	UltraTherm
48	8.5	18	457	14.68	UltraTherm
50	8.8	18.7	476	15.32	UltraTherm
52	9.2	19.5	495	15.96	UltraTherm
54	9.5	20.2	514	16.38	UltraTherm
56	9.9	21	533	17.02	UltraTherm
58	10.2	21.7	552	17.66	UltraTherm
60	10.6	22.5	571	18.30	UltraTherm

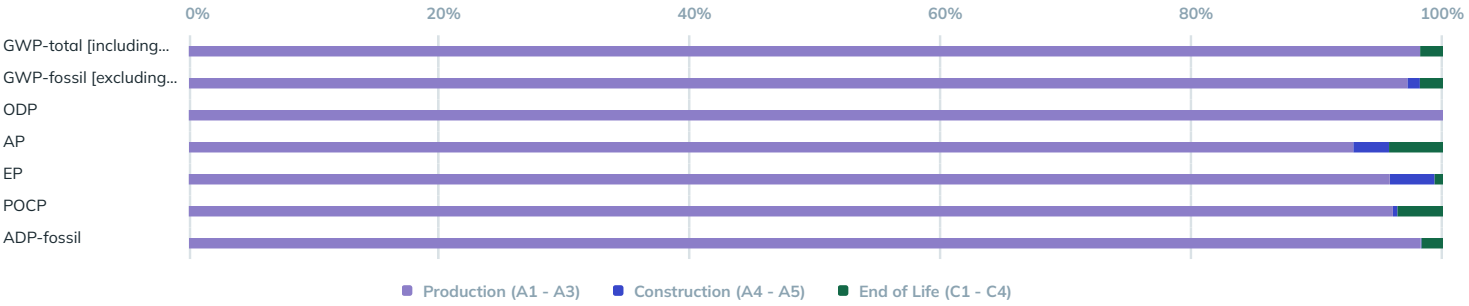
Scaling factors can be used to determine the impacts of the insulation. The following scaling factors shown in the Table are based on the density of the Sustainable Insulation® Glass Fibre Building Insulation Batts – Canada produced in Redcliff and Ottawa. Noise Reducer (NR) is the same as Sustainability Insulation, this just represents a different product market. To determine the impacts, multiply the impact results shown by the scaling factor for a product listed.





Interpretation

Based on the results from the life cycle assessment, the life cycle impacts are strongly driven by the manufacturing process, specifically the natural gas usage. Natural gas represented more than 55% of the overall global warming potential. The process to melt glass including internal regrind as well as external cullet, is intensive. However, use of the insulation within the building helps building owners reduce their overall energy usage, which is not captured in this assessment. Saint-Gobain North America also invests in Renewable Energy through Virtual Power Purchase Agreements



Additional Environmental Information

- Environment and Health During Manufacturing

CertainTeed has well-established Environmental, Health, and Safety (EHS) and product stewardship programs which help to enforce proper evaluation and monitoring of chemicals that are chosen to manufacture products. These programs ensure that all environmental and occupational health and safety requirements are met or exceeded to ensure the health and safety of all employees and contractors.

- Environment and Health During Installation

Glass Fibre insulation may cause temporary skin and respiratory irritation. During installation it is recommended that eye protection, disposable dust masks, gloves, hats, long sleeves and long pants are worn.
Installation has minimal impacts due to the modular nature of insulation and minimal energy required for installation. The assumption is that insulation require no cleaning or maintenance so use phase impacts are zero.

Further Information

Modified Impact Results: Renewable Energy

LCIA Method	Impact Category	Unit	A1A2A3	A4	A5	C1	C2	C3	C4
IPCC AR5 GWP 100	GWP-fossil [excluding biogenic carbon]	kg CO2 eq	5.30E-01	4.27E-05	1.37E-05	0	1.37E-05	0	9.81E-03
TRACI 2.1	GWP-fossil [excluding biogenic carbon]	kg CO2 eq	5.03e-1	4.21e-5	5.02e-3	0	9.53e-3	0	1.35e-5
TRACI 2.1	ODP	kg CFC 11 eq	2.55e-7	1.59e-15	1.56e-17	0	5.12e-16	0	4.67e-16
TRACI 2.1	AP	kg SO2 eq	1.09e-3	2.53e-7	3.31e-5	0	8.13e-8	0	5.04e-5
TRACI 2.1	EP	kg N eq	3.17e-4	1.40e-8	1.18e-5	0	4.50e-9	0	2.21e-6
TRACI 2.1	POCP	kg O3 eq	2.44e-2	6.97e-6	8.55e-5	0	2.24e-6	0	9.20e-4
TRACI 2.1	ADP-fossil	MJ	1.10e+0	7.45e-5	6.39e-4	0	2.39e-5	0	1.91e-2

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 Redcliff and Ottawa were calculated using 100% wind-generated electricity covering 33% of the plants' electricity consumption in 2021. 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 sites.
*GWP IPCC AR6 (excluding biogenic carbon)

References

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.

Product Category Rule Guidance for Building-Related Products and Services: Part B Building Envelope Thermal Insulation EPD Requirements. Edition 3.0. April 2023. UL Environment.

ISO 14040: 2006 Series Environmental Management-Life Cycle Assessment

ISO 21930:2017 Sustainability in building construction Environmental declaration of building products

Sphera LCA FE Databases. https://sphera.com/product-sustainability-software/

US LCI Database. https://www.nrel.gov/lci/

Ecoinvent v3.9.1 Database. http://ecoinvent.org/

CertainTeed Insulation Website. https://www.certainteed.com/building-insulation/products/sustainable-insulation/

Energy Data: https://energyrates.ca/the-main-electricity-sources-in-canada-by-province/

Energy Data: https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/provincial-territorial-energy-profiles-ontario.html