ENVIRONMENTAL PRODUCT DECLARATION

SYMPHONY® *m High NRC, SYMPHONY® m High CAC and SYMPHONY® m* 80 Rx CEILING PANELS

CERTAINTEED (PLYMOUTH, WI)
MINERAL FIBER CEILING PANELS

Symphony m® has a clean monolithic appearance with a balanced mix of acoustical, performance and environmental properties to meet your needs in office, healthcare and education buildings.

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. For more information visit: www.certainteed.com

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ENVIRONMENTAL PRODUCT DECLARATION
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ENVIRONMENTAL PRODUCT DECLARATION

Symphony® m High NRC, Symphony® m High CAC and Symphony® m 80 Rx Mineral Fiber Ceiling Panels

According to ISO14025, ISO 21930:2017 and EN 15804:A1

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025. 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.

PROGRAM OPERATOR	UL Environment
DECLARATION HOLDER	CertainTeed Ceilings
DECLARATION NUMBER	4789842571.101.3 (Updated March 2025)
DECLARED PRODUCT	Symphony® *m* High NRC, Symphony® *m* High CAC and Symphony® m 80 Rx Mineral Fiber Ceiling Panels
REFERENCE PCR	PCR Guidance for Building Related Products and Services, From the range of Environmental Product Declarations of UL Environment: "Part B: Non-Metal Ceiling Panels and Interior Wall Panel v.2.0 April 2020
DATE OF ISSUE	July 1, 2021
PERIOD OF VALIDITY	5 Years
CONTENTS OF THE DECLARATION	Product definition and information about building physics Information about basic material and the material's origin Description of the product's manufacture Indication of product processing Information about the in-use conditions Life cycle assessment results Testing results and verifications

The PCR review was conducted by:	Review Panel Dr. Lindita Bushi epd@ul.com
This declaration was independently verified in accordance with ISO 14025 by Underwriters Laboratories ☐ INTERNAL ☒ EXTERNAL	Grant R. Martin Grant R. Martin, UL Environment
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Thomas Gloria, Industrial Ecology Consultants

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ENVIRONMENTAL PRODUCT DECLARATION

Symphony® *m* High NRC, Symphony® *m* High CAC and Symphony® *m* 80 Rx Mineral Fiber Ceiling Panels

CERTIFIED
ENVIRONMENTAL PRODUCT DECLARATION

According to ISO14025, ISO 21930:2017 and EN 15804:A1

Product System Description

Product Description

The Symphony *m* product family has a standard mineral fiber core with a reinforced mat and finish coatings. The Symphony product line provides a full range of ultra-durable acoustic solutions with a consistent, smooth visual. The Symphony *m* High NRC and High CAC products are slightly thicker than the typical Symphony *m* products and offer enhanced sound absorption with moderate noise blocking. The High NRC and High CAC products are identical except that the baseboard of the High CAC products have smaller perforations. The Rx version of Symphony *m* High CAC (Symphony *m* 80 Rx) is suitable for healthcare and clean room applications

Features and Benefits

- Excellent sound absorption and attenuation
- Exceptional surface durability: scratch / sag / and mold resistant
- Chemically cleanable surface to a range of 1000-2000 wash cycles
- High light reflectancy (LR 0.90)
- USDA certified bio-based content of 98%
- Meets LEED v4 VOC compliance ISO Class 4 clean room component
- ISO Class 3 clean room component (Rx version)

Description of Organization

This EPD is specific to the Symphony *m* High NRC and High CAC Ceiling Panel products manufactured at the Plymouth, WI facility. The mineral fiber core is produced at the CertainTeed Ceilings L'Anse, MI facility and then shipped to Plymouth for the final finishing of the production.

Product Average

The Plymouth, WI facility is the only facility that produces the Symphony m product line for CertainTeed Ceilings in the United States. However, Symphony m is not the only product manufactured at this location. Allocation for the product average of the Symphony m High NRC and High CAC Ceiling panels was based on the square meter (square foot) production data for the facility.

Application

Modular installation of suspended ceilings in commercial buildings.

Flow Diagram

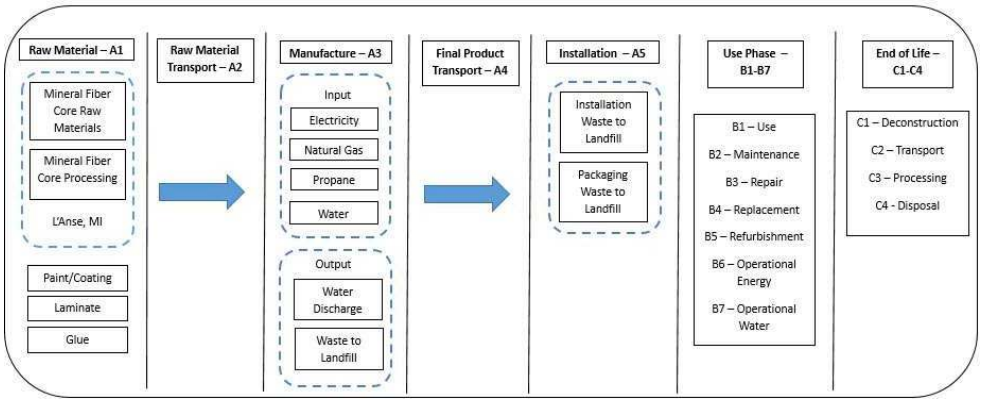

Figure 1: Product Flow Diagram

Technical Data

Symphony m High NRC and High CAC Product Details				
UNSPC Code	301616			
CSI Code	09500			
	Symphony m High NRC	**Symphony m Rx High NRC (non-std. panel)**	**Symphony m High CAC**	**Symphony m 80 Rx**
Sound absorption coefficient (NRC) (ASTM C423)	0.85	N/A	0.80	0.80
Light reflectance (ASTM E1477)	0.90	N/A	0.90	0.90
Interzone Attenuation of Open Office Components (AC) (ASTM E1111 and ASTM E1110)	N/A	N/A	N/A	N/A
Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum (CAC) (ASTM E1414 and Classification E413)	35	N/A	40-42	40-42
Surface burning characteristics of building materials (ASTM E84, ASTM E1264)	Class A	N/A	Class A	Class A

Table 1: Technical Data

Properties of Declared Product as Delivered

The Symphony *m* High NRC and Symphony *m* High CAC products comply with the following standards for placement on the market:

- ASTM E1264 – Classification for Acoustic Ceilings
- ASTM E84 – Surface Burning Characteristics; pursuant to test certificate
- ASTM C423 – Sound absorption
- ASTM E1477 – Luminous Reflectance of Acoustical Materials
- ASTM E1414 – Airborne Sound Attenuation
- ISO 14644 – Clean Room Standard
- ASTM D4828 – Practical Washability of Organic Coatings

Material Composition

Raw Material	Symphony m High NRC	Symphony m Rx High NRC (non-std.)	Symphony m High CAC	Symphony m Rx High CAC
Mineral Fiber Board	88%	88%	88%	88%
Paint/Coating	8%	8%	8%	8%
Laminate	3%	3%	3%	3%
Glue/Adhesive	1%	1%	1%	1%
Total lb/ft^2:	**1.09**	**1.09**	**1.09**	**1.09**
Total kg/0.093 m^2:	**0.494**	**0.494**	**0.494**	**0.494**

Table 2: Material Content

The mineral fiber board provided by the L'Anse; MI facility consists of the following raw materials:

- Mineral wool is a pre-consumer material produced from slag, a by-product of smelting iron ore. Slag is a secondary material that is modeled as being produced without environmental burden. Raw materials in mineral wool include 10% rock, 12% coke, and 78% slag. Most of the slag used by the industry is generated by integrated iron and steel plants as a blast furnace byproduct from pig iron production. Other sources of slag include the copper, lead, and phosphate industries. The slag in this analysis is assumed to come from iron production only.
- Perlite is an abundant, naturally occurring mineral that is mined and then expanded during the ceiling panel manufacturing process.
- Newspaper is a post-consumer raw material. Newspaper is a renewable resource, as it is plant-based. The recovered newspaper is collected, bundled, and transported directly to the L'Anse manufacturing facility for use in the production of mineral fiber ceiling panels. The recovered newspaper is mixed with water on-site to create a wet pulp mixture.
- Starch is a rapidly renewable resource made from the corn refining process.
- The coating on the mineral fiber board consists of a mixture of additional materials and is applied to the surface of the panel.

Mineral Fiber Board Raw Materials	
Core - Mineral wool	64.12%
Core – Starch	8.67%
Core - Perlite	14.10%
Core - Recycled newspaper	9.77%
Core – Broke	13.18%
Core – Total	109.80 %*

Table 3: Mineral Fiber Board Material Content (from L'Anse, MI)

*Total includes 9.8% scrap rate

Methodological Framework

Functional Unit

The functional unit for this study is one square foot of ceiling panel for use of 75 years. The use stage is considered to be 75 years of service life, though based on typical operational data, this product does not require any inputs during the Use Phase.

	Unit	Symphony m High NRC	Symphony m Rx High NRC	Symphony m High CAC	Symphony m 80 Rx
Functional Unit	m^2	0.093	0.093	0.093	0.093
	ft^2	1	1	1	1
Declared thickness	cm	2.22	2.22	2.22	2.22
	in	0.875	0.875	0.875	0.875
Surface weight per functional unit	kg/0.093 m^2	0.494	0.494	0.494	0.494
	lb/ft^2	1.09	1.09	1.09	1.09
Density per functional unit	kg/m^3	0.060	0.060	0.060	0.060
	lbs/ft^3	0.004	0.004	0.004	0.004

Table 4: Functional Unit

System Boundary

The life cycle analysis for the production of ceiling panels comprises the life cycle phases from cradle to grave. The analysis includes the raw material extraction and processing, raw material transportation to the manufacturing site, manufacturing, packaging, final product shipping, installation, use, and end of life.

Description of the System Boundary (X=included in LCA: MND=module not declared)																
Product Stage			Construction Process Stage		Use Stage							End of Life Stage				Benefits & Loads Beyond System Boundaries
Raw Material Supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	De-construction demolition	Transport	Waste Processing	Disposal	Reuse-Recover-Recycling Potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	MND

Table 5: System Boundary

Product Specific Calculation for Use Phase (Modules B1-B7)

As specified in the PCR, ceiling panels are assumed to not need repainting, maintenance, or repairing during the service life. There is assumed to be no energy, material, or water inputs required during the use phase of the ceiling panels.

Once installed, ceiling panels typically require no cleaning or maintenance. Maintenance personnel should wear white, clean cotton gloves when handling panels so oils and dirt from hands do not transfer to panels.

To ensure longevity of the product, make sure panels are not exposed to high humidity or high temperatures. Criteria can be found in the CertainTeed Ceilings Warranty information for each specific product.

Product Specific Calculations for End-of-Life Phase (Modules C1-C4)

As specified in the PCR, at this time there are no industry-wide scenarios for the end of life of ceiling panels. This product was modeled as being disposed of in a landfill at the end of its life. However, CertainTeed Ceilings has developed a ceiling panel take back and recycling program which allows recovery of ceiling panels from construction sites. The recovered ceiling panels are then used to manufacture new ceiling panels. As this program expands, it has the opportunity to significantly reduce environmental impacts associated with raw materials extraction and processing and processing by offsetting virgin raw material demand. Information on CertainTeed's Ceiling Recycling Program can be found at www.certainteed.com/products/ceilings.

Reference Service Life

The Reference Service Life is defaulted to 30 years as required by the PCR. The product is warranted for a service life of 10 years of use (increased to 15 if used in conjunction with CertainTeed Ceiling Grid System). However, the useful life of ceiling panels can be as long as the buildings' useful life if properly installed and maintained.

Allocation

The Plymouth facility is the only facility that produces the Symphony *m* product line for CertainTeed Ceilings in the United States. However, Symphony *m* is not the only product manufactured at this location. Allocation to the Symphony m High NRC and High CAC products versus the other products manufactured at Plymouth was based on production data, as well as input from manufacturing personnel.

Cut-off Rules

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 processes were neglected or excluded. Capital items for the production processes (machines, buildings, etc.) were not taken into consideration.

Data Sources

For life cycle modeling the Gabi v10.0 Software System was used. All background data sets relevant for production and disposal were taken the Gabi Ecoinvent and USLCI databases. These databases are critically reviewed and require a paid license.

Data Quality

For the data used in this LCA, the data quality is considered to be good to high quality. The data and data sets cover all relevant process steps and technologies over the supply chain of the represented ceiling panel products. Wherever secondary data are used, the study adopts critically reviewed data wherever possible for consistency, precision, and reproducibility to limit uncertainty. The data used are complete and representative of North America in terms of the geographic and technological coverage and is of a recent vintage, i.e., less than ten years old.

Period Under Review

The data used for the Life Cycle Assessment refer to the production processes of the 2019 calendar year. The quantities of raw materials, energies, auxiliary materials, and supplies used have been ascertained as average annual values.

Comparability

Comparison of EPD data of ceiling panel products is only permissible if all data sets to be compared are created according to EN 15804 and ISO 21930 and 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.

Estimates and Assumptions

The PCR specifies the following assumptions be made in the absence of primary data:

- Transportation from point of manufacture to building site is assumed to be 800 km via diesel powered truck/trailer
- Transportation from the building site to waste processing is assumed to be 35 km via diesel powered truck/trailer
- Installation and deconstruction procedures are assumed to be manual, requiring no operational energy use

In addition, life cycle analysis requires that assumptions are made to constrain the project boundary or model processes when little to no data is available. Assumptions made for this study are noted in the project report.

Technical Information and Scenarios

Manufacture

To produce ceiling tiles, the raw materials for the core component are mixed. The resulting slurry of raw materials is then filtered and processed to remove any impurities. The processed slurry is then sent to the board machine, where the wet mixture is formed into boards with the excess water drained. The board sections are then dried in a large oven heated with natural gas and waste steam from the nearby biomass power plant.

The panel sections of the mineral fiber board are then trimmed, cut to size, and further finished with various fissuring or texturing options. The coatings are then applied to the entire surface of the boards and heated a second time to cure the coating.

Any process in the manufacturing of the mineral wool ceiling panels that produces wet or dry scrap is collected and reused. The dry dust and trimmings as well as the wet scrap are mixed with water and pulped to produce “broke” which is then added to the mix tank along with the other raw materials.

,Wastewater from the CertainTeed L’Anse manufacturing facility, along with the impurities from the mix tank, is transferred to a settling pond. The water from the settling pond is used to irrigate fields on site and the solid waste from the settling pond is used as land applied fertilizer in the fields.

The CertainTeed Plymouth facility, glue is applied to the mineral fiber boards for the laminate to adhere to the board. After the laminate is added to the panel, paint is applied and then the panels are put through an oven to dry. The panels are then cut to size, packaged, and shipped.

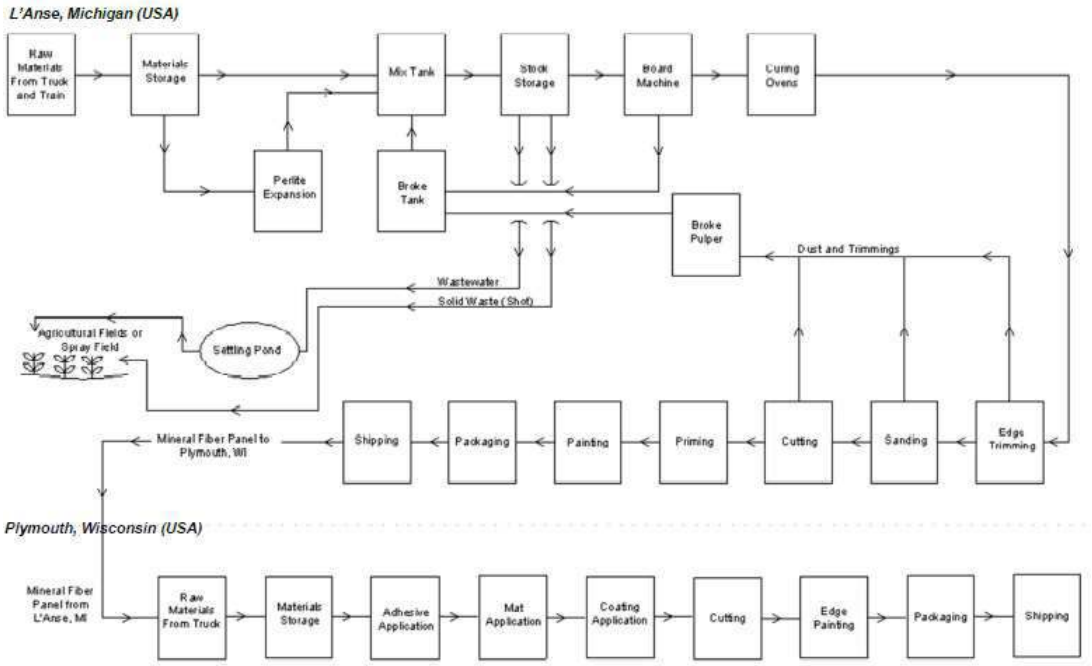

Figure 2: Manufacture Process

Packaging

Ceiling panels are packaged using sleeves made from recycled cardboard and plastic shrink wrap and stacked on pallets which are wrapped in shrink wrap before shipping. These packaging materials are recommended to be recycled if recycling infrastructure exists. The packaging was modeled and included in the life cycle impacts.

Packaging Inputs	Material	Percentage
Sleeve	Cardboard	50.8%
Pallet	Wood	41.1%
Shrink Wrap	Plastic	8.0%

Table 6: Packaging Information

Transportation

	Value	Unit
Fuel type	Diesel	
Liters of fuel	38.81	l/100km
Vehicle Type	Truck/trailer	
Transport distance	800	km
	497	miles
Capacity utilization	85	%
Gross density of products transported	279.36	kg/m^3

Table 7: Transport to the Building Site (A4)

Installation

The ceiling panels must be installed in accordance with all applicable CertainTeed installation guidelines applicable at the time of installation. Approved installation procedures described in the Ceiling Systems Handbook published by the Ceilings & Interior Systems Construction Association must be followed.

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

	Value	Unit
Ancillary materials	0.00	kg
Net freshwater consumption	0.00	m^3
Other resources	0.00	kg
Electricity consumption	0.00	kWh
Other energy carriers	0.00	MJ
Product loss per functional unit	0.035	kg
Waste materials at the construction site before waste processing, generated by product installation	0.035	kg
Output materials resulting from on-site waste processing	0.00	kg
Mass of packaging waste	0.026	kg
Cardboard	0.013	kg
Wood	0.012	kg
Plastic	0.005	kg
Biogenic carbon contained in packaging	0.022	kg CO_2
Direct emissions to ambient air, soil, and water	0	Kg
VOC emissions	0	ug/m^3

Table 8: Installation into the Building (A5)

Use

Once installed, ceiling panels typically require no cleaning, maintenance, repair, or replacement. As indicated in the PCR, this study assumes no use phase environmental impacts. The PCR indicates the default Reference Service Life of the ceiling panels is assumed to be 30 years.

Ceiling panels are stationary during typical use and do not emit harmful emissions.

Broken or damaged panels should be picked up and placed in a container. Dust generated from making modifications of the panel should be cleaned by wet wiping or filtered vacuuming. Do not dry sweep or use compressed air to remove dust.

Disposal

	Value	Value	Unit
Assumptions for scenario development	Assumed inert in landfill		
Collection process	Collected separately	0	kg
	Collected with mixed construction waste	0.494	kg
Recovery	Reuse	0	kg
	Recycling	0	kg
	Landfill	0	kg
	Incineration	0	kg
	Incineration with energy recovery	0	kg
	Energy conversion	n/a	
Disposal	Product or material for final disposal – Landfill	0.494	kg
Removal of biogenic carbon (excluding packaging)		0.225	kg CO_2

Table 9: End of Life (C1-C4)

Re-Use

At this time there are no re-use scenarios available for Mineral Fiber Ceiling Panels.

Life Cycle Assessment Results

The results shown in this section are for the average Symphony m High NRC and Symphony m High CAC product, including the Rx versions of the product. Results for the individual products are reported in the Appendix of this EPD.

Life Cycle Impact Assessment

TRACI Impact Assessment Method (North America)								
		GWP (Total)	*GWP (Fossil)*	*ODP (T)*	*AP (T)*	*EP (T)*	*SFP (T)*	*ADP_{fossil} (T)*
		kg CO_2 eq	*kg CO_2 eq*	*kg CFC 11 eq*	*kg SO_2 eq*	*kg N eq*	*kg O_3 eq*	*MJ*
Raw Materials	**A1**	5.71E-01	6.31E-01	1.67E-10	3.49E-03	3.67E-04	3.41E-02	8.06E-01
Raw Material Transport	**A2**	1.64E-02	1.64E-02	3.63E-17	1.16E-04	7.76E-06	2.48E-03	3.04E-02
Manufacture	**A3**	5.58E-02	5.58E-02	3.61E-16	4.48E-05	4.66E-06	8.65E-04	9.31E-02
Packaging	**A3**	-1.06E-02	1.04E-02	3.08E-14	3.96E-05	4.21E-06	1.04E-03	3.28E-02
Total A1-A3:		**6.32E-01**	**7.13E-01**	**1.67E-10**	**3.69E-03**	**3.83E-04**	**3.85E-02**	**9.63E-01**
Product Transport	**A4**	2.77E-02	2.77E-02	6.16E-17	1.34E-04	1.18E-05	3.11E-03	5.18E-02
Installation	**A5**	2.70E-02	8.30E-02	1.81E-10	3.15E-04	6.18E-05	4.75E-03	2.08E-01
Use	**B1**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Maintenance	**B2**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Repair	**B3**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Replacement	**B4**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Refurbishment	**B5**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Operational Energy Use	**B6**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Operational Water Use	**B7**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Deconstruction	**C1**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Waste Transport	**C2**	2.78E-03	2.77E-03	6.20E-18	8.10E-06	8.37E-07	1.85E-04	5.21E-03
Waste Processing	**C3**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of Life Disposal	**C4**	1.03E-02	1.04E-02	5.08E-16	5.48E-05	2.40E-06	1.00E-03	2.08E-02

Table 10: TRACI Impact Assessment Results

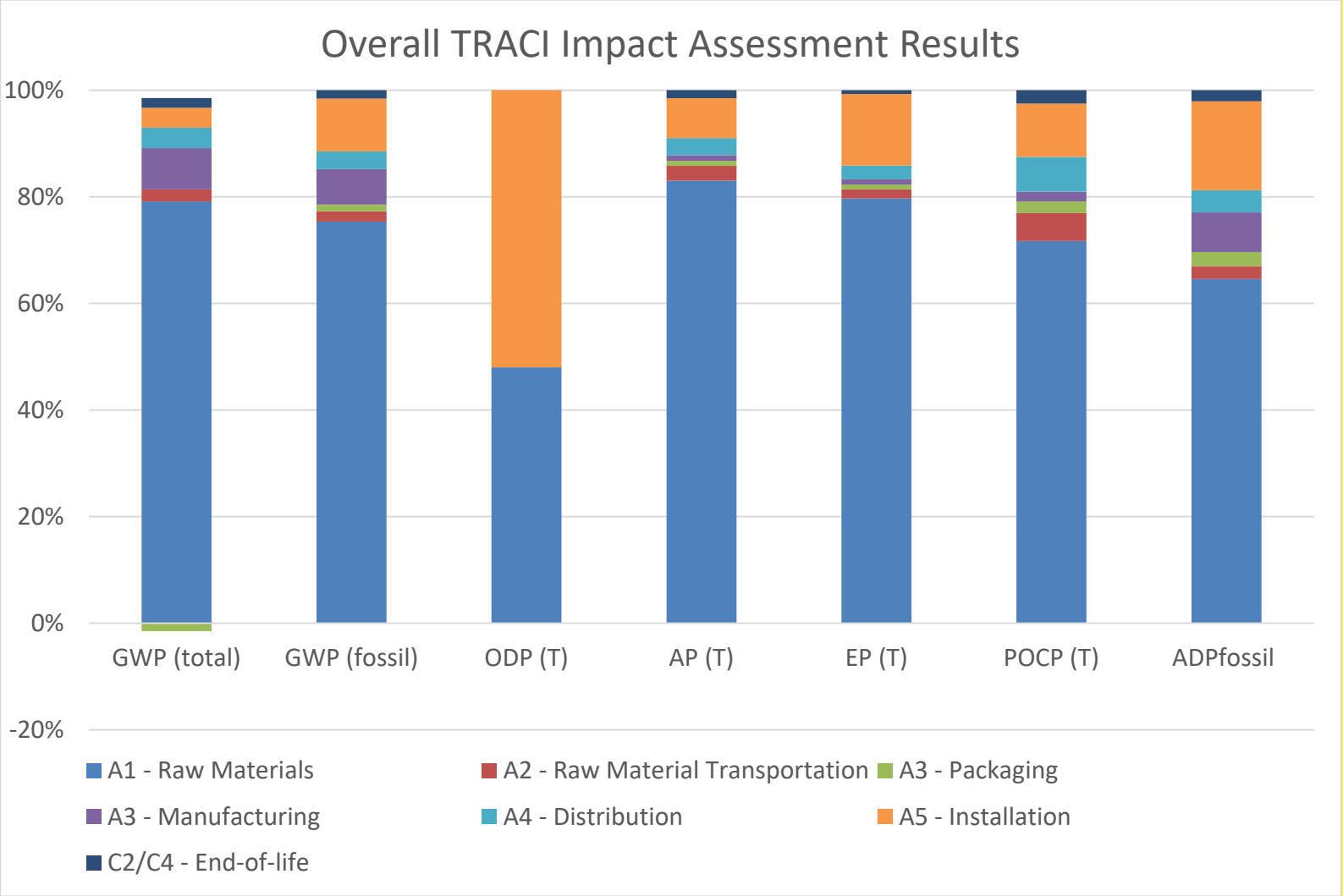

Figure 3: TRACI Environmental Impact Results

Resource Use

Use of Primary Resources					
		RPRE: *Renewable primary resources as energy carrier*	***RPRM:*** *Renewable primary resources with energy content for material utilization*	***NRPRE:*** *Non-renewable primary resources as energy carrier*	***NRPRM:*** *Non-renewable primary resources with energy content for material utilization*
		MJ	*MJ*	*MJ*	*MJ*
Raw Materials	**A1**	2.16E+00	0.00E+00	7.81E+00	0.00E+00
Raw Material Transport	**A2**	8.29E-03	0.00E+00	2.29E-01	0.00E+00
Manufacture	**A3**	4.03E-02	0.00E+00	9.36E-01	0.00E+00
Packaging	**A3**	1.45E-01	0.00E+00	2.59E-01	0.00E+00
Total A1-A3:		**2.35E+00**	**0.00E+00**	**9.24E+00**	**0.00E+00**
Product Transport	**A4**	1.52E-02	0.00E+00	3.91E-01	0.00E+00
Installation	**A5**	8.09E-01	0.00E+00	1.71E+00	0.00E+00
Use	**B1**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Maintenance	**B2**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Repair	**B3**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Replacement	**B4**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Refurbishment	**B5**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Operational Energy Use	**B6**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Operational Water Use	**B7**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Deconstruction	**C1**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste Transport	**C2**	1.53E-03	0.00E+00	3.93E-02	0.00E+00
Waste Processing	**C3**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of Life Disposal	**C4**	1.94E-02	0.00E+00	1.65E-01	0.00E+00

Table 12: Primary Resource Use

Use of Secondary Resources						
		SM: *Use of secondary material*	***RSF:*** *Use of renewable secondary fuels*	***NRSF:*** *Non-renewable secondary fuels*	***RE:*** *Recovered energy*	***FW:*** *Use of net fresh water resources*
		MJ	*MJ*	*MJ*	*MJ*	*M^3*
Raw Materials	**A1**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.61E-03
Raw Material Transport	**A2**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.86E-05
Manufacture	**A3**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-04
Packaging	**A3**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.68E-05
Total A1-A3:		**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**5.83E-03**
Product Transport	**A4**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.29E-05
Installation	**A5**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-03
Use	**B1**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Maintenance	**B2**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Repair	**B3**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Replacement	**B4**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Refurbishment	**B5**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Operational Energy Use	**B6**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Operational Water Use	**B7**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Deconstruction	**C1**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste Transport	**C2**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.32E-06
Waste Processing	**C3**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of Life Disposal	**C4**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.05E-05

Table 13: Secondary Resource Use

Output Flows and Waste Categories

Waste Flows					
		HWD: *Hazardous waste disposed*	***NHWD:*** *Non-hazardous waste disposed*	***HLRW:*** *High level radioactive waste, conditioned, to final repository*	***ILLRW:*** *Intermediate and low-level radioactive waste, conditioned, to final repository*
		kg	*kg*	*kg*	*kg*
Raw Materials	**A1**	9.51E-07	1.31E-01	1.72E-07	1.38E-04
Raw Material Transport	**A2**	6.79E-13	1.90E-05	6.73E-10	5.67E-07
Manufacture	**A3**	2.49E-11	2.93E-02	6.61E-08	5.52E-05
Packaging	**A3**	3.94E-11	1.10E-04	4.40E-09	4.36E-06
Total A1-A3:		**9.52E-07**	**1.61E-01**	**2.43E-07**	**1.98E-04**
Product Transport	**A4**	1.17E-12	3.36E-05	1.14E-09	9.59E-07
Installation	**A5**	2.72E-09	6.86E-02	3.34E-08	2.92E-05
Use	**B1**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Maintenance	**B2**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Repair	**B3**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Replacement	**B4**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Refurbishment	**B5**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Operational Energy Use	**B6**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Operational Water Use	**B7**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Deconstruction	**C1**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste Transport	**C2**	1.17E-13	3.38E-06	1.14E-10	9.65E-08
Waste Processing	**C3**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of Life Disposal	**C4**	4.12E-12	4.95E-01	2.05E-09	1.83E-06

Table 14: Waste Flows

Output Material Flows					
		CRU: Components for reuse	*MR: Materials for recycling*	*MER: Materials for energy recovery*	*EE: Recovered energy exported*
		MJ	*MJ*	*MJ*	*MJ*
Raw Materials	**A1**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Raw Material Transport	**A2**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manufacture	**A3**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total A1-A3:		**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
Product Transport	**A4**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Installation	**A5**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use	**B1**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Maintenance	**B2**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Repair	**B3**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Replacement	**B4**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Refurbishment	**B5**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Operational Energy Use	**B6**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Operational Water Use	**B7**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Deconstruction	**C1**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste Transport	**C2**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste Processing	**C3**	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of Life Disposal	**C4**	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 15: Output Material Flows

ENVIRONMENTAL PRODUCT DECLARATION

Symphony® m High NRC, Symphony® m High CAC and Symphony® m 80 Rx Mineral Fiber Ceiling Panels

According to ISO14025, ISO 21930:2017 and EN 15804:A1

Carbon Emissions and Removals

Life Cycle Assessment Interpretation

Based on the results from the life cycle assessment, the life cycle impacts are strongly driven by the raw materials, particularly the mineral fiber board which accounts for as much as 90% of the raw material impacts and about 80% of the cradle-to-gate impact potentials.

The installation phase is also a moderate contributor to the cradle-to-grave environmental impact potentials, this is likely due to the high raw material impacts that accompany the 7% scrap material prescribed by the PCR.

Additional Information

VOC Emissions

This product meets the testing and product requirements of the California Department of Public Health CDPH/EHLD/Standard Method Version 2.2, 2010 (Emissions Testing Method for CA Specification 01350) Independent test reports are available.

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 OSHA requirements are met or exceeded to ensure the health and safety of all employees and contractors. In addition, the L'Anse facility is zero discharge to Publicly Owned Treatment Works (POTWs). The water system at L'Anse utilizes a settling pond on-site and discharges the remaining water to a spray field rather than a sewer system.

Environment and Health During Installation

There are no apparent risks involved with the installation of ceiling 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.

ENVIRONMENTAL PRODUCT DECLARATION

Symphony® m High NRC, Symphony® m High CAC and Symphony® m 80 Rx Mineral Fiber Ceiling Panels

According to ISO14025, ISO 21930:2017 and EN 15804:A1

Extraordinary Effects

Fire

ASTM E1264 – Class A

ASTM E84 – Flame Spread of 25 or less, smoke developed of 50 or less

Water Damage

This product is subject to water damage. No water or water vapor from sources including, but not imited to, condensation, leaking pipes and/or ducts, or steam must come in contact with the ceiling panels.

Mechanical Damage

This product is intended for commercial applications. Use and Practice information can be found in “Acoustical Ceilings: use and Practice” published by Ceilings & Interior Construction Association (CISCA). The product should be installed according to CertainTeed Ceilings installation instructions.

Optional Information

- ISO 9001 Quality Management System
- Recycled content independently verified by GreenCircle Certified.
- Certificate of Compliance for VOC Emissions: Berkeley Analytical

Life Cycle Development

This EPD and the corresponding LCA were prepared by Saint-Gobain Corporation North America in Malvern, Pennsylvania.

Contact CertainTeed

For more information, please visit http://www.certainteed.com/commercial-ceilings.

References

- UL General Program Rules. Version 2.5, March 2020.
- Product Category Rules for Building-Related Product and Services: Part A – Life Cycle Assessment Calculation Rules and Report Requirements, Version 3.2 2018. UL Environment.
- Product Category Rule Guidance for Building-Related Products and Services: Part B – Non-Metal Ceiling and Interior Wall Panel EPD Requirements. Version 2.0 2021. UL Environment
- ISO 14040: 2006 Series – Environmental Management-Life Cycle Assessment, including ISO 14044 Amendment 2: 2020.
- ISO 21930: 2017 – Sustainability in building construction – Environmental declaration of building products.
- Acoustical Ceilings: “Use and Practice”, Ceilings & Interior Construction Association (CISCA).
- CertainTeed Ceilings Symphony m and Symphony f LCA Report 2017. SGNA EHS&S.
- GaBi Ecoinvent Database. www.thinkstep.com
- US LCI Database. www.nrel.gov.lci
- CertainTeed Ceilings Website. https://www.certainteed.com/ceilings-and-walls/mineral-fiber/products/
- Life Cycle Assessment: CertainTeed Ceilings Products Group, Symphony *m* High NRC and High CAC Ceiling Panels. April 2021. Saint-Gobain North America

Appendix: Individual Product Results

		Symphony *m* High NRC and Symphony *m* High CAC										
Cradle-to-Grave		**A1**	**A2**	**A3 (Packaging)**	**A3 (Manufacturing)**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**
TRACI 2.1 Impact Categories												
GWP (fossil)	kg CO^2 eq	6.33E-01	1.64E-02	1.04E-02	5.58E-02	2.77E-02	8.31E-02	0.00E+00	0.00E+00	2.77E-03	0.00E+00	1.04E-02
GWP (total)	kg CO^2 eq	5.73E-01	1.64E-02	-1.06E-02	5.58E-02	2.77E-02	2.72E-02	0.00E+00	0.00E+00	2.78E-03	0.00E+00	1.03E-02
ODP	kg CFC-11 eq	1.89E-10	3.63E-17	3.08E-14	3.61E-16	6.16E-17	1.83E-10	0.00E+00	0.00E+00	6.20E-18	0.00E+00	5.08E-16
AP	kg SO_2 eq	3.62E-03	1.16E-04	3.96E-05	4.48E-05	1.34E-04	3.10E-04	0.00E+00	0.00E+00	8.10E-06	0.00E+00	5.48E-05
EP	kg N eq	3.67E-04	7.76E-06	4.21E-06	4.66E-06	1.18E-05	6.17E-05	0.00E+00	0.00E+00	8.37E-07	0.00E+00	2.40E-06
Smog	kg O3 eq	3.41E-02	2.48E-03	1.04E-03	8.65E-04	3.11E-03	4.61E-03	0.00E+00	0.00E+00	1.85E-04	0.00E+00	1.00E-03
ADP (fossil)	MJ	8.05E-01	3.04E-02	3.28E-02	9.31E-02	5.18E-02	2.15E-01	0.00E+00	0.00E+00	5.21E-03	0.00E+00	2.08E-02
Use of Primary Resources												
RPRE	MJ	2.16E+00	8.29E-03	1.45E-01	4.03E-02	1.52E-02	8.27E-01	0.00E+00	0.00E+00	1.53E-03	0.00E+00	1.94E-02
RPRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRPRE	MJ	7.82E+00	2.29E-01	2.59E-01	9.36E-01	3.91E-01	1.74E+00	0.00E+00	0.00E+00	3.93E-02	0.00E+00	1.65E-01
NRPRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of Secondary Resources												
SM	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	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	5.64E-03	2.86E-05	7.68E-05	1.06E-04	5.29E-05	1.08E-03	0.00E+00	0.00E+00	5.32E-06	0.00E+00	2.05E-05
Waste Flows												
HWD	kg	9.51E-07	6.79E-13	3.94E-11	2.49E-11	1.17E-12	2.72E-09	0.00E+00	0.00E+00	1.17E-13	0.00E+00	4.12E-12
NHWD	kg	1.36E-01	1.90E-05	1.10E-04	2.93E-02	3.36E-05	6.90E-02	0.00E+00	0.00E+00	3.38E-06	0.00E+00	4.95E-01
HLRW	kg	1.74E-07	6.73E-10	4.40E-09	6.61E-08	1.14E-09	3.36E-08	0.00E+00	0.00E+00	1.14E-10	0.00E+00	2.05E-09
ILLRW	kg	1.40E-04	5.67E-07	4.36E-06	5.52E-05	9.59E-07	2.93E-05	0.00E+00	0.00E+00	9.65E-08	0.00E+00	1.83E-06
Output Material Flows												
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	0.00E+00	0.00E+00	0.00E+00
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	0.00E+00	0.00E+00	0.00E+00
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	0.00E+00	0.00E+00	0.00E+00
EE	MJ	0.00E+00	0.00E+00	0.00E+00	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 17: Symphony *m* High NRC and Symphony *m* High CAC Results

		Symphony *m* Rx High NRC and Symphony *m* Rx High CAC										
Cradle-to-Grave		**A1**	**A2**	**A3 (packaging)**	**A3 (manufacturing)**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**
TRACI 2.1 Impact Categories												
GWP (fossil)	kg CO^2 eq	6.28E-01	1.64E-02	1.04E-02	5.58E-02	2.77E-02	8.28E-02	0.00E+00	0.00E+00	2.77E-03	0.00E+00	1.04E-02
GWP (total)	kg CO^2 eq	5.68E-01	1.64E-02	-1.06E-02	5.58E-02	2.77E-02	2.68E-02	0.00E+00	0.00E+00	2.78E-03	0.00E+00	1.03E-02
ODP	kg CFC-11 eq	1.45E-10	3.63E-17	3.08E-14	3.61E-16	6.16E-17	1.80E-10	0.00E+00	0.00E+00	6.20E-18	0.00E+00	5.08E-16
AP	kg SO_2 eq	3.34E-03	1.16E-04	4.00E-05	4.48E-05	1.34E-04	2.90E-04	0.00E+00	0.00E+00	8.10E-06	0.00E+00	5.48E-05
EP	kg N eq	3.66E-04	7.76E-06	4.26E-06	4.66E-06	1.18E-05	6.16E-05	0.00E+00	0.00E+00	8.37E-07	0.00E+00	2.40E-06
Smog	kg O3 eq	3.39E-02	2.48E-03	1.06E-03	8.65E-04	3.11E-03	4.60E-03	0.00E+00	0.00E+00	1.85E-04	0.00E+00	1.00E-03
ADP (fossil)	MJ	8.04E-01	3.04E-02	3.31E-02	9.31E-02	5.18E-02	2.15E-01	0.00E+00	0.00E+00	5.21E-03	0.00E+00	2.08E-02
Use of Primary Resources												
RPRE	MJ	2.15E+00	8.29E-03	1.45E-01	4.03E-02	1.52E-02	8.26E-01	0.00E+00	0.00E+00	1.53E-03	0.00E+00	1.94E-02
RPRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRPRE	MJ	7.78E+00	2.29E-01	2.61E-01	9.36E-01	3.91E-01	1.73E+00	0.00E+00	0.00E+00	3.93E-02	0.00E+00	1.65E-01
NRPRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of Secondary Resources												
SM	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	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	5.58E-03	2.86E-05	7.71E-05	1.06E-04	5.29E-05	1.08E-03	0.00E+00	0.00E+00	5.32E-06	0.00E+00	2.05E-05
Waste Flows												
HWD	kg	9.51E-07	6.79E-13	3.94E-11	2.49E-11	1.17E-12	2.72E-09	0.00E+00	0.00E+00	1.17E-13	0.00E+00	4.12E-12
NHWD	kg	1.26E-01	1.90E-05	1.10E-04	2.93E-02	3.36E-05	6.82E-02	0.00E+00	0.00E+00	3.38E-06	0.00E+00	4.95E-01
HLRW	kg	1.69E-07	6.73E-10	4.40E-09	6.61E-08	1.14E-09	3.33E-08	0.00E+00	0.00E+00	1.14E-10	0.00E+00	2.05E-09
ILLRW	kg	1.36E-04	5.67E-07	4.36E-06	5.52E-05	9.59E-07	2.91E-05	0.00E+00	0.00E+00	9.65E-08	0.00E+00	1.83E-06
Output Material Flows												
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	0.00E+00	0.00E+00	0.00E+00
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	0.00E+00	0.00E+00	0.00E+00
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	0.00E+00	0.00E+00	0.00E+00
EE	MJ	0.00E+00	0.00E+00	0.00E+00	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 18: Symphony m Rx High NRC and Symphony m Rx High CAC Results