ENVIRONMENTAL PRODUCT DECLARATION

TYVEK® BUILDING WRAP

DUPONT™ – TYVEK®

The built environment has a significant role to play in addressing the climate crisis, including driving all buildings to net-zero whole life carbon by 2050. As our sector works together to deliver the bold decarbonization solutions needed to reduce GHG emissions associated with buildings at a rate consistent with limiting global temperature increase to 1.5°C. At DuPont we are committed to building on recent progress that resulted in exceeding our company's 2030 Science-Based Targets initiative (SBTi)-aligned GHG reduction goals. As part of DuPont's SBTi journey to achieve net-zero carbon emissions by 2050, DuPont Performance Building Solutions is committed to reducing the embodied carbon of our products through innovation and collaboration. Through our efforts to partner with our customers, suppliers, and stakeholders, we seek to drive climate action that helps secure a livable future for all.

We recognize our stakeholders' need for product transparency information and are committed to providing embodied carbon and other Life Cycle Assessment (LCA)-based information through Environmental Product Declarations (EPDs) for our products. As we maintain and expand our portfolio of EPDs, we will continue to evolve our EPD efforts to meet the needs of our stakeholders.

For additional information on our sustainability strategy, which seeks to advance sustainability in the built environment through innovative construction solutions, please visit:
https://www.dupont.com/building/sustainability.html

UL CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION UL.COM/EPD

ENVIRONMENTAL PRODUCT DECLARATION

DUPONT™

Tyvek® Building Wrap

According to ISO 14025, and ISO21930:2017

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	UL Solutions www.ul.com 333 Pfingsten Rd., Northbrook, IL 606011 www.spot.ul.com
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	UL Environment Environmental Product Declaration Program, GENERAL PROGRAM INSTRUCTIONS, VERSION 2.7, MARCH 2022
MANUFACTURER NAME AND ADDRESS	Dupont Solutions (Global Headquarters), 974 Centre Rd, Wilmington, DE 19805
DECLARATION NUMBER	4791467040.101.4 (updated May 2025)
DECLARED PRODUCT & FUNCTIONAL UNIT OR DECLARED UNIT	1 square meter (m^2) of Tyvek® Building Wrap
REFERENCE PCR AND VERSION NUMBER	ISO 21930:2017 – serves as the core PCR and: ASTM PCR for Water Resistive and Air Barriers Services, September 2017
MARKETS OF APPLICABILITY	North America
DATE OF ISSUE	February 27th 2025
PERIOD OF VALIDITY	5 Years
EPD TYPE	Product specific
EPD SCOPE	Cradle-to-gate with options
YEAR(S) OF REPORTED PRIMARY DATA	2023
LCA SOFTWARE & VERSION NUMBER	SimaPro V9.6
LCI DATABASE(S) & VERSION NUMBER	Ecoinvent 3.10
LCIA METHODOLOGY & VERSION NUMBER	TRACI 2.1, IPCC AR5

The PCR review was conducted by:	Dr. Thomas Gloria, Chair Industrial Ecology Consultants t.gloria@industrial-ecology.com
	Graham Finch RDH Building Science, Inc.
	Paul H. Shipp USG Corporation
This declaration was independently verified in accordance with ISO 14025: 2006. ☐ INTERNAL ☒ EXTERNAL	Cooper McCollum, UL Solutions
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	WAP Sustainability
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Thomas P. Gloria, Industrial Ecology Consultants

LIMITATIONS

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; the level of accuracy in estimation of effect differs for any particular product line and reported impact.

Comparability: EPDs from different programs may not be comparable. Full conformance with a PCR allows EPD comparability only when all stages of a life cycle have been considered, when they comply with all referenced standards, use the same sub-category PCR, and use equivalent scenarios with respct to construction works. 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. 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 building energy phase as instructed under this PCR.

Foreword

This Type III environmental declaration is developed according to ISO 21930 and 14025 for Dupont. This EPD reports environmental impacts based on established life cycle impact assessment methods. The reported environmental impacts are estimates, and their level of accuracy may differ for a particular product line and reported impact. LCAs do not generally address site-specific environmental issues related to resource extraction or toxic effects of products on human health. Unreported environmental impacts include (but are not limited to) factors attributable to human health, land use change and habitat destruction. Forest certification systems and government regulations address some of these issues. The product in this EPD conforms to ASTM D9-09ae1. EPDs do not report product environmental performance against any benchmark.

Product System

Product Description

Dupont™ Tyvek® Building Envelopes provide building envelopes with an essential line of defense against air infiltration, water penetration and wasted energy. Mechanically fastened systems are available in residential and commercial grade. Dupont has been the industry leader since it invented the building wrap category more than 30 years ago. Today, the mechanically fastened air and water barrier systems apply Dupont expertise in building and material science to deliver innovative solutions for the next generation of new construction and renovation of existing buildings, including:

- Sustainable building design and construction
- Superior protection
- Energy efficiency
- Ease of installation
- Enhanced durability
- Integrated solutions
- Expert support

Tyvek® Building Envelopes provide an ideal combination of air infiltration and bulk water penetration resistance with vapor permeability, allowing incidental moisture to escape so that the building envelop can dry out. Different project specifications dictate different installation scenarios, such as low-rise and high-performance systems, and require different combinations and quantities of component products. The products in the system included in this EPD are:

- Tyvek® HomeWrap®
- Tyvek® StuccoWrap®
- Tyvek® DrainWrap®
- Tyvek® CommercialWrap®
- Tyvek® CommercialWrapD®

Application

Specific installation guidelines exist for specific construction types and performance requirements. Tyvek® Building Envelope Systems are installed from low-rise buildings to high-rise, high-performance commercial projects. Following the installation guidelines for the specific project requirement is essential to achieving the intended performance.

Production

Tyvek® Building Wrap products are produced along one production line that uses two facilities: Spruance and Diversified Converters Incorporated (DCI). Both facilities are located in Richmond, VA. Dupont receives the polymer at its Spruance facility where it undergoes some processing. Once it has undergone this processing it is shipped 11 km to the DCI facility. There it is bonded, printed, dried, and packaged. It is stored at a warehouse 6 km from the DCI facility offsite where it is ready to be distributed.

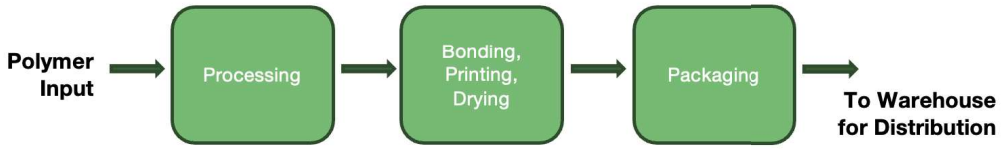

Figure 1: Process Flow Diagram of Tyvek® Building Wrap product manufacturing.

Energy resources used in the manufacturing process are accounted for in the model. Some of the electricity is sourced from the power grid, and some onsite electricity generation is used. Electricity production data sets from eGRID are used to assess the generation, distribution, and transmission of electricity for the baseline scenario. Additionally, there is some self-generated steam that is produced using a co-generation facility.

Dupont also purchases renewable energy credits (RECs) for 100% of the energy used at their Spruance facility. These RECs are purchased from a wind farm and a biomass turbine. The results are calculated for both the case where baseline grid electricity is assumed and for the case where the electricity is generated via the wind and biomethane power from RECs. Proof of the REC transaction was obtained from Dupont and can be requested by reaching out to the LCA practitioner.

Methodology of the Underlying LCA

Declared Unit

The declared unit is one meter squared (1 m^2) of building envelope. Table 2 shows additional details related to the functional unit.

Table 2: Declared Unit Details

	HOMEWRAP, DRAINWRAP, STUCCOWRAP	COMMERCIAL WRAP	COMMERCIAL WRAPD	UNIT
Declared Unit	1	1	1	m^2
Declared Unit Mass	0.0623	0.0934	0.0830	kg
Installed Mass	0.0610	0.0915	0.0814	Dry kg
Product thickness	0.135	0.183	0.157	mm

The general composition of Tyvek® Building Wraps are represented in Table 3.

Table 3: Material Composition per Functional Unit

	BUILDING WRAP [%]
HDPE	100

The product is packaged in cardboard boxes with paper labels that are shipped on pallets. The pallets are only used once by Dupont so the entire burden of the pallet is conservatively accounted for in this LCA.

System Boundaries

As shown in Figure 2, the cradle-to-gate with options system boundary includes the extraction of raw materials and processing; the transportation of raw materials, secondary materials, and any fuels from the extraction site to the manufacturing site; and the manufacturing of the product, including any necessary packaging, transportation of the product to the installation site, installation of the product, and disposal at end of life. All other life cycle stages are excluded from the analysis, denoted by MND or “module not declared.

	PRODUCT STAGE			CONSTRUCT-ION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
	Raw material supply	Transport	Manufacturing	Transport from gate to site	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Building Operational Energy Use During Product Use	Building Operational Water Use During Product Use	Deconstruction	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling Potential
EPD Type	X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

Figure 2: Life cycle stages of wood products (those included are marked with an 'x')

Cut-off Rules

Material and energy inputs greater than 1% (based on total mass of the final product) were included within the scope of analysis. Material or energy inputs less than 1% were included if sufficient data was available to warrant inclusion and/or the material input was thought to have significant environmental impact. Cumulative excluded material and inputs, and environmental impacts are less than 5% based on total weight of the functional unit.
The list of excluded materials and energy inputs include:

- Some material inputs may have been excluded within the datasets used for this project. All datasets have been critically reviewed and conform to the exclusion requirement of the PCR.
- Capital material and infrastructure

Beyond this, no inputs or outputs were actively excluded.

Background Data

Background data for upstream and downstream data are representative for 2023 Ecoinvent 3.10.

Data Quality

Overall data quality is considered good. Improvements can be made through the modification of datasets to incorporate more regional specificity, both in terms of energy and technology. However, the data were considered appropriate in relation to the goal, scope, and budget of the project.
Primary data in the form of energy consumption and water consumption were normalized based on total mass of production during the same time frame. The resulting energy and water per unit were used for product manufactured at the facilities under study. Overall, primary energy and water data quality are considered good.
Primary data also includes the bills of materials used to formulate the products that are included in the study. Overall, this data is considered excellent. Upstream data quality can be increased through the use of supplier-specific secondary datasets.

Period Under Review

This study is intended to represent production for the year 2023.

Envelope Region Under Review

Building Wrap production occurs vertically between Dupont's Spruance and Diversified Converters Incorporated Facility (DCI) both in Richmond, VA.

Allocation

Multi-output allocation generally follows the requirements of ISO 14044, Section 4.3.2.2. The method of multi-output allocation was determined based on the requirements and guidance of UL Part A, section 3.3, and additionally considers the following as per the PCR:

"Mass should be used as the primary basis for co-product allocation in this Part B. Allocation methods deemed more appropriate than on the basis of mass may be used but only when justified."

Comparability

This PCR allows EPD comparability only when the same functional requirements between products are ensured and the requirements of ISO 21930:2017 §5.5 are met. It should be noted that different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared. Comparison of the environmental performance using EPD information shall consider all relevant information modules over the full life cycle of the products within the building.

Additional Statements

National or regional life cycle averaged data for raw material extraction does not distinguish between extraction practices at specific sites and can greatly affect the resulting impacts.

EPDs can complement but cannot replace tools and certifications that are designed to address environmental impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, etc.

Accuracy of Results: EPDs regularly rely on estimations of impacts; the level of accuracy in estimation of effect differs for any particular product line and reported impact when averaging data. The was no method used to estimate variability in this EPD because no data averaging was used.

Life Cycle Assessments Results

The impact categories presented represent impact potentials, i.e., they are approximations of environmental impacts that could occur if the emissions would (a) actually follow the underlying impact pathway and (b) meet certain conditions in the receiving environment while doing so. In addition, the inventory only captures that fraction of the total environmental load that corresponds to the functional unit (relative approach). LCIA results are therefore relative expression only and do not predict actual impacts, exceeding thresholds, safety margins, or risks.

The baseline LCIA results for 1 m^2 of HomeWrap®, StuccoWrap®, DrainWrap®, CommercialWrap®, and CommercialWrapD® produced at Tyvek®'s manufacturing facility are presented in Tables 4, 5, 6, 7, and 8 respectively. The LCIA results including RECs for 1 m^2 of HomeWrap®, StuccoWrap®, DrainWrap®, CommercialWrap®, and CommercialWrapD® produced at Tyvek®'s manufacturing facility are presented in Tables 9, 10, 11, 12, and 13 respectively.

Table 4: LCIA Results for 1 m^2 of Tyvek®HomeWrap® with baseline grid mix

Impact Category	A1	A2	A3	A4	A5	C1	C2	C3	C4
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5									
IPCC AR5 GWP excl. bio [kg CO_2 eq]	2.45E-01	1.08E-02	2.36E-01	2.33E-02	1.25E-02	0.00E+00	1.57E-03	0.00E+00	7.59E-03
GWP TRACI excl. bio [kg CO2e]	2.37E-01	1.06E-02	2.33E-01	2.31E-02	1.21E-02	0.00E+00	1.55E-03	0.00E+00	6.69E-03
AP [kg SO_2 eq]	7.48E-04	9.94E-05	6.50E-04	7.61E-05	5.02E-05	0.00E+00	5.42E-06	0.00E+00	4.24E-06
EP [kg N eq]	6.98E-05	6.28E-06	8.01E-05	5.08E-06	5.30E-06	0.00E+00	3.61E-07	0.00E+00	1.99E-06
ODP [kg CFC 11 eq]	7.84E-09	1.54E-10	3.55E-09	3.57E-10	2.18E-10	0.00E+00	2.43E-11	0.00E+00	1.86E-11
SFP [kg O3 eq]	9.19E-03	3.27E-03	7.14E-03	2.15E-03	7.01E-04	0.00E+00	1.55E-04	0.00E+00	1.16E-04
Resource Use Parameters									
RPRE [MJ]	9.45E-02	2.35E-04	4.07E-01	5.08E-04	6.43E-03	0.00E+00	3.45E-05	0.00E+00	1.50E-04
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
NRPRE [MJ]	7.09E+00	1.50E-01	4.02E+00	3.32E-01	2.06E-01	0.00E+00	2.25E-02	0.00E+00	1.58E-02
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
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
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
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
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
FW [m3]	1.01E+00	2.04E-03	3.60E-01	4.21E-03	4.24E-02	0.00E+00	2.86E-04	0.00E+00	1.52E-03
ADPF [MJ]	9.45E-02	2.35E-04	4.07E-01	5.08E-04	6.43E-03	0.00E+00	2.11E-02	0.00E+00	1.46E-02
Waste Parameters and Output Flows									

Impact Category	A1	A2	A3	A4	A5	C1	C2	C3	C4
HWD [kg]	0.00E+00	0.00E+00	7.70E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD [kg]	0.00E+00	0.00E+00	1.65E-02	0.00E+00	5.97E-03	0.00E+00	0.00E+00	0.00E+00	6.10E-02
HLRW [kg]	9.95E-26	3.82E-27	6.17E-22	8.89E-27	4.08E-24	0.00E+00	6.03E-28	0.00E+00	2.04E-28
ILLRW [kg]	1.31E-08	2.05E-12	1.41E-09	5.10E-12	8.43E-10	0.00E+00	3.46E-13	0.00E+00	4.66E-09
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
MR [kg]	0.00E+00	0.00E+00	1.25E-02	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
EE [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

Table 5: LCIA Results for 1 m² of Tyvek®StuccoWrap® with baseline grid mix

Impact Category	A1	A2	A3	A4	A5	C1	C2	C3	C4
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5									
IPCC AR5 GWP excl. bio [kg CO_2 eq]	2.45E-01	1.08E-02	2.36E-01	2.33E-02	1.25E-02	0.00E+00	1.57E-03	0.00E+00	7.59E-03
GWP TRACI excl. bio [kg CO2e]	2.37E-01	1.06E-02	2.33E-01	2.31E-02	1.21E-02	0.00E+00	1.55E-03	0.00E+00	6.69E-03
AP [kg SO_2 eq]	7.48E-04	9.94E-05	6.50E-04	7.61E-05	5.02E-05	0.00E+00	5.42E-06	0.00E+00	4.24E-06
EP [kg N eq]	6.98E-05	6.28E-06	8.01E-05	5.08E-06	5.30E-06	0.00E+00	3.61E-07	0.00E+00	1.99E-06
ODP [kg CFC 11 eq]	7.84E-09	1.54E-10	3.55E-09	3.57E-10	2.18E-10	0.00E+00	2.43E-11	0.00E+00	1.86E-11
SFP [kg O3 eq]	9.19E-03	3.27E-03	7.14E-03	2.15E-03	7.01E-04	0.00E+00	1.55E-04	0.00E+00	1.16E-04
Resource Use Parameters									
RPRE [MJ]	9.45E-02	2.35E-04	4.07E-01	5.08E-04	6.43E-03	0.00E+00	3.45E-05	0.00E+00	1.50E-04
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
NRPRE [MJ]	7.09E+00	1.50E-01	4.02E+00	3.32E-01	2.06E-01	0.00E+00	2.25E-02	0.00E+00	1.58E-02
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
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
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
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
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
FW [m3]	1.01E+00	2.04E-03	3.60E-01	4.21E-03	4.24E-02	0.00E+00	2.86E-04	0.00E+00	1.52E-03
ADPF [MJ]	9.45E-02	2.35E-04	4.07E-01	5.08E-04	6.43E-03	0.00E+00	2.11E-02	0.00E+00	1.46E-02
Waste Parameters and Output Flows									
HWD [kg]	0.00E+00	0.00E+00	7.70E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD [kg]	0.00E+00	0.00E+00	1.65E-02	0.00E+00	5.97E-03	0.00E+00	0.00E+00	0.00E+00	6.10E-02
HLRW [kg]	9.95E-26	3.82E-27	6.17E-22	8.89E-27	4.08E-24	0.00E+00	6.03E-28	0.00E+00	2.04E-28
ILLRW [kg]	1.31E-08	2.05E-12	1.41E-09	5.10E-12	8.43E-10	0.00E+00	3.46E-13	0.00E+00	4.66E-09
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
MR [kg]	0.00E+00	0.00E+00	1.25E-02	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
EE [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

Table 6: LCIA Results for 1 m² of Tyvek®DrainWrap® with baseline grid mix

Impact Category	A1	A2	A3	A4	A5	C1	C2	C3	C4
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5									
IPCC AR5 GWP excl. bio [kg CO_2 eq]	2.45E-01	1.08E-02	2.36E-01	2.33E-02	1.25E-02	0.00E+00	1.57E-03	0.00E+00	7.59E-03
GWP TRACI excl. bio [kg CO2e]	2.37E-01	1.06E-02	2.33E-01	2.31E-02	1.21E-02	0.00E+00	1.55E-03	0.00E+00	6.69E-03
AP [kg SO_2 eq]	7.48E-04	9.94E-05	6.50E-04	7.61E-05	5.02E-05	0.00E+00	5.42E-06	0.00E+00	4.24E-06
EP [kg N eq]	6.98E-05	6.28E-06	8.01E-05	5.08E-06	5.30E-06	0.00E+00	3.61E-07	0.00E+00	1.99E-06
ODP [kg CFC 11 eq]	7.84E-09	1.54E-10	3.55E-09	3.57E-10	2.18E-10	0.00E+00	2.43E-11	0.00E+00	1.86E-11
SFP [kg O3 eq]	9.19E-03	3.27E-03	7.14E-03	2.15E-03	7.01E-04	0.00E+00	1.55E-04	0.00E+00	1.16E-04
Resource Use Parameters									
RPRE [MJ]	9.45E-02	2.35E-04	4.07E-01	5.08E-04	6.43E-03	0.00E+00	3.45E-05	0.00E+00	1.50E-04
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
NRPRE [MJ]	7.09E+00	1.50E-01	4.02E+00	3.32E-01	2.06E-01	0.00E+00	2.25E-02	0.00E+00	1.58E-02
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
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
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
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
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
FW [m3]	1.01E+00	2.04E-03	3.60E-01	4.21E-03	4.24E-02	0.00E+00	2.86E-04	0.00E+00	1.52E-03
ADPF [MJ]	9.45E-02	2.35E-04	4.07E-01	5.08E-04	6.43E-03	0.00E+00	2.11E-02	0.00E+00	1.46E-02
Waste Parameters and Output Flows									
HWD [kg]	0.00E+00	0.00E+00	7.70E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD [kg]	0.00E+00	0.00E+00	1.65E-02	0.00E+00	5.97E-03	0.00E+00	0.00E+00	0.00E+00	6.10E-02
HLRW [kg]	9.95E-26	3.82E-27	6.17E-22	8.89E-27	4.08E-24	0.00E+00	6.03E-28	0.00E+00	2.04E-28
ILLRW [kg]	1.31E-08	2.05E-12	1.41E-09	5.10E-12	8.43E-10	0.00E+00	3.46E-13	0.00E+00	4.66E-09
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
MR [kg]	0.00E+00	0.00E+00	1.25E-02	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
EE [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

Table 7: LCIA Results for 1 m² of Tyvek®CommercialWrap® with baseline grid mix

Impact Category	A1	A2	A3	A4	A5	C1	C2	C3	C4
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5									
IPCC AR5 GWP excl. bio [kg CO_2 eq]	3.65E-01	1.60E-02	3.58E-01	3.50E-02	1.78E-02	0.00E+00	2.37E-03	0.00E+00	1.14E-02
GWP TRACI excl. bio [kg CO2e]	3.54E-01	1.58E-02	3.53E-01	3.46E-02	1.73E-02	0.00E+00	2.34E-03	0.00E+00	1.00E-02
AP [kg SO_2 eq]	1.17E-08	2.29E-10	5.38E-09	5.36E-10	3.27E-10	0.00E+00	3.65E-11	0.00E+00	2.79E-11
EP [kg N eq]	1.12E-03	1.48E-04	9.85E-04	1.14E-04	7.32E-05	0.00E+00	8.16E-06	0.00E+00	6.35E-06
ODP [kg CFC 11 eq]	1.04E-04	9.34E-06	1.21E-04	7.63E-06	7.86E-06	0.00E+00	5.44E-07	0.00E+00	2.98E-06
SFP [kg O3 eq]	1.37E-02	4.86E-03	1.08E-02	3.22E-03	1.02E-03	0.00E+00	2.33E-04	0.00E+00	1.74E-04
Resource Use Parameters									
RPRE [MJ]	1.41E-01	3.50E-04	6.11E-01	7.62E-04	9.28E-03	0.00E+00	5.19E-05	2.25E-04	2.25E-04
RPRM [MJ]	0.00E+00	1.00E+00	2.00E+00	3.00E+00	4.00E+00	0.00E+00	5.00E+00	6.00E+00	6.00E+00
NRPRE [MJ]	1.06E+01	2.23E-01	6.08E+00	4.97E-01	2.98E-01	0.00E+00	3.39E-02	2.36E-02	2.36E-02
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
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
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
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
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
FW [m3]	1.51E+00	3.03E-03	5.47E-01	6.32E-03	6.32E-02	0.00E+00	4.30E-04	2.28E-03	2.28E-03
ADPF [MJ]	9.65E+00	2.10E-01	4.69E+00	4.67E-01	2.69E-01	0.00E+00	3.18E-02	9.61E-02	2.19E-02
Waste Parameters and Output Flows									
HWD [kg]	0.00E+00	0.00E+00	1.16E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD [kg]	0.00E+00	0.00E+00	2.47E-02	0.00E+00	5.11E-03	0.00E+00	0.00E+00	9.15E-02	8.14E-02
HLRW [kg]	1.48E-25	5.69E-27	9.28E-22	1.33E-26	6.11E-24	0.00E+00	9.08E-28	3.06E-28	0.00E+00
ILLRW [kg]	1.96E-08	3.06E-12	2.11E-09	7.65E-12	1.26E-09	0.00E+00	5.21E-13	6.98E-09	0.00E+00
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
MR [kg]	0.00E+00	0.00E+00	1.87E-02	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
EE [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

Table 8: LCIA Results for 1 m² of Tyvek®CommercialWrapD® with baseline grid mix

Impact Category	A1	A2	A3	A4	A5	C1	C2	C3	C4
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5									
IPCC AR5 GWP excl. bio [kg CO_2 eq]	3.30E-01	1.45E-02	3.04E-01	3.11E-02	1.60E-02	0.00E+00	2.11E-03	0.00E+00	1.01E-02
GWP TRACI excl. bio [kg CO2e]	3.20E-01	1.43E-02	2.99E-01	3.07E-02	1.56E-02	0.00E+00	2.08E-03	0.00E+00	8.92E-03
AP [kg SO_2 eq]	1.06E-08	2.07E-10	4.59E-09	4.77E-10	2.91E-10	0.00E+00	3.25E-11	0.00E+00	2.48E-11
EP [kg N eq]	1.01E-03	1.34E-04	8.39E-04	1.01E-04	6.57E-05	0.00E+00	7.27E-06	0.00E+00	5.65E-06
ODP [kg CFC 11 eq]	9.41E-05	8.47E-06	1.05E-04	6.78E-06	7.02E-06	0.00E+00	4.84E-07	0.00E+00	2.65E-06
SFP [kg O3 eq]	1.24E-02	4.41E-03	9.22E-03	2.86E-03	9.16E-04	0.00E+00	2.07E-04	0.00E+00	1.55E-04
Resource Use Parameters									
RPRE [MJ]	1.28E-01	3.17E-04	5.41E-01	6.77E-04	8.34E-03	0.00E+00	4.62E-05	0.00E+00	2.00E-04
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
NRPRE [MJ]	9.57E+00	2.02E-01	5.21E+00	4.42E-01	2.68E-01	0.00E+00	3.02E-02	0.00E+00	2.10E-02
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
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
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
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
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
FW [m3]	1.37E+00	2.74E-03	4.60E-01	5.62E-03	5.64E-02	0.00E+00	3.83E-04	0.00E+00	2.03E-03
ADPF [MJ]	1.28E-01	3.17E-04	5.41E-01	6.77E-04	8.34E-03	0.00E+00	4.62E-05	0.00E+00	1.95E-02
Waste Parameters and Output Flows									
HWD [kg]	0.00E+00	0.00E+00	1.03E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD [kg]	0.00E+00	0.00E+00	2.18E-02	0.00E+00	7.83E-03	0.00E+00	0.00E+00	0.00E+00	8.14E-02
HLRW [kg]	1.34E-25	5.15E-27	8.23E-22	1.18E-26	5.45E-24	0.00E+00	8.08E-28	0.00E+00	2.72E-28
ILLRW [kg]	1.77E-08	2.77E-12	1.88E-09	6.80E-12	1.12E-09	0.00E+00	4.64E-13	0.00E+00	6.21E-09
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
MR [kg]	0.00E+00	0.00E+00	1.67E-02	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
EE [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

Table 9: LCIA Results for 1 m² of Tyvek®HomeWrap® with RECs

Impact Category	A1	A2	A3	A4	A5	C1	C2	C3	C4
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5									
IPCC AR5 GWP excl. bio [kg CO_2 eq]	2.45E-01	1.08E-02	2.00E-01	2.33E-02	1.25E-02	0.00E+00	1.57E-03	0.00E+00	7.59E-03
GWP TRACI excl. bio [kg CO2e]	2.37E-01	1.06E-02	1.97E-01	2.31E-02	1.21E-02	0.00E+00	1.55E-03	0.00E+00	6.69E-03
AP [kg SO_2 eq]	7.48E-04	9.94E-05	2.98E-09	7.61E-05	5.02E-05	0.00E+00	5.42E-06	0.00E+00	4.24E-06
EP [kg N eq]	6.98E-05	6.28E-06	5.63E-04	5.08E-06	5.30E-06	0.00E+00	3.61E-07	0.00E+00	1.99E-06
ODP [kg CFC 11 eq]	7.84E-09	1.54E-10	6.53E-05	3.57E-10	2.18E-10	0.00E+00	2.43E-11	0.00E+00	1.86E-11
SFP [kg O3 eq]	9.19E-03	3.27E-03	6.61E-03	2.15E-03	7.01E-04	0.00E+00	1.55E-04	0.00E+00	1.16E-04
Resource Use Parameters									
RPRE [MJ]	9.45E-02	2.35E-04	5.74E-01	5.08E-04	6.43E-03	0.00E+00	3.45E-05	0.00E+00	1.50E-04
RPRM [MJ]	0.00E+00	0.00E+00	2.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRPRE [MJ]	7.09E+00	1.50E-01	3.19E+00	3.32E-01	2.06E-01	0.00E+00	2.25E-02	0.00E+00	1.58E-02
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
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
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
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
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
FW [m3]	1.01E+00	2.04E-03	3.60E-01	4.21E-03	4.24E-02	0.00E+00	2.86E-04	0.00E+00	1.52E-03
ADPF [MJ]	9.45E-02	2.35E-04	1.55E-08	5.08E-04	6.43E-03	0.00E+00	2.11E-02	0.00E+00	1.46E-02
Waste Parameters and Output Flows									
HWD [kg]	0.00E+00	0.00E+00	7.64E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD [kg]	0.00E+00	0.00E+00	2.48E-03	0.00E+00	5.97E-03	0.00E+00	0.00E+00	0.00E+00	6.10E-02
HLRW [kg]	9.95E-26	3.82E-27	6.17E-22	8.89E-27	4.08E-24	0.00E+00	6.03E-28	0.00E+00	2.04E-28
ILLRW [kg]	1.31E-08	2.05E-12	1.41E-09	5.10E-12	8.43E-10	0.00E+00	3.46E-13	0.00E+00	4.66E-09
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
MR [kg]	0.00E+00	0.00E+00	1.25E-02	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
EE [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

Table 10: LCIA Results for 1 m² of Tyvek®StuccoWrap® with RECs

Impact Category	A1	A2	A3	A4	A5	C1	C2	C3	C4
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5									
IPCC AR5 GWP excl. bio [kg CO_2 eq]	2.45E-01	1.08E-02	2.00E-01	2.33E-02	1.25E-02	0.00E+00	1.57E-03	0.00E+00	7.59E-03
GWP TRACI excl. bio [kg CO2e]	2.37E-01	1.06E-02	1.97E-01	2.31E-02	1.21E-02	0.00E+00	1.55E-03	0.00E+00	6.69E-03
AP [kg SO_2 eq]	7.48E-04	9.94E-05	2.98E-09	7.61E-05	5.02E-05	0.00E+00	5.42E-06	0.00E+00	4.24E-06
EP [kg N eq]	6.98E-05	6.28E-06	5.63E-04	5.08E-06	5.30E-06	0.00E+00	3.61E-07	0.00E+00	1.99E-06
ODP [kg CFC 11 eq]	7.84E-09	1.54E-10	6.53E-05	3.57E-10	2.18E-10	0.00E+00	2.43E-11	0.00E+00	1.86E-11
SFP [kg O3 eq]	9.19E-03	3.27E-03	6.61E-03	2.15E-03	7.01E-04	0.00E+00	1.55E-04	0.00E+00	1.16E-04
Resource Use Parameters									
RPRE [MJ]	9.45E-02	2.35E-04	5.74E-01	5.08E-04	6.43E-03	0.00E+00	3.45E-05	0.00E+00	1.50E-04
RPRM [MJ]	0.00E+00	0.00E+00	2.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRPRE [MJ]	7.09E+00	1.50E-01	3.19E+00	3.32E-01	2.06E-01	0.00E+00	2.25E-02	0.00E+00	1.58E-02
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
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
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
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
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
FW [m3]	1.01E+00	2.04E-03	3.60E-01	4.21E-03	4.24E-02	0.00E+00	2.86E-04	0.00E+00	1.52E-03
ADPF [MJ]	9.45E-02	2.35E-04	1.55E-08	5.08E-04	6.43E-03	0.00E+00	2.11E-02	0.00E+00	1.46E-02
Waste Parameters and Output Flows									
HWD [kg]	0.00E+00	0.00E+00	7.64E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD [kg]	0.00E+00	0.00E+00	2.48E-03	0.00E+00	5.97E-03	0.00E+00	0.00E+00	0.00E+00	6.10E-02
HLRW [kg]	9.95E-26	3.82E-27	6.17E-22	8.89E-27	4.08E-24	0.00E+00	6.03E-28	0.00E+00	2.04E-28
ILLRW [kg]	1.31E-08	2.05E-12	1.41E-09	5.10E-12	8.43E-10	0.00E+00	3.46E-13	0.00E+00	4.66E-09
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
MR [kg]	0.00E+00	0.00E+00	1.25E-02	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
EE [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

Table 11: LCIA Results for 1 m² of Tyvek®DrainWrap® with RECs

Impact Category	A1	A2	A3	A4	A5	C1	C2	C3	C4
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5									
IPCC AR5 GWP excl. bio [kg CO_2 eq]	2.45E-01	1.08E-02	2.00E-01	2.33E-02	1.25E-02	0.00E+00	1.57E-03	0.00E+00	7.59E-03
GWP TRACI excl. bio [kg CO2e]	2.37E-01	1.06E-02	1.97E-01	2.31E-02	1.21E-02	0.00E+00	1.55E-03	0.00E+00	6.69E-03
AP [kg SO_2 eq]	7.48E-04	9.94E-05	2.98E-09	7.61E-05	5.02E-05	0.00E+00	5.42E-06	0.00E+00	4.24E-06
EP [kg N eq]	6.98E-05	6.28E-06	5.63E-04	5.08E-06	5.30E-06	0.00E+00	3.61E-07	0.00E+00	1.99E-06
ODP [kg CFC 11 eq]	7.84E-09	1.54E-10	6.53E-05	3.57E-10	2.18E-10	0.00E+00	2.43E-11	0.00E+00	1.86E-11
SFP [kg O3 eq]	9.19E-03	3.27E-03	6.61E-03	2.15E-03	7.01E-04	0.00E+00	1.55E-04	0.00E+00	1.16E-04
Resource Use Parameters									
RPRE [MJ]	9.45E-02	2.35E-04	5.74E-01	5.08E-04	6.43E-03	0.00E+00	3.45E-05	0.00E+00	1.50E-04
RPRM [MJ]	0.00E+00	0.00E+00	2.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRPRE [MJ]	7.09E+00	1.50E-01	3.19E+00	3.32E-01	2.06E-01	0.00E+00	2.25E-02	0.00E+00	1.58E-02
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
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
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
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
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
FW [m3]	1.01E+00	2.04E-03	3.60E-01	4.21E-03	4.24E-02	0.00E+00	2.86E-04	0.00E+00	1.52E-03
ADPF [MJ]	9.45E-02	2.35E-04	1.55E-08	5.08E-04	6.43E-03	0.00E+00	2.11E-02	0.00E+00	1.46E-02
Waste Parameters and Output Flows									
HWD [kg]	0.00E+00	0.00E+00	7.64E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD [kg]	0.00E+00	0.00E+00	2.48E-03	0.00E+00	5.97E-03	0.00E+00	0.00E+00	0.00E+00	6.10E-02
HLRW [kg]	9.95E-26	3.82E-27	6.17E-22	8.89E-27	4.08E-24	0.00E+00	6.03E-28	0.00E+00	2.04E-28
ILLRW [kg]	1.31E-08	2.05E-12	1.41E-09	5.10E-12	8.43E-10	0.00E+00	3.46E-13	0.00E+00	4.66E-09
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
MR [kg]	0.00E+00	0.00E+00	1.25E-02	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
EE [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

Table 12: LCIA Results for 1 m² of Tyvek®CommercialWrap® with RECs

Impact Category	A1	A2	A3	A4	A5	C1	C2	C3	C4
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5									
IPCC AR5 GWP excl. bio [kg CO_2 eq]	3.65E-01	1.60E-02	3.04E-01	3.50E-02	1.78E-02	0.00E+00	2.37E-03	0.00E+00	1.14E-02
GWP TRACI excl. bio [kg CO2e]	3.54E-01	1.58E-02	2.99E-01	3.46E-02	1.73E-02	0.00E+00	2.34E-03	0.00E+00	1.00E-02
AP [kg SO_2 eq]	1.17E-08	2.29E-10	4.52E-09	5.36E-10	3.27E-10	0.00E+00	3.65E-11	0.00E+00	2.79E-11
EP [kg N eq]	1.12E-03	1.48E-04	8.53E-04	1.14E-04	7.32E-05	0.00E+00	8.16E-06	0.00E+00	6.35E-06
ODP [kg CFC 11 eq]	1.04E-04	9.34E-06	9.83E-05	7.63E-06	7.86E-06	0.00E+00	5.44E-07	0.00E+00	2.98E-06
SFP [kg O3 eq]	1.37E-02	4.86E-03	1.00E-02	3.22E-03	1.02E-03	0.00E+00	2.33E-04	0.00E+00	1.74E-04
Resource Use Parameters									
RPRE [MJ]	1.41E-01	3.50E-04	8.60E-01	7.62E-04	9.28E-03	0.00E+00	5.19E-05	2.25E-04	2.25E-04
RPRM [MJ]	0.00E+00	1.00E+00	2.00E+00	3.00E+00	4.00E+00	0.00E+00	5.00E+00	6.00E+00	6.00E+00
NRPRE [MJ]	1.06E+01	2.23E-01	4.83E+00	4.97E-01	2.98E-01	0.00E+00	3.39E-02	2.36E-02	2.36E-02
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
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
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
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
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
FW [m3]	1.51E+00	3.03E-03	5.47E-01	6.32E-03	6.32E-02	0.00E+00	4.30E-04	2.28E-03	2.28E-03
ADPF [MJ]	9.65E+00	2.10E-01	4.05E+00	4.67E-01	2.69E-01	0.00E+00	3.18E-02	9.61E-02	2.19E-02
Waste Parameters and Output Flows									
HWD [kg]	0.00E+00	0.00E+00	1.15E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD [kg]	0.00E+00	0.00E+00	3.70E-03	0.00E+00	5.11E-03	0.00E+00	0.00E+00	9.15E-02	8.14E-02
HLRW [kg]	1.48E-25	5.69E-27	9.28E-22	1.33E-26	6.11E-24	0.00E+00	9.08E-28	3.06E-28	0.00E+00
ILLRW [kg]	1.96E-08	3.06E-12	2.11E-09	7.65E-12	1.26E-09	0.00E+00	5.21E-13	6.98E-09	0.00E+00
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
MR [kg]	0.00E+00	0.00E+00	1.87E-02	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
EE [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

Table 13: LCIA Results for 1 m² of Tyvek®CommercialWrapD® with RECs

Impact Category	A1	A2	A3	A4	A5	C1	C2	C3	C4
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5									
IPCC AR5 GWP excl. bio [kg CO_2 eq]	3.30E-01	1.45E-02	2.56E-01	3.11E-02	1.60E-02	0.00E+00	2.11E-03	0.00E+00	1.01E-02
GWP TRACI excl. bio [kg CO2e]	3.20E-01	1.43E-02	2.51E-01	3.07E-02	1.56E-02	0.00E+00	2.08E-03	0.00E+00	8.92E-03
AP [kg SO_2 eq]	1.06E-08	2.07E-10	3.83E-09	4.77E-10	2.91E-10	0.00E+00	3.25E-11	0.00E+00	2.48E-11
EP [kg N eq]	1.01E-03	1.34E-04	7.22E-04	1.01E-04	6.57E-05	0.00E+00	7.27E-06	0.00E+00	5.65E-06
ODP [kg CFC 11 eq]	9.41E-05	8.47E-06	8.55E-05	6.78E-06	7.02E-06	0.00E+00	4.84E-07	0.00E+00	2.65E-06
SFP [kg O3 eq]	1.24E-02	4.41E-03	8.50E-03	2.86E-03	9.16E-04	0.00E+00	2.07E-04	0.00E+00	1.55E-04
Resource Use Parameters									
RPRE [MJ]	1.28E-01	3.17E-04	7.63E-01	6.77E-04	8.34E-03	0.00E+00	4.62E-05	0.00E+00	2.00E-04
RPRM [MJ]	0.00E+00	0.00E+00	2.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRPRE [MJ]	9.57E+00	2.02E-01	4.10E+00	4.42E-01	2.68E-01	0.00E+00	3.02E-02	0.00E+00	2.10E-02
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
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
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
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
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
FW [m3]	1.37E+00	2.74E-03	4.60E-01	5.62E-03	5.64E-02	0.00E+00	3.83E-04	0.00E+00	2.03E-03
ADPF [MJ]	1.28E-01	3.17E-04	3.42E+00	6.77E-04	8.34E-03	0.00E+00	4.62E-05	0.00E+00	1.95E-02
Waste Parameters and Output Flows									
HWD [kg]	0.00E+00	0.00E+00	1.02E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD [kg]	0.00E+00	0.00E+00	3.34E-03	0.00E+00	7.83E-03	0.00E+00	0.00E+00	0.00E+00	8.14E-02
HLRW [kg]	1.34E-25	5.15E-27	8.23E-22	1.18E-26	5.45E-24	0.00E+00	8.08E-28	0.00E+00	2.72E-28
ILLRW [kg]	1.77E-08	2.77E-12	1.88E-09	6.80E-12	1.12E-09	0.00E+00	4.64E-13	0.00E+00	6.21E-09
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
MR [kg]	0.00E+00	0.00E+00	1.67E-02	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
EE [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

Interpretation

The scenarios for the results with the RECs have lower impacts than the scenarios for the results not accounting for the RECs. The percent change of the global warming potential results from the results not accounting for RECs to results accounting for the RECs are summarized in Table 14 for both cradle-to-gate and cradle-to-grave scenarios.

Table 14: Percent change from results with baseline grid mix to results with RECs

PRODUCT	CRADLE-TO-GATE	CRADLE-TO-GRAVE
Home, Drain and Stucco Wrap	-7.31%	-6.70%
Commercial Wrap	-7.27%	-7.24%
Commercial Wrap D	-7.34%	-6.73%

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