SIKA EMSEAL FOAM JOINTS AND ENGINEERED PRODUCTS

COMMERCIAL
EXPANSION JOINTS
Emseal® ■ Wabo®

ENVIRONMENTAL PRODUCT DECLARATION

Foam joint systems

20H	DSF	Emshield WFR3	Seismic Colorseal
25V	DSM	Horizontal Colorseal	Seismic Colorseal-DS
AST Tape	DSM-DS	Horizontal Colorseal-DS	SJS
Backerseal	DSM-FP	Log Home Tape Classic	SJS-FP
BEJS	Emshield DFR2	Log Home Tape Hi-Acrylic	SJS-FR
BEJS-on-a-Reel	Emshield DFR3	MST Tape	SJS-FP-FR
Chemseal	Emshield DFR-FP	QuietJoint	Submerseal
Colorseal-on-a-Reel	Emshield TFR-RWS	SecuritySeal SSF2	
Colourseal VHE	Emshield WFR1	SecuritySeal SSF3	
DFR / WFR CE	Emshield WFR2	SecuritySeal SSW2	

Engineered products

BG System
Emcrete
Migutan FP
RoofJoint System
Thermaflex

The development of this type III environmental product declaration (EPD) for Sika Emseal foam joints and engineered products manufactured in Canada and United States was commissioned by Sika Emseal. It was developed in compliance with ISO 14025 and ISO 21930:2017 by Groupe AGÉCO.

This EPD includes life cycle assessment (LCA) results for the production stage with additional modules (cradle-to-gate with options).

For more information about Sika Emseal, please go to emseal.com

Issue date: March 6th, 2026

ASTM INTERNATIONAL

This product-specific type III environmental product declaration (EPD) for Sika Emseal concrete Foam joints and engineered products is in accordance with ISO 14025:2006 and core standard ISO 21930:2017. EPDs within the same product category but from different programs may not be comparable. Moreover, EPDs of construction products may not be comparable if they do not comply with ISO 21930:2017. Any EPD comparison must be performed in conformance with ISO 21930 guidelines. Care should be taken when comparing results since differences in certain assumptions, data quality and datasets are unavoidable, even when using the same product category rules (PCR). EPDs are comparable only if they comply with this document, use the same sub-category PCR where applicable, include all relevant information modules and are based on equivalent scenarios with respect to the context of construction works. This declaration shall solely be used in a Business to Business (B2B) capacity.

Program operator	**ASTM International** 100 Barr Harbor Drive, PO Box C700 West Conshohocken, PA 19428-2959, USA | www.astm.org
Program Operator General Program Instructions	ASTM Program Operator for Product Category Rules (PCR) and Environmental Product Declarations (EPDs) - General Program Instructions (version 8.0)
Product	Sika Emseal foam joints and engineered products The complete list of products is presented in section 2.1
EPD registration number	ASTM-EPD1130
EPD recipient organization	**Sika Emseal** 25 Bridle Lane, Westborough (MA) 01581-2603 | emseal.com
Reference PCR	ISO 21930:2017 used as core product category rule
EPD Scope	Cradle-to-gate with options (A4, A5, C1-C4)
Date of issue (approval)	March 6th, 2026
Period of validity	March 6th, 2026 – March 5th, 2031

The LCA and EPD were prepared by	**Groupe AGÉCO** | www.groupeageco.ca | ageco@groupeageco.ca
This EPD and related data were independently verified by an external verifier according to ISO 14025:2006 and ISO 21930:2017.	__ Internal **x External**  **Timothy S Brooke**. ASTM International. 100 Barr Harbor Drive West Conshohocken, PA 19428. tbrooke@astm.org **Thomas P. Gloria**, Ph. D. Industrial Ecology Consultants. 35 Bracebridge Rd. Newton, MA 02459-1728. t.gloria@industrial-ecology.com

Declaration product and declared unit	1 kg of foam joints or engineered products
Manufacturing locations	Westborough, Massachusetts, United States Woodbridge, Ontario, Canada
EPD type	Product-specific
Markets of applicability and specificity	North America
LCA Software/database used	Simapro 9.6 with ecoinvent 3.10

Environmental Product Declaration Summary Sheet

Sika Emseal | Foam joints and engineered products

This is a summary of the product-specific type III environmental product declaration (EPD) describing the environmental performance of foam joints and engineered products manufactured by Sika Emseal and used in construction projects.

COMMERCIAL EXPANSION JOINTS
Emseal ▪ Wabo

EPD commissioner and owner	Period of validity	Program operator and registration number	Product Category Rule	LCA and EPD consultants
Sika Emseal	March 6th, 2026 – March 5th, 2031	ASTM-EPD1130	ISO 21930:2017 used as core product category rule	Groupe AGÉCO

What is a Life Cycle Assessment (LCA)?

LCA is a science-based and internationally recognized tool to evaluate the relative potential environmental impacts of products and services throughout their life cycle, beginning with raw material extraction and including all aspects of transportation, production, use, and end-of-life treatment. The method is defined by the International Organization for Standardization (ISO) 14040 and 14044 standards. For EPD development, Product Category Rules (PCR) give additional guidelines on how to conduct the LCA of the product.

Why an EPD?

Sika Emseal is seeking to provide the industry, decision makers, influencers, and the public with more transparency, in terms of its sustainability efforts and environmental performance of its products, relying on a rigorous and recognized communication tool, the EPD. By selecting products with an EPD, building projects can earn credits towards the Leadership in Energy and Environmental Design (LEED) rating system certification. In LEED v4, v4.1 and v5, points are awarded in the Materials and Resources category.

Product description

Sika Emseal's expansion foam joints and engineered products include a range of advanced watertight, fire-rated, chemical-resistant, acoustic, and traffic-durable sealants and joint systems for new construction, repair, and retrofit. Designed for vertical, horizontal, below-grade, and roof applications, these solutions produce reliable long-term performance across structural, seismic, and specialty environments. Products are precompressed, silicone-faced, or thermoplastic systems used in buildings, bridges, tunnels, and decks to manage movement, maintain integrity, and protect against environmental conditions.

Declared unit

One kilogram (1 kg) of foam joint systems or engineered products

Scope and system boundary

Cradle-to-gate with options: production (A1-A3), construction (A4-A5), and end-of-life stages (C1-C4)

Products included in the EPD

See the product list on the next page.

Potential environmental impacts

The potential environmental impacts (A1-A3) of **1 kg of foam joint systems and engineered products** are summarized below for each system assessed and for the main environmental indicators (based on the requirements of ISO 21930:2017). Refer to the body of the EPD for more detailed results. Results on resource use, waste generated, and output flows are presented in the full EPD.

Cradle-to-gate (A1-A3) results for 1 kg of foam joints and engineered products

(complete results are available in the full EPD)

Foam joints	Global warming kg CO_2 eq.	Ozone depletion kg CFC-11 eq.	Eutrophication kg N eq.	Acidification kg SO_2 eq.	Smog kg O_3 eq.
Silicone-coated precompressed acrylic-impregnated foam systems					
BEJS	1.07E+01	1.39E-03	4.21E-02	2.91E-02	4.22E-01
BEJS-on-a-Reel	1.15E+01	8.57E-04	4.61E-02	3.01E-02	4.38E-01
Chemseal	6.23E+00	4.23E-07	3.07E-02	2.43E-02	3.06E-01
Colorseal-on-a-Reel	6.42E+00	9.07E-04	2.94E-02	2.53E-02	3.30E-01
DSF	6.23E+00	4.11E-07	3.08E-02	2.43E-02	3.06E-01
DSM	6.05E+00	1.53E-03	2.67E-02	2.45E-02	3.21E-01
DSM-DS	5.98E+00	1.23E-03	2.61E-02	2.37E-02	3.12E-01
DSM-FP	5.17E+00	2.42E-04	2.23E-02	1.98E-02	2.62E-01
Horizontal Colorseal	6.17E+00	1.43E-03	2.69E-02	2.47E-02	3.25E-01
Horizontal Colorseal-DS	6.11E+00	1.14E-03	2.63E-02	2.40E-02	3.16E-01
Seismic Colorseal	5.42E+00	1.93E-03	2.53E-02	2.29E-02	2.99E-01
Seismic Colorseal-DS	5.34E+00	1.55E-03	2.44E-02	2.19E-02	2.88E-01
SJS	1.04E+01	1.96E-07	4.37E-02	6.21E-02	5.95E-01
SJS-FP	8.74E+00	1.78E-07	3.72E-02	5.02E-02	4.95E-01
Submerseal	6.28E+00	4.09E-07	3.08E-02	2.44E-02	3.08E-01
Polyurethane-coated precompressed fire retardant-impregnated foam systems					
SecuritySeal SSF2	5.43E+00	1.06E-07	3.03E-02	2.24E-02	2.70E-01
SecuritySeal SSF3	5.43E+00	1.06E-07	3.03E-02	2.24E-02	2.70E-01
SecuritySeal SSW2	5.56E+00	1.13E-07	3.04E-02	2.28E-02	2.76E-01
Silicone-coated precompressed fire retardant-impregnated foam systems					
Colourseal VHE	5.95E+00	1.64E-03	2.66E-02	2.43E-02	3.18E-01
DFR / WFR CE	5.46E+00	3.23E-07	2.89E-02	2.21E-02	2.71E-01
Emshield DFR2	5.72E+00	3.08E-07	2.93E-02	2.28E-02	2.82E-01
Emshield DFR3	4.82E+00	1.37E-06	1.98E-02	1.90E-02	2.46E-01
Emshield DFR-FP	4.99E+00	2.25E-07	2.27E-02	1.92E-02	2.51E-01
Emshield TFR-RWS	5.47E+00	3.13E-07	2.90E-02	2.21E-02	2.71E-01
Emshield WFR1	5.51E+00	3.12E-07	2.90E-02	2.22E-02	2.73E-01
Emshield WFR2	5.43E+00	3.09E-07	2.90E-02	2.20E-02	2.70E-01
Emshield WFR3	5.52E+00	3.04E-07	2.91E-02	2.22E-02	2.74E-01
QuietJoint	5.11E+00	1.04E-06	2.57E-02	1.97E-02	2.51E-01
SJS-FR	9.59E+00	2.28E-07	4.13E-02	5.38E-02	5.39E-01
SJS-FP-FR	8.20E+00	1.97E-07	3.56E-02	4.40E-02	4.56E-01

Foam joints	Global warming kg CO_2 eq.	Ozone depletion kg CFC-11 eq.	Eutrophication kg N eq.	Acidification kg SO_2 eq.	Smog kg O_3 eq.
Uncoated precompressed impregnated foams					
20H (supplied with two accessories: asphaltic emulsion and epoxy)	5.41E+00	1.32E-07	2.89E-02	2.08E-02	2.60E-01
25V	5.85E+00	1.44E-07	3.29E-02	2.38E-02	2.90E-01
AST Tape	4.78E+00	7.27E-08	2.97E-02	2.06E-02	2.40E-01
Backerseal	4.79E+00	7.34E-08	2.97E-02	2.06E-02	2.40E-01
Log Home Tape Classic	4.78E+00	7.27E-08	2.97E-02	2.06E-02	2.40E-01
Log Home Tape Hi-Acrylic	4.79E+00	7.34E-08	2.97E-02	2.06E-02	2.40E-01
MST Tape	4.79E+00	7.34E-08	2.97E-02	2.06E-02	2.40E-01

Engineered products	Global warming kg CO_2 eq.	Ozone depletion kg CFC-11 eq.	Eutrophication kg N eq.	Acidification kg SO_2 eq.	Smog kg O_3 eq.
BG System (Below Grade)	5.08E+00	3.97E-07	2.18E-02	2.00E-02	2.57E-01
Emcrete (Elastomeric Header)	5.57E+00	1.29E-07	2.22E-02	2.53E-02	3.47E-01
Migutan FP (Plaza Decks)	4.41E+00	4.27E-07	1.80E-02	2.01E-02	2.24E-01
RoofJoint System (Roof)	5.17E+00	4.11E-07	2.22E-02	2.05E-02	2.62E-01
Thermaflex (Parking Decks)	5.03E+00	1.16E-07	2.03E-02	2.25E-02	3.13E-01

Additional environmental information

This section provides additional relevant environmental information about the manufacturer and the products covered by this EPD that was not derived from the LCA.

Sika's commitment to sustainability

Providing long lasting and high-performance solutions to the benefit of our customers, Sika is committed to pioneering sustainable solutions that are safer, have the lowest impact on resources and address global environmental challenges. Therefore, Sika assumes the responsibility to provide sustainable solutions in order to improve material, water and energy efficiency in construction and transportation. Sika strives to create more value for all its stakeholders with its products, systems and solutions along the whole value chain and throughout the entire life span of its products. Sika is committed to measure, improve and communicate sustainable value creation: "More value, less impact" refers to the company's commitment to maximize the value of its solutions to all stakeholders while reducing resource consumption and impact on the environment.

Emissions of dangerous substances

No regulated substances of very high concern are identified as being contained by the products and systems under study.

For more information: emseal.com

1. Description of Sika Emseal

Sika is a specialty chemicals company with a leading position in the development and production of systems and solutions for bonding, sealing, damping, reinforcing, and protecting the construction, residential & home improvement, oil & gas pipeline and the transportation, marine, and automotive manufacturing industries. Sika's unique product technologies include concrete admixtures & fibers, mortars, epoxies, urethanes, structural strengthening systems, industrial flooring, PVC and liquid applied membrane roofing systems, thermal insulation, plaster, and stucco, below-grade waterproofing, and acoustical & reinforcing materials. In 2017, Emseal Joint Systems Ltd joined Sika Corporation and added expansion joint and precompressed sealant to its capacity to provide comprehensive foundation-to-roof building waterproofing solutions. Emseal owns two manufacturing facilities, one ISO 9001 certified plant in Woodbridge, ON and another in Westborough, MA. Sika Emseal is seeking to provide the industry, decision-makers, influencers, and the public with more transparency, in terms of its sustainability efforts and environmental performance of its products, relying on product life cycle assessment (LCA) — the most widely recognized and rigorous approach on the market.

Visit Sika Emseal's website for more information at emseal.com

2. Description of product

2.1. Definition and product classification

This EPD developed with the ISO 21930:2017 core PCR covers 38 foam joints and 5 engineered products composed of foams, sealants, epoxy, metal and rubber accessories, intumescent, thermoplastic parts, urethanes sold together and shipped to the construction site where they are installed. All the systems and products under study are grouped in 5 different families: silicone-coated precompressed acrylic-impregnated foam systems, polyurethane-coated precompressed fire retardant-impregnated foam systems, silicone-coated precompressed fire retardant-impregnated foam systems, uncoated precompressed impregnated foam systems and engineered products. 42 systems and products in total are studied in this EPD, across the 5 families. Sika Emseal offers many types of joint systems for residential, commercial, institutional, and industrial purposes and applications.

Table 1: Foam joint systems and engineered products covered by this EPD

Joint systems			Engineered products
Silicone-coated acrylic-impregnated	**Polyurethane-coated fire retardant-impregnated**	**Silicone-coated fire retardant-impregnated**	BG System (Below Grade)
BEJS	SecuritySeal SSF2	Colourseal VHE	Emcrete (Elastomeric Header)
BEJS-on-a-Reel	SecuritySeal SSF3	DFR / WFR CE	Migutan FP (Plaza Decks)
Chemseal	SecuritySeal SSW2	Emshield DFR2	RoofJoint System (Roof)
Colorseal-on-a-Reel	**Uncoated precompressed impregnated foams**	Emshield DFR3	Thermaflex (Parking Decks)
DSF	20H *(supplied with two accessories: asphaltic emulsion and epoxy)*	Emshield DFR-FP	
DSM	25V	Emshield TFR-RWS	
DSM-DS	AST Tape	Emshield WFR1	
DSM-FP	Backerseal	Emshield WFR2	
Horizontal Colorseal	Log Home Tape Classic	Emshield WFR3	
Horizontal Colorseal-DS	Log Home Tape Hi-Acrylic	QuietJoint	
Seismic Colorseal	MST Tape	SJS-FR	
Seismic Colorseal-DS		SJS-FP-FR	
SJS			
SJS-FP			
Submerseal			

Figure 1: Applications for foam joint systems and engineered products

Joint system and engineered product compositions for analysis were determined following a "worst-case" approach where worst case compositions are determined based on their impact on the global warming indicator (kg CO_2 eq.). Beyond just their varying compositions, most systems and products are also sold in different sizes. Generally speaking, the variations in dimensions originate from the range of possible widths and heights of the foam joint at the heart of the systems/products. Impacts on this report are calculated based on the best-selling size (called "typical" here) for each system/product and are thus deemed representative. In addition to environmental impacts, the density range (in kg/m_3) is presented in table 2. Logically, maximum density is associated to the minimum dimensions and minimum density is associated to the maximum dimensions. Some systems/products only have one density, meaning that they are only available in a single size.

Table 2: Density range for each system/product

System or product	Minimum density (kg/m^3)	Typical density (kg/m^3)	Maximum density (kg/m^3)
20H	789	850	1 048
25V		487	
AST Tape		104	
Backerseal		284	
BEJS	485	644	1023
BEJS-on-a-Reel	740	756	831
Chemseal	780	674	1091
Colorseal-on-a-Reel	721	734	801
Colourseal VHE	372	538	824
DFR / WFR CE	991	1022	1176
DSF	622	772	1060
DSM	443	583	966
DSM-DS	521	648	909
DSM-FP	2941	3576	3927
Emshield DFR2	1002	1048	1182
Emshield DFR3	1063	1092	1125
Emshield DFR-FP	2799	3189	3614
Emshield TFR-RWS	987	1025	1156
Emshield WFR1	973	1029	1162
Emshield WFR2	969	1019	1148
Emshield WFR3	974	1031	1165
Horizontal Colorseal	383	631	1016
Horizontal Colorseal-DS	441	479	570
Log Home Tape Classic		104	
Log Home Tape Hi-Acrylic		284	
MST Tape		284	
QuietJoint		744	
SecuritySeal SSF2	880	917	1057
SecuritySeal SSF3	880	917	1057
SecuritySeal SSW2	874	936	1090
Seismic Colorseal	355	397	548
Seismic Colorseal-DS	442	479	571
SJS	2146	4380	5237
SJS-FP	3285	4554	4751
SJS-FR	2462	3543	4363
SJS-FP-FR	3053	4087	4704
Submerseal	663	783	950
BG System	3200	5111	5111
Emcrete		1424	
Migutan FP	2454	2811	2950
RoofJoint System	2820	5009	5009
Thermaflex	2065	2147	2147

2.2. Material content

The material composition of each component as disclosed in SDS (Safety Data Sheets) are provided in Table 2. Precise composition is confidential but was used to calculate the LCA results.

No regulated substances of very high concern are identified as being contained by the products and systems under study.

Table 3: Composition of all systems and products in this EPD

Components	Chemical name
20H; 25V; AST Tape; Log Home Tape Classic; Log Home Tape Hi-Acrylic	Polyurethane foam (polyester type)
	Asphalt and acrylic copolymer
Backerseal; MST Tape	Polyurethane foam
	Solid acrylic polymer
BEJS; BEJS-on-a-Reel; DSF; DSM; DSM-DS; DSM-FP; Horizontal Colorseal; Horizontal Colorseal-DS; Seismic Colorseal; Seismic Colorseal-DS; SJS; Submerseal	Polyurethane foam
	Solid acrylic polymer
	Silicone sealant
Chemseal	Polyurethane foam
	Solid acrylic polymer
	Polysulfide sealant
Colorseal-on-a-Reel; QuietJoint	Polyurethane foam
	Solid acrylic polymer
	Silicone sealant OR paintable STPE sealant
Colourseal VHE; DFR / WFR CE; Emshield DFR2; Emshield DFR3; Emshield DFR-FP; Emshield TFR-RWS; Emshield WFR1; Emshield WFR2; Emshield WFR3; SJS-FR; SJS-FP-FR	Polyurethane foam
	Solid inorganic fire retardant
	Silicone sealant
SecuritySeal SSF2; SecuritySeal SSF3; SecuritySeal SSW2	Polyurethane foam
	Solid inorganic fire retardant
	Polyurethane sealant
BG System	Nitrile-Rubber-Plasticized NPVC alloy
	Lead stabilizers
	Additives
	Pigments
	Softening agents

Components	Chemical name
Emcrete	Polymethylene polyphenyl polyisocyanate
	4,4'-METHYLENEBIS(PHENYL ISOCYANATE)(mixed isomers)
	Carbon Black
	Dimethylthiotoluenediamine
	Glass fiber
Migutan FP	Polyvinyl chloride
	Carbon Black
	Calcium carbonate
RoofJoint System	Nitrile-Rubber-Plasticized NPVC alloy OR Thermoplastic Vulcanizate (TPV)
	Lead stabilizers
	Additives
	Pigments
	Softening agents
Thermaflex	Thermoplastic Vulcanizate (TPV) rubber

3. Scope of EPD

3.1. Declared unit

A declared unit is used in lieu of a functional unit in accordance with the PCR since the precise function of some products cannot be defined. The environmental impact results of products in this document are based on a declared unit and therefore do not provide sufficient information to establish comparisons. The results shall not be used for comparisons without knowledge of how the physical properties of the product impact the precise function at the construction level. The environmental impact results shall be converted to a functional unit basis before any comparison is attempted. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries, are based on different product category rules or are missing relevant environmental impacts. Such comparisons can be inaccurate and could lead to erroneous selection of materials or products that have a higher impact, at least in some impact categories.

The declared unit is defined as follows:

One kilogram (1 kg) of foam joints or engineered products

Since this is cradle-to-gate with options LCA doesn't include the use stage, no service lives are reported.

3.2. System boundaries

This cradle-to-gate with options LCA includes modules related to the production stage, construction stage and end-of-life stage, as shown Table 4 and described in this section. Modules not declared are considered not relevant for the covered systems and products. Figure 2 on page 14 shows all the processes for the systems and products included in this EPD.

Table 4: Life cycle stages included or not considered in the system boundaries

Production stage			Construction stage		Use stage							End-of-life stage				
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw materials	Transport	Manufacturing	Transport	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
x	x	x	x	x	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	MND

Legend:

X: considered in the system boundaries *MND: Module not declared*

A1 – Raw material supply

Joint systems and engineered products are made of components which are themselves composed of many different ingredients (for components manufactured by Emseal) as well as third party products. This module includes the production of the ingredients and components needed for the manufacturing of products at the Emseal plants, including raw material extraction and transformation, and energy production.

The materials are supplied by North American brands, whose locations were provided by Sika Emseal, and were modelled with secondary data. For each system and product, the mass of each component that makes it up was transmitted by Emseal, which allowed to calculate a total mass ratio for 1 kg of system/product. The materials modelled with secondary data used ecoinvent data. All materials were modelled. A methodology was established to select the most appropriate ecoinvent dataset for the modelling of impacts. The first step was to try to select the exact material in the database. If not possible, then the closest possible material (same family or use) to the one looked for was selected.

A2 – Transport to manufacturing plants

Ingredients and components are transported from suppliers to the Sika Emseal's manufacturing plants by truck, and boat if shipped from overseas. This module includes air emissions from transportation as well as fuel, vehicle, and infrastructure production. All manufacturer addresses were specified by Sika Emseal.

A3 – Manufacturing

This module covers the manufacturing of components from which the systems and products are made. Once delivered to the Sika Emseal manufacturing plants, materials are stored until their use. Then, when required by the formulation, they are mixed together in a tank. For engineered products, assembly of certain components occur. The mix then goes under quality control, is packed in polyethylene (PE) pails and wraps and stored until shipping. Cardboard is also used for packaging.

Electricity is the main source of energy used at the manufacturing plant. Natural gas is used for heating. Liquefied petroleum gas (LPG) is also used. Water is consumed throughout the manufacturing process.

Waste management from manufacturing packaging and manufacturing wastage including transport to the recycler or disposal is also included.

Production data from Sika Emseal was provided for the Woodbridge and Westborough plants, as well as generated waste during production. It should be noted that the Westborough plant is mainly used for the assembly of engineered products, whereas the Woodbridge plant focuses on manufacturing foam components. The 2023 production output of both plant is vastly different, and this difference has a significant impact on the results.

This module also includes the production and transport of primary packaging for the final products, as described in Table 4. All packaging masses were transmitted by Sika Emseal.

Table 5: Packaging description

Packaging type	End-of-life treatment	Mass* (kg)	Source	Biogenic carbon content** (kg C)
Plastic tube (10.1 oz)	Recycled	0.069	Manufacturer	0
Plastic tube (10.3 oz)	Recycled	0.073	Manufacturer	0
Polypropylene wrap	Recycled	0.027	Manufacturer	0
Polyethylene wrap	Recycled	0.003	Manufacturer	0
Plastic bag	Recycled	0.016	Manufacturer	0
Metallic can (0.25 gallon)	Recycled	0.079	Manufacturer	0
Metallic can (1 gallon)	Recycled	0.340	Manufacturer	0
Plastic pail (0.5 gallon)	Recycled	0.104	Manufacturer	0
Plastic pail (1 gallon)	Recycled	0.213	Manufacturer	0
Plastic pail (1.5 gallon)	Recycled	0.907	Manufacturer	0
Plastic pail (5 gallon)	Recycled	1.30	Manufacturer	0
Cardboard (2m X 2m box)	Recycled	2.17	Manufacturer	0.46
Cardboard (dimensions unknown)	Recycled	2.99	Manufacturer	0.46
Cardboard (dimensions unknown)	Recycled	3.58	Manufacturer	0.46

** Values take into account lids*

*** Source: EcoQuery, Dry Mass and Carbon Content Properties*

A4 – Transport to site

System components manufactured by Sika Emseal are transported from the manufacturing plant to a nearby warehouse by truck before shipping to construction sites. No primary data were used.

A5 – Installation

This module includes the assembly of components into the different systems and engineered products. Sealant is considered to be used for the assembly of products as well as the installation of the system into the area where the joint system is needed. Product loss is considered negligible, since the assembly and installation (both using sealant) generate very little product losses. The disposal of product packaging (all of it considered to be sent to

recycling) is included. A sensitivity analysis on the recycling of packaging indicated that a 30% recycling rate had a negligible impact on results.

C1 – DECONSTRUCTION/DEMOLITION

At the end of life, joints foam systems and engineered products that were epoxied into the joint area are removed using a circular saw, applied on the entire length of the joint and on both sides.

C2 – WASTE TRANSPORT

This module includes the transportation to waste processing or disposal.

C3 – WASTE PROCESSING

Since foam joints and engineered products are complex systems made of multiple materials assembled and bonded together, some of them not usually recycled. Therefore, no recycling is considered.

C4 – DISPOSAL

All systems and products are assumed to be sent to landfill (see C3).

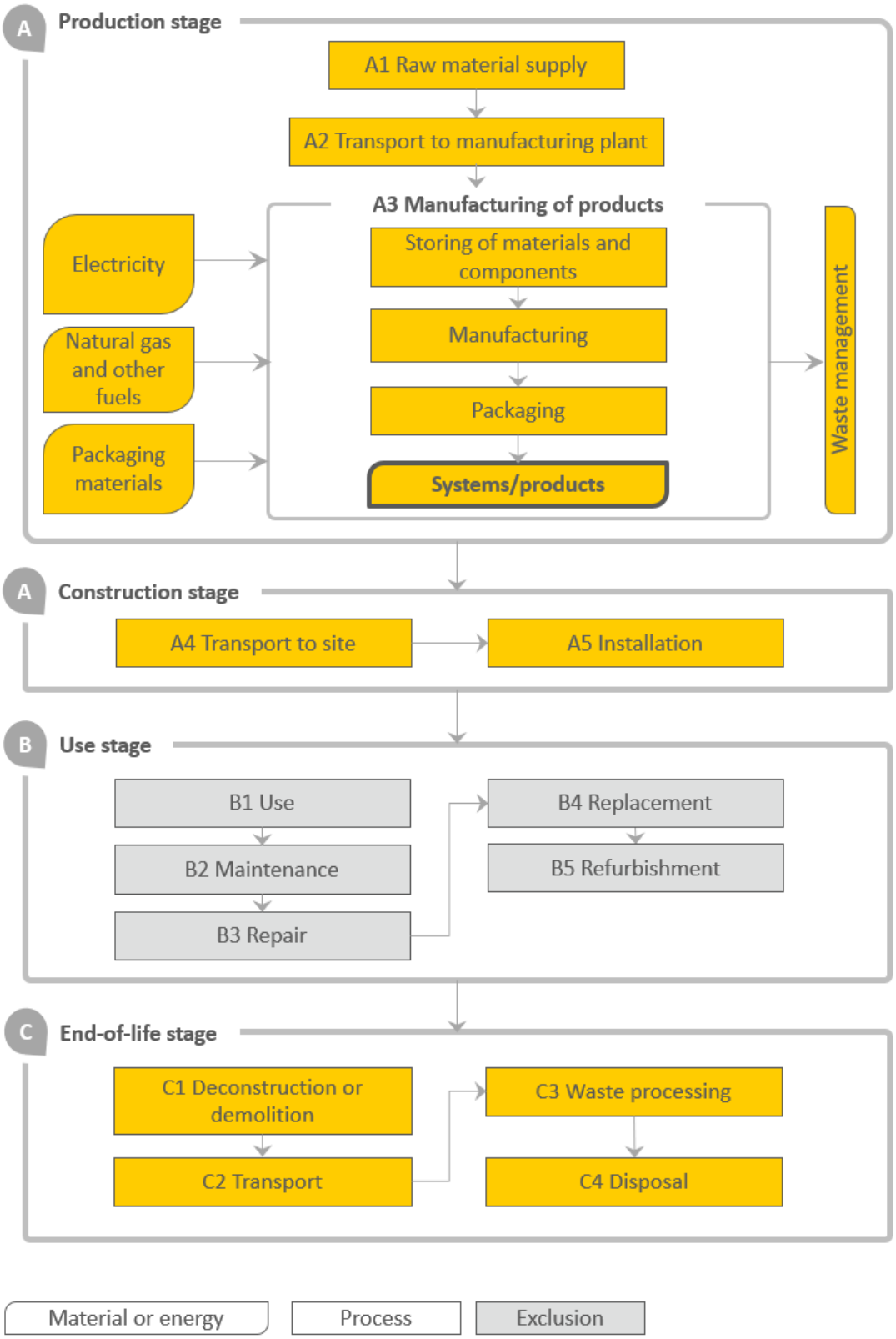


Figure 2: Process flow for all life cycle modules considered

3.3. Geographical and temporal boundaries

Primary data and assumptions for the production stage are representative of current equipment and processes associated with the systems and products. As the systems and products are manufactured in the United States and Canada, the electricity is supplied by regional alternating current power grid or major North American interconnections. Electricity was modelled with the life cycle inventory (LCI) from the ecoinvent database. A dataset representative of medium voltage electricity produced in the United States as well as Ontario was used to assess environmental impacts of manufacturing based on plant location. For the deconstruction/demolition of systems and products, since the region of installation of the systems cannot be known, a global electricity mix was considered. A sensitivity analysis on the electricity mix region in the deconstruction/demolition module, comparing the global with the US-NPCC one, concluded that the choice of the global mix had negligible impact on the overall life cycle results.

Data and assumptions are also intended to be representative of the Sika Emseal manufacturing practices from the year 2023. Primary data were collected for the year 2023 and assumptions were based on operations done in that period. All data were modelled using a database released in 2023 (ecoinvent v3.10) which meets the PCR requirements.

4. Potential environmental impacts assessment

This cradle-to-gate life cycle assessment has been conducted according to ISO 14040 and 14044 standards as well as ISO 21930:2017 used as core PCR. The description of the environmental indicators reported are provided in the glossary (section 6.2).

4.1. Assumptions

When specific data was not available, generic data which fulfilled the minimum criteria of the PCR were used. The ecoinvent database v3.10 (cut-off) served as the main source of secondary data.

The main assumptions are listed below:

- **Transportation:**
  - Truck transport: Since most materials and waste are transported with 16-32 tons trailer trucks, it is assumed that all transportation was done with this type of truck. As the trucks' capacity loads vary depending on the charge they carry, the average load of 17.6 tons observed on the market was used as a generic data.
  - Transport distance of manufacturing waste, as well as packaging supply and waste is included within the market-type process used in ecoinvent 3.10.
  - Transport distance to customers/construction sites was assumed to be 1,450 km.
  - Transport to end-of-life management was assumed to be 50 km.
- **Primary packaging:**
  - No recycled content was considered.
  - Packaging waste during installation (A5) is assumed to be recycled.

- **Installation:**
    - Based on the dimensions of the product, the total mass of silicone needed was estimated. The density of silicone was used (1.02 kg/m3 according to product specifications) which was converted to a linear density using the area and thickness needed.
- **Deconstruction/demolition:**
    - Based on the dimensions of the product, the total time of cutting with an electrical circular saw was estimated. With saw specifications found on manufacture websites (2 kW), total was electricity consumption was calculated.

4.2. Criteria for the exclusion of inputs and outputs

All product components and production processes were included in the study when the necessary information was readily available or when a reasonable estimate could be made. Input and output flows may have been excluded if they represented less than 1% of the cumulative mass input, renewable primary energy or non-renewable primary energy of a unit process and its environmental contribution to the total impacts was estimated to be less than 1%. Also, it is estimated that at least 95% of total flows in terms of mass and energy have been included in the system boundaries to capture at least 95% of the environmental relevance.

In accordance with the PCR, the following items were excluded:

- Personnel impacts
- Research and development activities
- Business travel
- Any secondary packaging (e.g. pallets)
- All point-of-sale infrastructure

Based on Groupe AGÉCO's experience or their relatively low contribution to the life cycle modules to which they pertain, the following processes were excluded from the study due to their expected low contribution and the lack of readily available data:

- Biogenic carbon sequestration from the landfilling of paper packaging.

4.3. Data quality

Data sources

Specific data were collected from Sika Emseal for operations occurring in 2023 (less than 5 years old). **Generic data** collected for the upstream processes were representative of the geographical context and technologies used.

The LCA model was developed with the SimaPro 9.6 software using ecoinvent 3.10 database, which was released in 2023. Since most of the data within ecoinvent is of European origin and produced to represent European industrial conditions and processes, several data were adapted to enhance their representativeness of the products and contexts being examined.

Data quality

The overall data quality ratings show that the data used were good. This data quality assessment confirms the high reliability, representativeness (technological, geographical, and time-related), completeness, and consistency of the information and data used for this study.

4.4. Allocation

Allocation of multi-output processes

When unavoidable allocation was done by mass, or other physical relationship. Economic value allocation was not used.

Allocation at Sika Emseal's manufacturing plant

Sika Emseal's plants produce many different systems and products, including several that are not a part of the scope of this study. Product compositions were available for each product and did not need to be allocated. However, general inputs such as electricity, natural gas, and water were allocated based on the production volume (mass). The allocation was done by Sika based on the % weight output at the Woodbridge and Westborough plants.

No burdens are allocated across the system boundary with secondary material, secondary fuel or recovered energy flows arising from waste.

Allocation for end-of-life processes

A recycled content approach (i.e. cut-off approach) was applied when material is recycled (i.e. in A5). The impacts associated with the recycling process are thus attributed to the downstream products that will be using these materials.

ecoinvent processes with allocation

Many of the processes in the ecoinvent database also provide multiple functions, and allocation is required to provide inventory data per function (or per process). This study accepts the allocation method used by ecoinvent for those processes. It should be noted that the allocation methods used in ecoinvent for background processes (i.e. processes representing the complete supply chain of a good or service used in the life cycle of the systems and products under study), such as mass or economic allocation, may be inconsistent with the approach used to model the foreground system (i.e. to model the manufacturing of the systems and products under study with data collected in the literature and from manufacturers). The continuation of the foreground allocation methodology into the background datasets would add complexity without substantially improving the quality of the study.

4.5. Life cycle impact assessment - results

Table 5 to Table 11 present the results for 1 kg of foam joints and engineered products over the production stage (A1 to A3), construction stage (A4 and A5) and end-of-life stage (C1 to C4).

Note: "E±Y" means "× 10 $^{\pm Y}$". E.g. "2.8E-1" means 0.28

Table 6: Results for 1 kg of 20H system (supplied with two accessories: asphaltic emulsion and epoxy)

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.73E+00	**5.41E+00**	4.43E+00	1.16E-01	8.61E-01	2.78E-01	4.27E-03	2.71E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.38E-07	**1.32E-07**	1.23E-07	1.87E-09	6.84E-09	4.47E-09	1.50E-09	3.11E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.93E-02	**2.89E-02**	2.24E-02	1.06E-04	6.36E-03	2.53E-04	9.05E-06	1.18E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.15E-02	**2.08E-02**	1.84E-02	2.29E-04	2.19E-03	5.48E-04	1.57E-05	1.13E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.73E-01	**2.60E-01**	2.25E-01	3.78E-03	3.21E-02	9.05E-03	2.13E-04	1.51E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	7.59E+01	**7.14E+01**	6.25E+01	1.61E+00	7.30E+00	3.85E+00	5.90E-02	2.90E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.60E+01	**7.11E+01**	5.84E+01	1.74E+00	1.10E+01	4.15E+00	6.67E-02	3.71E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.53E+01	**1.53E+01**	1.53E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	5.39E+00	**5.29E+00**	3.91E+00	2.17E-02	1.35E+00	5.20E-02	4.45E-03	4.21E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.09E-01	**1.09E-01**	0.00E+00	0.00E+00	1.09E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	6.14E-02	**6.04E-02**	4.78E-02	2.25E-04	1.24E-02	5.37E-04	9.77E-05	1.66E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	4.33E-01	**3.03E-01**	0.00E+00	0.00E+00	3.03E-01	0.00E+00	1.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.64E-08	**2.63E-08**	1.53E-08	1.83E-11	1.09E-08	4.38E-11	2.13E-12	4.72E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.27E-08	**3.22E-08**	2.31E-08	9.33E-11	9.02E-09	2.23E-10	1.10E-11	2.58E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	7.95E-03	**7.95E-03**	0.00E+00	0.00E+00	7.95E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	1.82E-01	**5.22E-02**	0.00E+00	0.00E+00	5.22E-02	0.00E+00	1.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 7: Results for 1 kg of 25V system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	6.20E+00	**5.85E+00**	5.08E+00	1.53E-01	6.15E-01	2.78E-01	3.03E-03	5.52E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.51E-07	**1.44E-07**	1.38E-07	2.46E-09	4.06E-09	4.47E-09	1.48E-09	6.33E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	3.34E-02	**3.29E-02**	2.69E-02	1.39E-04	5.89E-03	2.53E-04	7.92E-06	2.40E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.47E-02	**2.38E-02**	2.27E-02	3.03E-04	8.18E-04	5.48E-04	1.32E-05	2.30E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	3.03E-01	**2.90E-01**	2.69E-01	4.99E-03	1.55E-02	9.05E-03	1.73E-04	3.07E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	7.97E+01	**7.49E+01**	6.83E+01	2.13E+00	4.51E+00	3.85E+00	4.18E-02	5.91E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	8.15E+01	**7.63E+01**	6.58E+01	2.29E+00	8.22E+00	4.15E+00	4.81E-02	7.55E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.47E+01	**1.47E+01**	1.47E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	5.51E+00	**5.36E+00**	4.57E+00	2.87E-02	7.61E-01	5.20E-02	4.22E-03	8.56E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.71E-01	**1.71E-01**	0.00E+00	0.00E+00	1.71E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	7.19E-02	**7.07E-02**	5.90E-02	2.97E-04	1.14E-02	5.37E-04	9.53E-05	3.37E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	3.61E-01	**3.61E-01**	0.00E+00	0.00E+00	3.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.86E-08	**2.85E-08**	1.58E-08	2.42E-11	1.27E-08	4.38E-11	1.94E-12	9.60E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.50E-08	**3.42E-08**	2.50E-08	1.23E-10	9.08E-09	2.23E-10	9.98E-12	5.25E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	1.25E-02	**1.25E-02**	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
Output flows												
Components for reuse	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
Materials for recycling	kg	6.22E-02	**6.22E-02**	0.00E+00	0.00E+00	6.22E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 8: Results for 1 kg of AST Tape

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	6.33E+00	**4.78E+00**	4.05E+00	1.53E-01	5.78E-01	2.78E-01	9.09E-03	1.24E+00	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	9.62E-08	**7.27E-08**	6.77E-08	2.46E-09	2.53E-09	4.47E-09	4.43E-09	1.43E-08	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	3.53E-02	**2.97E-02**	2.39E-02	1.39E-04	5.67E-03	2.53E-04	2.38E-05	5.40E-03	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.64E-02	**2.06E-02**	1.96E-02	3.03E-04	6.62E-04	5.48E-04	3.97E-05	5.18E-03	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	3.20E-01	**2.40E-01**	2.22E-01	4.99E-03	1.29E-02	9.05E-03	5.19E-04	6.92E-02	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	7.61E+01	**5.85E+01**	5.23E+01	2.13E+00	4.10E+00	3.85E+00	1.25E-01	1.33E+01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	8.09E+01	**5.93E+01**	4.92E+01	2.29E+00	7.74E+00	4.15E+00	1.44E-01	1.70E+01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.30E+01	**1.30E+01**	1.30E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	6.17E+00	**4.18E+00**	3.60E+00	2.87E-02	5.43E-01	5.20E-02	1.27E-02	1.93E+00	1.79E-03	0.00E+00	1.42E-03
RPR_M	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
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	7.35E-02	**6.49E-02**	5.35E-02	2.97E-04	1.11E-02	5.37E-04	2.86E-04	7.61E-03	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	3.61E-01	**3.61E-01**	0.00E+00	0.00E+00	3.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.99E-08	**2.77E-08**	1.50E-08	2.42E-11	1.26E-08	4.38E-11	5.81E-12	2.16E-09	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	4.19E-08	**2.99E-08**	2.08E-08	1.23E-10	8.94E-09	2.23E-10	3.00E-11	1.18E-08	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	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
Output flows												
Components for reuse	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
Materials for recycling	kg	6.22E-02	**6.22E-02**	0.00E+00	0.00E+00	6.22E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 9: Results for 1 kg of Backerseal system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.47E+00	**4.79E+00**	4.06E+00	1.53E-01	5.78E-01	2.78E-01	3.03E-03	3.78E-01	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	8.40E-08	**7.34E-08**	6.84E-08	2.46E-09	2.54E-09	4.47E-09	1.48E-09	4.34E-09	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	3.16E-02	**2.97E-02**	2.39E-02	1.39E-04	5.67E-03	2.53E-04	7.92E-06	1.64E-03	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.28E-02	**2.06E-02**	1.97E-02	3.03E-04	6.63E-04	5.48E-04	1.32E-05	1.58E-03	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.72E-01	**2.40E-01**	2.22E-01	4.99E-03	1.29E-02	9.05E-03	1.73E-04	2.11E-02	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	6.69E+01	**5.86E+01**	5.24E+01	2.13E+00	4.10E+00	3.85E+00	4.18E-02	4.05E+00	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	6.91E+01	**5.94E+01**	4.94E+01	2.29E+00	7.74E+00	4.15E+00	4.81E-02	5.18E+00	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.30E+01	**1.30E+01**	1.30E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	4.83E+00	**4.19E+00**	3.61E+00	2.87E-02	5.43E-01	5.20E-02	4.22E-03	5.87E-01	1.79E-03	0.00E+00	1.42E-03
RPR_M	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
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	6.81E-02	**6.50E-02**	5.36E-02	2.97E-04	1.11E-02	5.37E-04	9.53E-05	2.31E-03	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	3.61E-01	**3.61E-01**	0.00E+00	0.00E+00	3.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.84E-08	**2.77E-08**	1.50E-08	2.42E-11	1.26E-08	4.38E-11	1.94E-12	6.58E-10	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.37E-08	**2.99E-08**	2.08E-08	1.23E-10	8.94E-09	2.23E-10	9.98E-12	3.60E-09	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	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
Output flows												
Components for reuse	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
Materials for recycling	kg	6.22E-02	**6.22E-02**	0.00E+00	0.00E+00	6.22E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 10: Results for 1 kg of BEJS system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	1.11E+01	**1.07E+01**	5.23E+00	1.24E-01	5.38E+00	2.78E-01	4.99E-03	3.85E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.39E-03	**1.39E-03**	1.39E-03	1.98E-09	7.49E-08	4.47E-09	1.51E-09	4.42E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	4.26E-02	**4.21E-02**	2.11E-02	1.12E-04	2.10E-02	2.53E-04	9.70E-06	1.67E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.99E-02	**2.91E-02**	2.22E-02	2.44E-04	6.71E-03	5.48E-04	1.71E-05	1.60E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	4.35E-01	**4.22E-01**	2.88E-01	4.02E-03	1.30E-01	9.05E-03	2.37E-04	2.14E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	1.44E+02	**1.39E+02**	7.04E+01	1.71E+00	6.72E+01	3.85E+00	6.88E-02	4.12E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	1.81E+02	**1.76E+02**	7.16E+01	1.85E+00	1.02E+02	4.15E+00	7.73E-02	5.27E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.24E+01	**1.24E+01**	1.24E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	1.41E+01	**1.40E+01**	5.86E+00	2.31E-02	8.12E+00	5.20E-02	4.58E-03	5.97E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.16E-01	**1.16E-01**	0.00E+00	0.00E+00	1.16E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	1.13E-01	**1.12E-01**	7.06E-02	2.39E-04	4.07E-02	5.37E-04	9.91E-05	2.35E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	1.30E+00	**1.10E+00**	0.00E+00	0.00E+00	1.10E+00	0.00E+00	2.04E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	5.16E-08	**5.15E-08**	1.56E-08	1.95E-11	3.58E-08	4.38E-11	2.24E-12	6.70E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	1.44E-07	**1.44E-07**	2.51E-08	9.92E-11	1.18E-07	2.23E-10	1.16E-11	3.66E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	8.44E-03	**8.44E-03**	0.00E+00	0.00E+00	8.44E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	2.04E-01	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.04E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 11: Results for 1 kg of BEJS-on-a-Reel system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	1.19E+01	**1.15E+01**	5.69E+00	1.23E-01	5.68E+00	2.78E-01	5.47E-03	9.48E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	8.57E-04	**8.57E-04**	8.57E-04	1.97E-09	8.03E-08	4.47E-09	2.23E-09	1.09E-09	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	4.68E-02	**4.61E-02**	2.40E-02	1.11E-04	2.20E-02	2.53E-04	1.27E-05	4.12E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	3.11E-02	**3.01E-02**	2.39E-02	2.42E-04	5.92E-03	5.48E-04	2.17E-05	3.95E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	4.54E-01	**4.38E-01**	3.08E-01	3.99E-03	1.26E-01	9.05E-03	2.90E-04	5.28E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	1.54E+02	**1.49E+02**	7.52E+01	1.70E+00	7.21E+01	3.85E+00	7.55E-02	1.01E+00	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	1.98E+02	**1.93E+02**	7.99E+01	1.83E+00	1.11E+02	4.15E+00	8.61E-02	1.30E+00	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	9.36E+00	**9.36E+00**	9.36E+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
RPR_E	MJ	1.48E+01	**1.46E+01**	6.31E+00	2.29E-02	8.24E+00	5.20E-02	6.50E-03	1.47E-01	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	5.77E-02	**5.77E-02**	0.00E+00	0.00E+00	5.77E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	1.30E-01	**1.29E-01**	8.57E-02	2.37E-04	4.28E-02	5.37E-04	1.45E-04	5.80E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	1.33E+00	**1.23E+00**	0.00E+00	0.00E+00	1.23E+00	0.00E+00	9.67E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	5.63E-08	**5.61E-08**	1.61E-08	1.93E-11	3.99E-08	4.38E-11	3.05E-12	1.65E-10	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	1.60E-07	**1.58E-07**	2.69E-08	9.83E-11	1.31E-07	2.23E-10	1.57E-11	9.02E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	4.22E-03	**4.22E-03**	0.00E+00	0.00E+00	4.22E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	9.67E-02	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.67E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 12: Results for 1 kg of Chemseal system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	6.56E+00	**6.23E+00**	5.30E+00	1.37E-01	7.94E-01	2.78E-01	5.10E-03	2.76E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	4.30E-07	**4.23E-07**	4.13E-07	2.19E-09	7.64E-09	4.47E-09	1.51E-09	3.16E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	3.11E-02	**3.07E-02**	2.49E-02	1.24E-04	5.66E-03	2.53E-04	9.80E-06	1.20E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.50E-02	**2.43E-02**	2.19E-02	2.69E-04	2.06E-03	5.48E-04	1.73E-05	1.15E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	3.18E-01	**3.06E-01**	2.71E-01	4.44E-03	3.02E-02	9.05E-03	2.40E-04	1.53E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	8.89E+01	**8.44E+01**	7.50E+01	1.89E+00	7.50E+00	3.85E+00	7.04E-02	2.95E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	8.99E+01	**8.49E+01**	7.20E+01	2.04E+00	1.09E+01	4.15E+00	7.90E-02	3.77E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.61E+01	**1.61E+01**	1.61E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	6.31E+00	**6.21E+00**	4.95E+00	2.55E-02	1.24E+00	5.20E-02	4.60E-03	4.28E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.25E-01	**1.25E-01**	0.00E+00	0.00E+00	1.25E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	8.01E-02	**7.91E-02**	6.76E-02	2.64E-04	1.12E-02	5.37E-04	9.93E-05	1.69E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	4.80E-01	**2.65E-01**	0.00E+00	0.00E+00	2.65E-01	0.00E+00	2.16E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.56E-08	**2.55E-08**	1.59E-08	2.15E-11	9.58E-09	4.38E-11	2.26E-12	4.80E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.49E-08	**3.44E-08**	2.63E-08	1.10E-10	8.07E-09	2.23E-10	1.16E-11	2.62E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	9.15E-03	**9.15E-03**	0.00E+00	0.00E+00	9.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	2.61E-01	**4.56E-02**	0.00E+00	0.00E+00	4.56E-02	0.00E+00	2.16E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 13: Results for 1 kg of Colorseal-on-a-Reel system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	6.82E+00	**6.42E+00**	5.78E+00	1.26E-01	5.17E-01	2.78E-01	6.25E-03	9.75E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	9.07E-04	**9.07E-04**	9.07E-04	2.03E-09	3.61E-09	4.47E-09	2.24E-09	1.12E-09	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	3.01E-02	**2.94E-02**	2.45E-02	1.15E-04	4.75E-03	2.53E-04	1.34E-05	4.24E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.63E-02	**2.53E-02**	2.43E-02	2.49E-04	7.33E-04	5.48E-04	2.32E-05	4.07E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	3.46E-01	**3.30E-01**	3.13E-01	4.11E-03	1.30E-02	9.05E-03	3.15E-04	5.43E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	8.77E+01	**8.24E+01**	7.64E+01	1.75E+00	4.28E+00	3.85E+00	8.63E-02	1.04E+00	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	9.58E+01	**8.99E+01**	8.07E+01	1.89E+00	7.33E+00	4.15E+00	9.77E-02	1.34E+00	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	9.91E+00	**9.91E+00**	9.91E+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
RPR_E	MJ	7.14E+00	**6.92E+00**	6.35E+00	2.36E-02	5.53E-01	5.20E-02	6.65E-03	1.51E-01	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	6.11E-02	**6.11E-02**	0.00E+00	0.00E+00	6.11E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	9.44E-02	**9.29E-02**	8.32E-02	2.44E-04	9.44E-03	5.37E-04	1.46E-04	5.97E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	4.69E-01	**2.91E-01**	0.00E+00	0.00E+00	2.91E-01	0.00E+00	1.78E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.66E-08	**2.64E-08**	1.62E-08	1.99E-11	1.02E-08	4.38E-11	3.17E-12	1.70E-10	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.59E-08	**3.47E-08**	2.72E-08	1.01E-10	7.39E-09	2.23E-10	1.63E-11	9.28E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	4.46E-03	**4.46E-03**	0.00E+00	0.00E+00	4.46E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	2.28E-01	**5.01E-02**	0.00E+00	0.00E+00	5.01E-02	0.00E+00	1.78E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 14: Results for 1 kg of Colourseal VHE system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	6.29E+00	**5.95E+00**	5.08E+00	1.29E-01	7.32E-01	2.78E-01	4.37E-03	4.28E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.64E-03	**1.64E-03**	1.64E-03	2.07E-09	5.91E-09	4.47E-09	1.50E-09	4.91E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.71E-02	**2.66E-02**	2.08E-02	1.17E-04	5.69E-03	2.53E-04	9.14E-06	1.86E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.51E-02	**2.43E-02**	2.23E-02	2.54E-04	1.70E-03	5.48E-04	1.59E-05	1.78E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	3.31E-01	**3.18E-01**	2.88E-01	4.18E-03	2.58E-02	9.05E-03	2.17E-04	2.38E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	7.89E+01	**7.42E+01**	6.63E+01	1.78E+00	6.14E+00	3.85E+00	6.03E-02	4.58E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	8.52E+01	**8.01E+01**	6.87E+01	1.92E+00	9.52E+00	4.15E+00	6.81E-02	5.86E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.08E+01	**1.08E+01**	1.08E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	7.16E+00	**7.03E+00**	5.89E+00	2.40E-02	1.12E+00	5.20E-02	4.47E-03	6.65E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.36E-01	**1.36E-01**	0.00E+00	0.00E+00	1.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	8.19E-02	**8.09E-02**	6.95E-02	2.49E-04	1.11E-02	5.37E-04	9.79E-05	2.62E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	4.28E-01	**2.88E-01**	0.00E+00	0.00E+00	2.88E-01	0.00E+00	1.40E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.60E-08	**2.58E-08**	1.55E-08	2.03E-11	1.03E-08	4.38E-11	2.15E-12	7.45E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.32E-08	**3.26E-08**	2.43E-08	1.03E-10	8.21E-09	2.23E-10	1.11E-11	4.07E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	9.95E-03	**9.95E-03**	0.00E+00	0.00E+00	9.95E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	1.89E-01	**4.96E-02**	0.00E+00	0.00E+00	4.96E-02	0.00E+00	1.40E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 15: Results for 1 kg of DFR / WFR CE system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.77E+00	**5.46E+00**	4.56E+00	1.41E-01	7.57E-01	2.78E-01	4.39E-03	1.58E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	3.29E-07	**3.23E-07**	3.14E-07	2.26E-09	6.63E-09	4.47E-09	1.50E-09	1.81E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.93E-02	**2.89E-02**	2.31E-02	1.28E-04	5.73E-03	2.53E-04	9.16E-06	6.85E-05	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.28E-02	**2.21E-02**	2.00E-02	2.77E-04	1.81E-03	5.48E-04	1.59E-05	6.57E-05	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.82E-01	**2.71E-01**	2.39E-01	4.58E-03	2.72E-02	9.05E-03	2.17E-04	8.78E-04	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	7.63E+01	**7.19E+01**	6.32E+01	1.95E+00	6.70E+00	3.85E+00	6.06E-02	1.69E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.66E+01	**7.19E+01**	5.97E+01	2.10E+00	1.01E+01	4.15E+00	6.84E-02	2.16E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.51E+01	**1.51E+01**	1.51E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	5.46E+00	**5.38E+00**	4.20E+00	2.63E-02	1.15E+00	5.20E-02	4.47E-03	2.45E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.35E-01	**1.35E-01**	0.00E+00	0.00E+00	1.35E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	7.47E-02	**7.38E-02**	6.23E-02	2.72E-04	1.13E-02	5.37E-04	9.79E-05	9.64E-05	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	4.27E-01	**2.85E-01**	0.00E+00	0.00E+00	2.85E-01	0.00E+00	1.42E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.57E-08	**2.56E-08**	1.54E-08	2.22E-11	1.02E-08	4.38E-11	2.15E-12	2.74E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.19E-08	**3.15E-08**	2.31E-08	1.13E-10	8.27E-09	2.23E-10	1.11E-11	1.50E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	9.85E-03	**9.85E-03**	0.00E+00	0.00E+00	9.85E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	1.91E-01	**4.91E-02**	0.00E+00	0.00E+00	4.91E-02	0.00E+00	1.42E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 16: Results for 1 kg of DSF system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	6.56E+00	**6.23E+00**	5.31E+00	1.37E-01	7.90E-01	2.78E-01	5.38E-03	3.21E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	4.18E-07	**4.11E-07**	4.02E-07	2.20E-09	7.43E-09	4.47E-09	1.52E-09	3.69E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	3.12E-02	**3.08E-02**	2.50E-02	1.24E-04	5.69E-03	2.53E-04	1.01E-05	1.39E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.50E-02	**2.43E-02**	2.20E-02	2.70E-04	2.03E-03	5.48E-04	1.79E-05	1.34E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	3.18E-01	**3.06E-01**	2.72E-01	4.46E-03	2.98E-02	9.05E-03	2.49E-04	1.79E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	8.88E+01	**8.43E+01**	7.50E+01	1.90E+00	7.34E+00	3.85E+00	7.43E-02	3.44E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	8.97E+01	**8.47E+01**	7.20E+01	2.05E+00	1.07E+01	4.15E+00	8.32E-02	4.39E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.62E+01	**1.62E+01**	1.62E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	6.30E+00	**6.19E+00**	4.94E+00	2.56E-02	1.23E+00	5.20E-02	4.66E-03	4.98E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.27E-01	**1.27E-01**	0.00E+00	0.00E+00	1.27E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	7.97E-02	**7.86E-02**	6.71E-02	2.65E-04	1.13E-02	5.37E-04	9.98E-05	1.96E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	5.13E-01	**2.68E-01**	0.00E+00	0.00E+00	2.68E-01	0.00E+00	2.45E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.58E-08	**2.56E-08**	1.59E-08	2.16E-11	9.70E-09	4.38E-11	2.31E-12	5.59E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.50E-08	**3.45E-08**	2.63E-08	1.10E-10	8.11E-09	2.23E-10	1.19E-11	3.05E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	9.28E-03	**9.28E-03**	0.00E+00	0.00E+00	9.28E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	2.91E-01	**4.62E-02**	0.00E+00	0.00E+00	4.62E-02	0.00E+00	2.45E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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: Results for 1 kg of DSM system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	6.39E+00	**6.05E+00**	5.17E+00	1.27E-01	7.58E-01	2.78E-01	5.48E-03	4.25E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.53E-03	**1.53E-03**	1.53E-03	2.04E-09	6.34E-09	4.47E-09	1.52E-09	4.88E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.72E-02	**2.67E-02**	2.10E-02	1.15E-04	5.62E-03	2.53E-04	1.01E-05	1.85E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.53E-02	**2.45E-02**	2.23E-02	2.50E-04	1.91E-03	5.48E-04	1.81E-05	1.77E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	3.34E-01	**3.21E-01**	2.89E-01	4.13E-03	2.81E-02	9.05E-03	2.53E-04	2.37E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	8.14E+01	**7.68E+01**	6.85E+01	1.76E+00	6.52E+00	3.85E+00	7.57E-02	4.55E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	8.70E+01	**8.18E+01**	7.01E+01	1.90E+00	9.80E+00	4.15E+00	8.47E-02	5.82E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.17E+01	**1.17E+01**	1.17E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	7.23E+00	**7.10E+00**	5.88E+00	2.37E-02	1.20E+00	5.20E-02	4.67E-03	6.60E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.28E-01	**1.28E-01**	0.00E+00	0.00E+00	1.28E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	8.16E-02	**8.05E-02**	6.93E-02	2.45E-04	1.10E-02	5.37E-04	1.00E-04	2.60E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	5.25E-01	**2.70E-01**	0.00E+00	0.00E+00	2.70E-01	0.00E+00	2.55E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.54E-08	**2.53E-08**	1.56E-08	2.00E-11	9.72E-09	4.38E-11	2.32E-12	7.40E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.35E-08	**3.28E-08**	2.47E-08	1.02E-10	7.98E-09	2.23E-10	1.19E-11	4.04E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	9.33E-03	**9.33E-03**	0.00E+00	0.00E+00	9.33E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	3.02E-01	**4.65E-02**	0.00E+00	0.00E+00	4.65E-02	0.00E+00	2.55E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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: Results for 1 kg of DSM-DS system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	6.32E+00	**5.98E+00**	5.10E+00	1.24E-01	7.58E-01	2.78E-01	5.24E-03	3.82E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.23E-03	**1.23E-03**	1.23E-03	1.99E-09	6.34E-09	4.47E-09	1.51E-09	4.39E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.65E-02	**2.61E-02**	2.03E-02	1.13E-04	5.62E-03	2.53E-04	9.93E-06	1.66E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.45E-02	**2.37E-02**	2.15E-02	2.45E-04	1.91E-03	5.48E-04	1.76E-05	1.59E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	3.25E-01	**3.12E-01**	2.80E-01	4.04E-03	2.81E-02	9.05E-03	2.45E-04	2.13E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	8.11E+01	**7.65E+01**	6.83E+01	1.72E+00	6.52E+00	3.85E+00	7.24E-02	4.09E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	8.75E+01	**8.24E+01**	7.08E+01	1.85E+00	9.80E+00	4.15E+00	8.12E-02	5.23E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.07E+01	**1.07E+01**	1.07E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	7.19E+00	**7.07E+00**	5.84E+00	2.32E-02	1.20E+00	5.20E-02	4.63E-03	5.93E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.28E-01	**1.28E-01**	0.00E+00	0.00E+00	1.28E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	9.00E-02	**8.89E-02**	7.78E-02	2.40E-04	1.10E-02	5.37E-04	9.96E-05	2.34E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	5.00E-01	**2.70E-01**	0.00E+00	0.00E+00	2.70E-01	0.00E+00	2.31E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.54E-08	**2.53E-08**	1.56E-08	1.95E-11	9.72E-09	4.38E-11	2.29E-12	6.65E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.33E-08	**3.27E-08**	2.46E-08	9.96E-11	7.98E-09	2.23E-10	1.18E-11	3.64E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	9.33E-03	**9.33E-03**	0.00E+00	0.00E+00	9.33E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	2.77E-01	**4.65E-02**	0.00E+00	0.00E+00	4.65E-02	0.00E+00	2.31E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 19: Results for 1 kg of DSM-FP system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.48E+00	**5.17E+00**	4.62E+00	5.77E-02	4.98E-01	2.78E-01	4.77E-03	6.93E-03	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	2.42E-04	**2.42E-04**	2.42E-04	9.25E-10	6.48E-09	4.47E-09	1.51E-09	7.96E-11	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.26E-02	**2.23E-02**	1.99E-02	5.34E-05	2.35E-03	2.53E-04	9.50E-06	3.01E-05	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.04E-02	**1.98E-02**	1.77E-02	1.91E-04	1.90E-03	5.48E-04	1.67E-05	2.89E-05	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.73E-01	**2.62E-01**	2.34E-01	3.33E-03	2.49E-02	9.05E-03	2.30E-04	3.86E-04	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	7.03E+01	**6.60E+01**	5.94E+01	7.95E-01	5.80E+00	3.85E+00	6.59E-02	7.42E-02	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.38E+01	**6.92E+01**	6.13E+01	8.56E-01	7.03E+00	4.15E+00	7.41E-02	9.49E-02	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	9.75E+00	**9.75E+00**	9.75E+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
RPR_E	MJ	7.59E+00	**7.52E+00**	6.57E+00	1.05E-02	9.36E-01	5.20E-02	4.54E-03	1.08E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	3.42E-02	**3.42E-02**	0.00E+00	0.00E+00	3.42E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	5.33E-02	**5.25E-02**	4.75E-02	1.08E-04	4.85E-03	5.37E-04	9.86E-05	4.24E-05	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	2.24E-01	**4.25E-02**	0.00E+00	0.00E+00	4.25E-02	0.00E+00	1.82E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	1.76E-08	**1.75E-08**	1.56E-08	8.82E-12	1.85E-09	4.38E-11	2.21E-12	1.21E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	2.77E-08	**2.74E-08**	2.46E-08	4.49E-11	2.78E-09	2.23E-10	1.14E-11	6.60E-11	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	2.50E-03	**2.50E-03**	0.00E+00	0.00E+00	2.50E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	1.89E-01	**7.33E-03**	0.00E+00	0.00E+00	7.33E-03	0.00E+00	1.82E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 20: Results for 1 kg of Emshield DFR2 system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	6.04E+00	**5.72E+00**	4.79E+00	1.38E-01	7.99E-01	2.78E-01	5.01E-03	1.54E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	3.14E-07	**3.08E-07**	2.99E-07	2.21E-09	6.80E-09	4.47E-09	1.51E-09	1.76E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.96E-02	**2.93E-02**	2.34E-02	1.25E-04	5.70E-03	2.53E-04	9.72E-06	6.67E-05	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.35E-02	**2.28E-02**	2.04E-02	2.71E-04	2.14E-03	5.48E-04	1.71E-05	6.41E-05	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.94E-01	**2.82E-01**	2.47E-01	4.48E-03	3.10E-02	9.05E-03	2.37E-04	8.56E-04	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	8.12E+01	**7.68E+01**	6.80E+01	1.91E+00	6.95E+00	3.85E+00	6.92E-02	1.65E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	8.03E+01	**7.55E+01**	6.32E+01	2.06E+00	1.02E+01	4.15E+00	7.77E-02	2.10E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.68E+01	**1.68E+01**	1.68E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	5.75E+00	**5.67E+00**	4.33E+00	2.57E-02	1.31E+00	5.20E-02	4.59E-03	2.39E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.23E-01	**1.23E-01**	0.00E+00	0.00E+00	1.23E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	7.31E-02	**7.22E-02**	6.08E-02	2.66E-04	1.11E-02	5.37E-04	9.91E-05	9.40E-05	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	4.66E-01	**2.60E-01**	0.00E+00	0.00E+00	2.60E-01	0.00E+00	2.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.50E-08	**2.50E-08**	1.55E-08	2.17E-11	9.41E-09	4.38E-11	2.25E-12	2.67E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.27E-08	**3.23E-08**	2.42E-08	1.10E-10	7.96E-09	2.23E-10	1.16E-11	1.46E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	8.97E-03	**8.97E-03**	0.00E+00	0.00E+00	8.97E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	2.51E-01	**4.47E-02**	0.00E+00	0.00E+00	4.47E-02	0.00E+00	2.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 21: Results for 1 kg of Emshield DFR3 system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.13E+00	**4.82E+00**	4.38E+00	8.18E-02	3.58E-01	2.78E-01	3.97E-03	1.48E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.38E-06	**1.37E-06**	1.37E-06	1.31E-09	5.48E-09	4.47E-09	1.49E-09	1.69E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.02E-02	**1.98E-02**	1.77E-02	7.43E-05	2.07E-03	2.53E-04	8.77E-06	6.41E-05	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	1.97E-02	**1.90E-02**	1.78E-02	1.61E-04	1.05E-03	5.48E-04	1.51E-05	6.15E-05	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.57E-01	**2.46E-01**	2.29E-01	2.66E-03	1.40E-02	9.05E-03	2.03E-04	8.22E-04	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	6.82E+01	**6.38E+01**	5.78E+01	1.13E+00	4.87E+00	3.85E+00	5.48E-02	1.58E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.69E+01	**7.22E+01**	6.47E+01	1.22E+00	6.22E+00	4.15E+00	6.22E-02	2.02E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	4.55E+00	**4.55E+00**	4.55E+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
RPR_E	MJ	5.84E+00	**5.76E+00**	5.27E+00	1.53E-02	4.79E-01	5.20E-02	4.39E-03	2.29E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	3.97E-02	**3.97E-02**	0.00E+00	0.00E+00	3.97E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	1.14E-01	**1.13E-01**	1.08E-01	1.58E-04	4.71E-03	5.37E-04	9.71E-05	9.03E-05	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	1.82E-01	**8.39E-02**	0.00E+00	0.00E+00	8.39E-02	0.00E+00	9.80E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	1.83E-08	**1.82E-08**	1.51E-08	1.29E-11	3.10E-09	4.38E-11	2.08E-12	2.57E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	2.52E-08	**2.48E-08**	2.18E-08	6.57E-11	2.94E-09	2.23E-10	1.07E-11	1.40E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	2.90E-03	**2.90E-03**	0.00E+00	0.00E+00	2.90E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	1.12E-01	**1.44E-02**	0.00E+00	0.00E+00	1.44E-02	0.00E+00	9.80E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 22: Results for 1 kg of Emshield DFR-FP system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.29E+00	**4.99E+00**	4.40E+00	6.97E-02	5.24E-01	2.78E-01	4.51E-03	4.04E-03	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	2.32E-07	**2.25E-07**	2.18E-07	1.12E-09	6.48E-09	4.47E-09	1.50E-09	4.64E-11	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.30E-02	**2.27E-02**	1.98E-02	6.42E-05	2.76E-03	2.53E-04	9.27E-06	1.76E-05	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	1.99E-02	**1.92E-02**	1.72E-02	2.08E-04	1.85E-03	5.48E-04	1.62E-05	1.69E-05	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.62E-01	**2.51E-01**	2.23E-01	3.60E-03	2.46E-02	9.05E-03	2.21E-04	2.25E-04	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	7.00E+01	**6.58E+01**	5.89E+01	9.60E-01	5.88E+00	3.85E+00	6.23E-02	4.33E-02	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.11E+01	**6.65E+01**	5.81E+01	1.03E+00	7.40E+00	4.15E+00	7.03E-02	5.53E-02	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.21E+01	**1.21E+01**	1.21E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	6.63E+00	**6.56E+00**	5.61E+00	1.27E-02	9.40E-01	5.20E-02	4.49E-03	6.28E-03	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	4.86E-02	**4.86E-02**	0.00E+00	0.00E+00	4.86E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	5.48E-02	**5.39E-02**	4.81E-02	1.31E-04	5.65E-03	5.37E-04	9.81E-05	2.47E-05	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	2.30E-01	**7.54E-02**	0.00E+00	0.00E+00	7.54E-02	0.00E+00	1.55E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	1.85E-08	**1.84E-08**	1.54E-08	1.07E-11	2.98E-09	4.38E-11	2.17E-12	7.04E-12	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	2.72E-08	**2.69E-08**	2.34E-08	5.46E-11	3.48E-09	2.23E-10	1.12E-11	3.85E-11	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	3.55E-03	**3.55E-03**	0.00E+00	0.00E+00	3.55E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	1.68E-01	**1.30E-02**	0.00E+00	0.00E+00	1.30E-02	0.00E+00	1.55E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 23: Results for 1 kg of Emshield TFR-RWS system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.79E+00	**5.47E+00**	4.59E+00	1.40E-01	7.45E-01	2.78E-01	4.48E-03	1.57E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	3.20E-07	**3.13E-07**	3.05E-07	2.24E-09	6.07E-09	4.47E-09	1.50E-09	1.80E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.93E-02	**2.90E-02**	2.31E-02	1.27E-04	5.70E-03	2.53E-04	9.24E-06	6.82E-05	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.28E-02	**2.21E-02**	2.00E-02	2.75E-04	1.78E-03	5.48E-04	1.61E-05	6.55E-05	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.83E-01	**2.71E-01**	2.40E-01	4.54E-03	2.67E-02	9.05E-03	2.20E-04	8.75E-04	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	7.64E+01	**7.20E+01**	6.38E+01	1.94E+00	6.28E+00	3.85E+00	6.18E-02	1.68E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.65E+01	**7.18E+01**	6.00E+01	2.09E+00	9.65E+00	4.15E+00	6.98E-02	2.15E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.54E+01	**1.54E+01**	1.54E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	5.47E+00	**5.39E+00**	4.21E+00	2.61E-02	1.16E+00	5.20E-02	4.49E-03	2.44E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.34E-01	**1.34E-01**	0.00E+00	0.00E+00	1.34E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	7.41E-02	**7.32E-02**	6.18E-02	2.70E-04	1.11E-02	5.37E-04	9.81E-05	9.61E-05	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	4.34E-01	**2.83E-01**	0.00E+00	0.00E+00	2.83E-01	0.00E+00	1.51E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.56E-08	**2.56E-08**	1.54E-08	2.20E-11	1.02E-08	4.38E-11	2.17E-12	2.74E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.19E-08	**3.15E-08**	2.32E-08	1.12E-10	8.18E-09	2.23E-10	1.11E-11	1.50E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	9.80E-03	**9.80E-03**	0.00E+00	0.00E+00	9.80E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	2.00E-01	**4.88E-02**	0.00E+00	0.00E+00	4.88E-02	0.00E+00	1.51E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 24: Results for 1 kg of Emshield WFR1 system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.82E+00	**5.51E+00**	4.61E+00	1.39E-01	7.52E-01	2.78E-01	4.55E-03	1.56E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	3.18E-07	**3.12E-07**	3.03E-07	2.24E-09	6.16E-09	4.47E-09	1.50E-09	1.80E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.94E-02	**2.90E-02**	2.32E-02	1.27E-04	5.70E-03	2.53E-04	9.30E-06	6.80E-05	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.29E-02	**2.22E-02**	2.01E-02	2.75E-04	1.83E-03	5.48E-04	1.62E-05	6.52E-05	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.84E-01	**2.73E-01**	2.41E-01	4.54E-03	2.73E-02	9.05E-03	2.22E-04	8.72E-04	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	7.71E+01	**7.27E+01**	6.44E+01	1.93E+00	6.37E+00	3.85E+00	6.28E-02	1.68E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.70E+01	**7.23E+01**	6.04E+01	2.08E+00	9.73E+00	4.15E+00	7.08E-02	2.14E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.56E+01	**1.56E+01**	1.56E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	5.51E+00	**5.42E+00**	4.22E+00	2.61E-02	1.18E+00	5.20E-02	4.50E-03	2.43E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.33E-01	**1.33E-01**	0.00E+00	0.00E+00	1.33E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	7.39E-02	**7.30E-02**	6.17E-02	2.69E-04	1.11E-02	5.37E-04	9.82E-05	9.57E-05	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	4.39E-01	**2.80E-01**	0.00E+00	0.00E+00	2.80E-01	0.00E+00	1.59E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.56E-08	**2.55E-08**	1.54E-08	2.20E-11	1.01E-08	4.38E-11	2.18E-12	2.72E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.20E-08	**3.16E-08**	2.33E-08	1.12E-10	8.15E-09	2.23E-10	1.12E-11	1.49E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	9.69E-03	**9.69E-03**	0.00E+00	0.00E+00	9.69E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	2.07E-01	**4.83E-02**	0.00E+00	0.00E+00	4.83E-02	0.00E+00	1.59E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 25: Results for 1 kg of Emshield WFR2 system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.75E+00	**5.43E+00**	4.56E+00	1.40E-01	7.38E-01	2.78E-01	4.39E-03	1.58E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	3.15E-07	**3.09E-07**	3.00E-07	2.25E-09	5.94E-09	4.47E-09	1.50E-09	1.81E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.93E-02	**2.90E-02**	2.31E-02	1.27E-04	5.72E-03	2.53E-04	9.16E-06	6.86E-05	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.27E-02	**2.20E-02**	2.00E-02	2.77E-04	1.73E-03	5.48E-04	1.59E-05	6.59E-05	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.81E-01	**2.70E-01**	2.39E-01	4.57E-03	2.61E-02	9.05E-03	2.17E-04	8.80E-04	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	7.56E+01	**7.12E+01**	6.31E+01	1.95E+00	6.18E+00	3.85E+00	6.06E-02	1.69E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.59E+01	**7.11E+01**	5.95E+01	2.10E+00	9.57E+00	4.15E+00	6.85E-02	2.16E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.51E+01	**1.51E+01**	1.51E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	5.42E+00	**5.34E+00**	4.18E+00	2.62E-02	1.13E+00	5.20E-02	4.47E-03	2.45E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.37E-01	**1.37E-01**	0.00E+00	0.00E+00	1.37E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	7.40E-02	**7.31E-02**	6.17E-02	2.71E-04	1.11E-02	5.37E-04	9.79E-05	9.66E-05	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	4.31E-01	**2.89E-01**	0.00E+00	0.00E+00	2.89E-01	0.00E+00	1.42E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.58E-08	**2.57E-08**	1.53E-08	2.21E-11	1.03E-08	4.38E-11	2.15E-12	2.75E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.18E-08	**3.14E-08**	2.31E-08	1.13E-10	8.25E-09	2.23E-10	1.11E-11	1.50E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	9.98E-03	**9.98E-03**	0.00E+00	0.00E+00	9.98E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	1.92E-01	**4.97E-02**	0.00E+00	0.00E+00	4.97E-02	0.00E+00	1.42E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 26: Results for 1 kg of Emshield WFR3 system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.83E+00	**5.52E+00**	4.62E+00	1.40E-01	7.57E-01	2.78E-01	4.58E-03	1.25E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	3.11E-07	**3.04E-07**	2.96E-07	2.24E-09	6.20E-09	4.47E-09	1.50E-09	1.44E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.94E-02	**2.91E-02**	2.32E-02	1.27E-04	5.72E-03	2.53E-04	9.33E-06	5.43E-05	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.29E-02	**2.22E-02**	2.01E-02	2.75E-04	1.85E-03	5.48E-04	1.63E-05	5.21E-05	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.85E-01	**2.74E-01**	2.41E-01	4.54E-03	2.76E-02	9.05E-03	2.23E-04	6.96E-04	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	7.73E+01	**7.30E+01**	6.46E+01	1.94E+00	6.41E+00	3.85E+00	6.32E-02	1.34E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.71E+01	**7.24E+01**	6.06E+01	2.09E+00	9.78E+00	4.15E+00	7.13E-02	1.71E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.57E+01	**1.57E+01**	1.57E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	5.51E+00	**5.43E+00**	4.22E+00	2.61E-02	1.19E+00	5.20E-02	4.51E-03	1.94E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.33E-01	**1.33E-01**	0.00E+00	0.00E+00	1.33E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	7.36E-02	**7.27E-02**	6.13E-02	2.70E-04	1.11E-02	5.37E-04	9.83E-05	7.65E-05	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	4.42E-01	**2.80E-01**	0.00E+00	0.00E+00	2.80E-01	0.00E+00	1.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.56E-08	**2.55E-08**	1.54E-08	2.20E-11	1.01E-08	4.38E-11	2.18E-12	2.18E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.21E-08	**3.17E-08**	2.34E-08	1.12E-10	8.17E-09	2.23E-10	1.12E-11	1.19E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	9.69E-03	**9.69E-03**	0.00E+00	0.00E+00	9.69E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	2.10E-01	**4.83E-02**	0.00E+00	0.00E+00	4.83E-02	0.00E+00	1.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 27: Results for 1 kg of Horizontal Colorseal system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	6.51E+00	**6.17E+00**	5.26E+00	1.25E-01	7.87E-01	2.78E-01	6.62E-03	3.93E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.43E-03	**1.43E-03**	1.43E-03	2.01E-09	6.81E-09	4.47E-09	1.54E-09	4.51E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.74E-02	**2.69E-02**	2.12E-02	1.14E-04	5.57E-03	2.53E-04	1.12E-05	1.71E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.55E-02	**2.47E-02**	2.23E-02	2.47E-04	2.13E-03	5.48E-04	2.03E-05	1.64E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	3.37E-01	**3.25E-01**	2.90E-01	4.08E-03	3.07E-02	9.05E-03	2.90E-04	2.19E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	8.42E+01	**7.95E+01**	7.09E+01	1.74E+00	6.93E+00	3.85E+00	9.15E-02	4.21E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	8.88E+01	**8.37E+01**	7.17E+01	1.87E+00	1.01E+01	4.15E+00	1.02E-01	5.38E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.28E+01	**1.28E+01**	1.28E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	7.30E+00	**7.18E+00**	5.87E+00	2.35E-02	1.29E+00	5.20E-02	4.89E-03	6.10E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.19E-01	**1.19E-01**	0.00E+00	0.00E+00	1.19E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	8.11E-02	**8.01E-02**	6.90E-02	2.42E-04	1.09E-02	5.37E-04	1.02E-04	2.40E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	6.26E-01	**2.51E-01**	0.00E+00	0.00E+00	2.51E-01	0.00E+00	3.75E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.49E-08	**2.48E-08**	1.57E-08	1.98E-11	9.12E-09	4.38E-11	2.50E-12	6.84E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.37E-08	**3.31E-08**	2.53E-08	1.01E-10	7.76E-09	2.23E-10	1.29E-11	3.74E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	8.68E-03	**8.68E-03**	0.00E+00	0.00E+00	8.68E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	4.18E-01	**4.33E-02**	0.00E+00	0.00E+00	4.33E-02	0.00E+00	3.75E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 28: Results for 1 kg of Horizontal Colorseal-DS system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	6.45E+00	**6.11E+00**	5.20E+00	1.23E-01	7.87E-01	2.78E-01	8.66E-03	3.59E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.14E-03	**1.14E-03**	1.14E-03	1.97E-09	6.81E-09	4.47E-09	1.57E-09	4.12E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.67E-02	**2.63E-02**	2.06E-02	1.12E-04	5.57E-03	2.53E-04	1.30E-05	1.56E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.48E-02	**2.40E-02**	2.16E-02	2.42E-04	2.13E-03	5.48E-04	2.43E-05	1.49E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	3.29E-01	**3.16E-01**	2.82E-01	4.00E-03	3.07E-02	9.05E-03	3.56E-04	2.00E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	8.39E+01	**7.93E+01**	7.07E+01	1.70E+00	6.93E+00	3.85E+00	1.20E-01	3.84E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	8.93E+01	**8.42E+01**	7.23E+01	1.83E+00	1.01E+01	4.15E+00	1.32E-01	4.91E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.19E+01	**1.19E+01**	1.19E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	7.27E+00	**7.15E+00**	5.84E+00	2.30E-02	1.29E+00	5.20E-02	5.27E-03	5.57E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.19E-01	**1.19E-01**	0.00E+00	0.00E+00	1.19E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	8.89E-02	**8.79E-02**	7.68E-02	2.37E-04	1.09E-02	5.37E-04	1.06E-04	2.19E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	8.38E-01	**2.51E-01**	0.00E+00	0.00E+00	2.51E-01	0.00E+00	5.87E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.49E-08	**2.48E-08**	1.56E-08	1.93E-11	9.12E-09	4.38E-11	2.82E-12	6.24E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.36E-08	**3.30E-08**	2.51E-08	9.85E-11	7.76E-09	2.23E-10	1.45E-11	3.41E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	8.68E-03	**8.68E-03**	0.00E+00	0.00E+00	8.68E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	6.30E-01	**4.33E-02**	0.00E+00	0.00E+00	4.33E-02	0.00E+00	5.87E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 29: Results for 1 kg of Log Home Tape Classic

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	8.97E+00	**4.78E+00**	4.05E+00	1.53E-01	5.78E-01	2.78E-01	1.52E-02	3.88E+00	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.29E-07	**7.27E-08**	6.77E-08	2.46E-09	2.53E-09	4.47E-09	7.39E-09	4.46E-08	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	4.68E-02	**2.97E-02**	2.39E-02	1.39E-04	5.67E-03	2.53E-04	3.96E-05	1.69E-02	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	3.75E-02	**2.06E-02**	1.96E-02	3.03E-04	6.62E-04	5.48E-04	6.61E-05	1.62E-02	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	4.67E-01	**2.40E-01**	2.22E-01	4.99E-03	1.29E-02	9.05E-03	8.65E-04	2.16E-01	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	1.04E+02	**5.85E+01**	5.23E+01	2.13E+00	4.10E+00	3.85E+00	2.09E-01	4.16E+01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	1.17E+02	**5.93E+01**	4.92E+01	2.29E+00	7.74E+00	4.15E+00	2.41E-01	5.32E+01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.30E+01	**1.30E+01**	1.30E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	1.03E+01	**4.18E+00**	3.60E+00	2.87E-02	5.43E-01	5.20E-02	2.11E-02	6.03E+00	1.79E-03	0.00E+00	1.42E-03
RPR_M	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
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	8.99E-02	**6.49E-02**	5.35E-02	2.97E-04	1.11E-02	5.37E-04	4.76E-04	2.38E-02	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	3.61E-01	**3.61E-01**	0.00E+00	0.00E+00	3.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	3.45E-08	**2.77E-08**	1.50E-08	2.42E-11	1.26E-08	4.38E-11	9.68E-12	6.76E-09	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	6.71E-08	**2.99E-08**	2.08E-08	1.23E-10	8.94E-09	2.23E-10	4.99E-11	3.70E-08	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	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
Output flows												
Components for reuse	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
Materials for recycling	kg	6.22E-02	**6.22E-02**	0.00E+00	0.00E+00	6.22E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 30: Results for 1 kg of Log Home Tape Hi-Acrylic

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	6.52E+00	**4.79E+00**	4.06E+00	1.53E-01	5.78E-01	2.78E-01	1.52E-02	1.42E+00	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.02E-07	**7.34E-08**	6.84E-08	2.46E-09	2.53E-09	4.47E-09	7.39E-09	1.63E-08	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	3.62E-02	**2.97E-02**	2.39E-02	1.39E-04	5.67E-03	2.53E-04	3.96E-05	6.16E-03	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.72E-02	**2.06E-02**	1.97E-02	3.03E-04	6.62E-04	5.48E-04	6.61E-05	5.91E-03	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	3.30E-01	**2.40E-01**	2.22E-01	4.99E-03	1.29E-02	9.05E-03	8.65E-04	7.90E-02	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	7.82E+01	**5.86E+01**	5.24E+01	2.13E+00	4.10E+00	3.85E+00	2.09E-01	1.52E+01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	8.35E+01	**5.94E+01**	4.94E+01	2.29E+00	7.74E+00	4.15E+00	2.41E-01	1.94E+01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.30E+01	**1.30E+01**	1.30E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	6.46E+00	**4.19E+00**	3.61E+00	2.87E-02	5.43E-01	5.20E-02	2.11E-02	2.20E+00	1.79E-03	0.00E+00	1.42E-03
RPR_M	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
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	7.49E-02	**6.50E-02**	5.36E-02	2.97E-04	1.11E-02	5.37E-04	4.76E-04	8.68E-03	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	3.61E-01	**3.61E-01**	0.00E+00	0.00E+00	3.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	3.02E-08	**2.77E-08**	1.50E-08	2.42E-11	1.26E-08	4.38E-11	9.68E-12	2.47E-09	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	4.37E-08	**2.99E-08**	2.08E-08	1.23E-10	8.94E-09	2.23E-10	4.99E-11	1.35E-08	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	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
Output flows												
Components for reuse	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
Materials for recycling	kg	6.22E-02	**6.22E-02**	0.00E+00	0.00E+00	6.22E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 31: Results for 1 kg of MST Tape

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.55E+00	**4.79E+00**	4.06E+00	1.53E-01	5.78E-01	2.78E-01	9.09E-03	4.54E-01	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	8.78E-08	**7.34E-08**	6.84E-08	2.46E-09	2.53E-09	4.47E-09	4.43E-09	5.21E-09	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	3.20E-02	**2.97E-02**	2.39E-02	1.39E-04	5.67E-03	2.53E-04	2.38E-05	1.97E-03	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.32E-02	**2.06E-02**	1.97E-02	3.03E-04	6.62E-04	5.48E-04	3.97E-05	1.89E-03	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.76E-01	**2.40E-01**	2.22E-01	4.99E-03	1.29E-02	9.05E-03	5.19E-04	2.53E-02	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	6.78E+01	**5.86E+01**	5.24E+01	2.13E+00	4.10E+00	3.85E+00	1.25E-01	4.86E+00	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.03E+01	**5.94E+01**	4.94E+01	2.29E+00	7.74E+00	4.15E+00	1.44E-01	6.21E+00	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.30E+01	**1.30E+01**	1.30E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	4.96E+00	**4.19E+00**	3.61E+00	2.87E-02	5.43E-01	5.20E-02	1.27E-02	7.05E-01	1.79E-03	0.00E+00	1.42E-03
RPR_M	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
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	6.88E-02	**6.50E-02**	5.36E-02	2.97E-04	1.11E-02	5.37E-04	2.86E-04	2.78E-03	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	3.61E-01	**3.61E-01**	0.00E+00	0.00E+00	3.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.85E-08	**2.77E-08**	1.50E-08	2.42E-11	1.26E-08	4.38E-11	5.81E-12	7.90E-10	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.45E-08	**2.99E-08**	2.08E-08	1.23E-10	8.94E-09	2.23E-10	3.00E-11	4.32E-09	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	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
Output flows												
Components for reuse	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
Materials for recycling	kg	6.22E-02	**6.22E-02**	0.00E+00	0.00E+00	6.22E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 32: Results for 1 kg of QuietJoint system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.45E+00	**5.11E+00**	4.38E+00	1.32E-01	6.05E-01	2.78E-01	3.03E-03	4.33E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.05E-06	**1.04E-06**	1.04E-06	2.13E-09	3.65E-09	4.47E-09	1.48E-09	4.97E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.62E-02	**2.57E-02**	1.98E-02	1.20E-04	5.83E-03	2.53E-04	7.92E-06	1.88E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.05E-02	**1.97E-02**	1.87E-02	2.61E-04	7.75E-04	5.48E-04	1.32E-05	1.81E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.64E-01	**2.51E-01**	2.32E-01	4.31E-03	1.48E-02	9.05E-03	1.73E-04	2.41E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	6.78E+01	**6.32E+01**	5.69E+01	1.84E+00	4.40E+00	3.85E+00	4.18E-02	4.64E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.71E+01	**7.20E+01**	6.19E+01	1.98E+00	8.09E+00	4.15E+00	4.81E-02	5.93E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	6.19E+00	**6.19E+00**	6.19E+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
RPR_E	MJ	5.80E+00	**5.67E+00**	4.94E+00	2.47E-02	7.01E-01	5.20E-02	4.22E-03	6.73E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.24E-01	**1.24E-01**	0.00E+00	0.00E+00	1.24E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	1.08E-01	**1.07E-01**	9.53E-02	2.56E-04	1.13E-02	5.37E-04	9.53E-05	2.65E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	3.61E-01	**3.61E-01**	0.00E+00	0.00E+00	3.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.80E-08	**2.78E-08**	1.52E-08	2.09E-11	1.26E-08	4.38E-11	1.94E-12	7.54E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.16E-08	**3.09E-08**	2.18E-08	1.06E-10	9.04E-09	2.23E-10	9.98E-12	4.12E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	9.07E-03	**9.07E-03**	0.00E+00	0.00E+00	9.07E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	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
Materials for energy recovery	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
Exported energy	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 33: Results for 1 kg of SecuritySeal SSF2 system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.75E+00	**5.43E+00**	4.56E+00	1.46E-01	7.27E-01	2.78E-01	4.18E-03	1.76E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.13E-07	**1.06E-07**	9.80E-08	2.35E-09	6.08E-09	4.47E-09	1.50E-09	2.02E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	3.07E-02	**3.03E-02**	2.44E-02	1.33E-04	5.76E-03	2.53E-04	8.96E-06	7.63E-05	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.31E-02	**2.24E-02**	2.06E-02	2.88E-04	1.60E-03	5.48E-04	1.55E-05	7.33E-05	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.82E-01	**2.70E-01**	2.41E-01	4.76E-03	2.47E-02	9.05E-03	2.10E-04	9.79E-04	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	7.52E+01	**7.09E+01**	6.26E+01	2.03E+00	6.23E+00	3.85E+00	5.77E-02	1.88E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.44E+01	**6.97E+01**	5.78E+01	2.18E+00	9.70E+00	4.15E+00	6.53E-02	2.41E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.61E+01	**1.61E+01**	1.61E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	5.17E+00	**5.08E+00**	3.99E+00	2.73E-02	1.07E+00	5.20E-02	4.43E-03	2.73E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.42E-01	**1.42E-01**	0.00E+00	0.00E+00	1.42E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	6.63E-02	**6.53E-02**	5.38E-02	2.83E-04	1.13E-02	5.37E-04	9.75E-05	1.08E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	4.20E-01	**3.01E-01**	0.00E+00	0.00E+00	3.01E-01	0.00E+00	1.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.62E-08	**2.61E-08**	1.54E-08	2.30E-11	1.07E-08	4.38E-11	2.12E-12	3.06E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.21E-08	**3.17E-08**	2.31E-08	1.17E-10	8.44E-09	2.23E-10	1.09E-11	1.67E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	1.04E-02	**1.04E-02**	0.00E+00	0.00E+00	1.04E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	1.72E-01	**5.18E-02**	0.00E+00	0.00E+00	5.18E-02	0.00E+00	1.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 34: Results for 1 kg of SecuritySeal SSF3 system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.75E+00	**5.43E+00**	4.56E+00	1.46E-01	7.27E-01	2.78E-01	4.18E-03	1.76E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.13E-07	**1.06E-07**	9.80E-08	2.35E-09	6.08E-09	4.47E-09	1.50E-09	2.02E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	3.07E-02	**3.03E-02**	2.44E-02	1.33E-04	5.76E-03	2.53E-04	8.96E-06	7.63E-05	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.31E-02	**2.24E-02**	2.06E-02	2.88E-04	1.60E-03	5.48E-04	1.55E-05	7.33E-05	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.82E-01	**2.70E-01**	2.41E-01	4.76E-03	2.47E-02	9.05E-03	2.10E-04	9.79E-04	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	7.52E+01	**7.09E+01**	6.26E+01	2.03E+00	6.23E+00	3.85E+00	5.77E-02	1.88E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.44E+01	**6.97E+01**	5.78E+01	2.18E+00	9.70E+00	4.15E+00	6.53E-02	2.41E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.61E+01	**1.61E+01**	1.61E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	5.17E+00	**5.08E+00**	3.99E+00	2.73E-02	1.07E+00	5.20E-02	4.43E-03	2.73E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.42E-01	**1.42E-01**	0.00E+00	0.00E+00	1.42E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	6.63E-02	**6.53E-02**	5.38E-02	2.83E-04	1.13E-02	5.37E-04	9.75E-05	1.08E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	4.20E-01	**3.01E-01**	0.00E+00	0.00E+00	3.01E-01	0.00E+00	1.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.62E-08	**2.61E-08**	1.54E-08	2.30E-11	1.07E-08	4.38E-11	2.12E-12	3.06E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.21E-08	**3.17E-08**	2.31E-08	1.17E-10	8.44E-09	2.23E-10	1.09E-11	1.67E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	1.04E-02	**1.04E-02**	0.00E+00	0.00E+00	1.04E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	1.72E-01	**5.18E-02**	0.00E+00	0.00E+00	5.18E-02	0.00E+00	1.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 35: Results for 1 kg of SecuritySeal SSW2 system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.88E+00	**5.56E+00**	4.66E+00	1.45E-01	7.53E-01	2.78E-01	4.45E-03	1.72E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.20E-07	**1.13E-07**	1.04E-07	2.32E-09	6.51E-09	4.47E-09	1.50E-09	1.98E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	3.08E-02	**3.04E-02**	2.45E-02	1.31E-04	5.74E-03	2.53E-04	9.21E-06	7.48E-05	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.35E-02	**2.28E-02**	2.07E-02	2.85E-04	1.79E-03	5.48E-04	1.60E-05	7.18E-05	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.88E-01	**2.76E-01**	2.45E-01	4.71E-03	2.69E-02	9.05E-03	2.19E-04	9.58E-04	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	7.79E+01	**7.35E+01**	6.49E+01	2.00E+00	6.60E+00	3.85E+00	6.15E-02	1.84E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.65E+01	**7.18E+01**	5.96E+01	2.16E+00	1.00E+01	4.15E+00	6.94E-02	2.36E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.69E+01	**1.69E+01**	1.69E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	5.32E+00	**5.24E+00**	4.06E+00	2.70E-02	1.15E+00	5.20E-02	4.48E-03	2.67E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.36E-01	**1.36E-01**	0.00E+00	0.00E+00	1.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	6.62E-02	**6.53E-02**	5.37E-02	2.79E-04	1.13E-02	5.37E-04	9.80E-05	1.05E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	4.35E-01	**2.87E-01**	0.00E+00	0.00E+00	2.87E-01	0.00E+00	1.48E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.59E-08	**2.58E-08**	1.55E-08	2.28E-11	1.03E-08	4.38E-11	2.16E-12	3.00E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.24E-08	**3.20E-08**	2.36E-08	1.16E-10	8.29E-09	2.23E-10	1.11E-11	1.64E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	9.92E-03	**9.92E-03**	0.00E+00	0.00E+00	9.92E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	1.98E-01	**4.94E-02**	0.00E+00	0.00E+00	4.94E-02	0.00E+00	1.48E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 36: Results for 1 kg of Seismic Colorseal system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.78E+00	**5.42E+00**	4.70E+00	1.30E-01	5.91E-01	2.78E-01	3.32E-03	6.25E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.93E-03	**1.93E-03**	1.93E-03	2.09E-09	4.13E-09	4.47E-09	1.48E-09	7.17E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.58E-02	**2.53E-02**	1.96E-02	1.18E-04	5.58E-03	2.53E-04	8.19E-06	2.71E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.38E-02	**2.29E-02**	2.19E-02	2.56E-04	8.13E-04	5.48E-04	1.38E-05	2.61E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	3.13E-01	**2.99E-01**	2.80E-01	4.23E-03	1.51E-02	9.05E-03	1.82E-04	3.48E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	6.78E+01	**6.30E+01**	5.67E+01	1.80E+00	4.50E+00	3.85E+00	4.58E-02	6.69E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.81E+01	**7.27E+01**	6.27E+01	1.94E+00	8.02E+00	4.15E+00	5.25E-02	8.55E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	6.17E+00	**6.17E+00**	6.17E+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
RPR_E	MJ	6.83E+00	**6.67E+00**	5.92E+00	2.43E-02	7.28E-01	5.20E-02	4.27E-03	9.70E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.61E-01	**1.61E-01**	0.00E+00	0.00E+00	1.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	8.68E-02	**8.56E-02**	7.45E-02	2.51E-04	1.09E-02	5.37E-04	9.58E-05	3.82E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	3.70E-01	**3.40E-01**	0.00E+00	0.00E+00	3.40E-01	0.00E+00	3.05E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.73E-08	**2.71E-08**	1.52E-08	2.05E-11	1.19E-08	4.38E-11	1.98E-12	1.09E-10	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.17E-08	**3.08E-08**	2.21E-08	1.04E-10	8.59E-09	2.23E-10	1.02E-11	5.95E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	1.17E-02	**1.17E-02**	0.00E+00	0.00E+00	1.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	8.90E-02	**5.85E-02**	0.00E+00	0.00E+00	5.85E-02	0.00E+00	3.05E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 37: Results for 1 kg of Seismic Colorseal-DS system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.69E+00	**5.34E+00**	4.62E+00	1.26E-01	5.91E-01	2.78E-01	4.52E-03	5.18E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.55E-03	**1.55E-03**	1.55E-03	2.03E-09	4.13E-09	4.47E-09	1.50E-09	5.94E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.49E-02	**2.44E-02**	1.87E-02	1.15E-04	5.58E-03	2.53E-04	9.27E-06	2.25E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.28E-02	**2.19E-02**	2.09E-02	2.49E-04	8.13E-04	5.48E-04	1.62E-05	2.16E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	3.02E-01	**2.88E-01**	2.69E-01	4.11E-03	1.51E-02	9.05E-03	2.21E-04	2.88E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	6.74E+01	**6.26E+01**	5.64E+01	1.75E+00	4.50E+00	3.85E+00	6.24E-02	5.54E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.87E+01	**7.34E+01**	6.35E+01	1.89E+00	8.02E+00	4.15E+00	7.03E-02	7.09E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	4.95E+00	**4.95E+00**	4.95E+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
RPR_E	MJ	6.77E+00	**6.63E+00**	5.88E+00	2.36E-02	7.28E-01	5.20E-02	4.50E-03	8.04E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.61E-01	**1.61E-01**	0.00E+00	0.00E+00	1.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	9.73E-02	**9.62E-02**	8.51E-02	2.44E-04	1.09E-02	5.37E-04	9.81E-05	3.17E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	4.95E-01	**3.40E-01**	0.00E+00	0.00E+00	3.40E-01	0.00E+00	1.55E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.72E-08	**2.71E-08**	1.51E-08	1.99E-11	1.19E-08	4.38E-11	2.17E-12	9.01E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.14E-08	**3.06E-08**	2.20E-08	1.01E-10	8.59E-09	2.23E-10	1.12E-11	4.93E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	1.17E-02	**1.17E-02**	0.00E+00	0.00E+00	1.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	2.14E-01	**5.85E-02**	0.00E+00	0.00E+00	5.85E-02	0.00E+00	1.55E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 38: Results for 1 kg of SJS system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	1.07E+01	**1.04E+01**	9.96E+00	1.10E-01	2.86E-01	2.78E-01	3.86E-03	1.44E-03	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	2.02E-07	**1.96E-07**	1.92E-07	1.77E-09	2.55E-09	4.47E-09	1.49E-09	1.65E-11	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	4.39E-02	**4.37E-02**	4.16E-02	9.99E-05	1.92E-03	2.53E-04	8.68E-06	6.25E-06	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	6.27E-02	**6.21E-02**	6.10E-02	2.17E-04	8.36E-04	5.48E-04	1.49E-05	6.00E-06	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	6.05E-01	**5.95E-01**	5.79E-01	3.58E-03	1.18E-02	9.05E-03	2.00E-04	8.02E-05	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	1.12E+02	**1.08E+02**	1.03E+02	1.52E+00	2.57E+00	3.85E+00	5.33E-02	1.54E-02	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	1.24E+02	**1.19E+02**	1.14E+02	1.64E+00	3.65E+00	4.15E+00	6.06E-02	1.97E-02	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	6.38E+00	**6.38E+00**	6.38E+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
RPR_E	MJ	3.27E+01	**3.26E+01**	3.21E+01	2.06E-02	4.89E-01	5.20E-02	4.37E-03	2.24E-03	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	3.78E-02	**3.78E-02**	0.00E+00	0.00E+00	3.78E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	1.77E-01	**1.77E-01**	1.73E-01	2.13E-04	3.74E-03	5.37E-04	9.69E-05	8.81E-06	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	1.67E-01	**7.98E-02**	0.00E+00	0.00E+00	7.98E-02	0.00E+00	8.69E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.05E-08	**2.04E-08**	1.75E-08	1.73E-11	2.93E-09	4.38E-11	2.07E-12	2.51E-12	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.87E-08	**3.84E-08**	3.57E-08	8.82E-11	2.61E-09	2.23E-10	1.07E-11	1.37E-11	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	2.76E-03	**2.76E-03**	0.00E+00	0.00E+00	2.76E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	1.55E-01	**2.11E-02**	0.00E+00	0.00E+00	2.11E-02	0.00E+00	1.34E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 39: Results for 1 kg of SJS-FP system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	9.04E+00	**8.74E+00**	8.38E+00	8.84E-02	2.68E-01	2.78E-01	3.65E-03	1.66E-03	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.84E-07	**1.78E-07**	1.73E-07	1.42E-09	3.05E-09	4.47E-09	1.49E-09	1.91E-11	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	3.75E-02	**3.72E-02**	3.55E-02	8.06E-05	1.62E-03	2.53E-04	8.48E-06	7.23E-06	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	5.08E-02	**5.02E-02**	4.91E-02	2.04E-04	8.43E-04	5.48E-04	1.44E-05	6.94E-06	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	5.06E-01	**4.95E-01**	4.80E-01	3.43E-03	1.16E-02	9.05E-03	1.93E-04	9.27E-05	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	9.61E+01	**9.19E+01**	8.78E+01	1.22E+00	2.83E+00	3.85E+00	5.03E-02	1.78E-02	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	1.07E+02	**1.02E+02**	9.73E+01	1.32E+00	3.75E+00	4.15E+00	5.74E-02	2.28E-02	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	5.65E+00	**5.65E+00**	5.65E+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
RPR_E	MJ	2.61E+01	**2.61E+01**	2.56E+01	1.64E-02	4.56E-01	5.20E-02	4.33E-03	2.59E-03	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	3.34E-02	**3.34E-02**	0.00E+00	0.00E+00	3.34E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	1.42E-01	**1.42E-01**	1.38E-01	1.69E-04	3.25E-03	5.37E-04	9.65E-05	1.02E-05	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	1.24E-01	**5.93E-02**	0.00E+00	0.00E+00	5.93E-02	0.00E+00	6.46E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	1.92E-08	**1.91E-08**	1.69E-08	1.38E-11	2.22E-09	4.38E-11	2.03E-12	2.90E-12	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.47E-08	**3.44E-08**	3.22E-08	7.04E-11	2.16E-09	2.23E-10	1.05E-11	1.58E-11	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	2.44E-03	**2.44E-03**	0.00E+00	0.00E+00	2.44E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	1.01E-01	**1.38E-02**	0.00E+00	0.00E+00	1.38E-02	0.00E+00	8.73E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 40: Results for 1 kg of SJS-FR system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	9.89E+00	**9.59E+00**	9.13E+00	1.17E-01	3.37E-01	2.78E-01	3.72E-03	1.86E-03	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	2.34E-07	**2.28E-07**	2.23E-07	1.88E-09	2.82E-09	4.47E-09	1.49E-09	2.14E-11	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	4.15E-02	**4.13E-02**	3.86E-02	1.06E-04	2.54E-03	2.53E-04	8.55E-06	8.09E-06	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	5.44E-02	**5.38E-02**	5.27E-02	2.30E-04	8.31E-04	5.48E-04	1.46E-05	7.76E-06	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	5.49E-01	**5.39E-01**	5.22E-01	3.80E-03	1.23E-02	9.05E-03	1.95E-04	1.04E-04	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	1.10E+02	**1.06E+02**	1.01E+02	1.62E+00	2.90E+00	3.85E+00	5.13E-02	1.99E-02	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	1.19E+02	**1.14E+02**	1.08E+02	1.75E+00	4.39E+00	4.15E+00	5.84E-02	2.55E-02	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	9.76E+00	**9.76E+00**	9.76E+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
RPR_E	MJ	2.65E+01	**2.64E+01**	2.58E+01	2.18E-02	5.28E-01	5.20E-02	4.35E-03	2.89E-03	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	5.86E-02	**5.86E-02**	0.00E+00	0.00E+00	5.86E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	1.55E-01	**1.54E-01**	1.49E-01	2.26E-04	4.94E-03	5.37E-04	9.66E-05	1.14E-05	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	1.96E-01	**1.24E-01**	0.00E+00	0.00E+00	1.24E-01	0.00E+00	7.19E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.18E-08	**2.18E-08**	1.73E-08	1.84E-11	4.45E-09	4.38E-11	2.05E-12	3.24E-12	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.84E-08	**3.82E-08**	3.44E-08	9.38E-11	3.62E-09	2.23E-10	1.05E-11	1.77E-11	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	4.28E-03	**4.28E-03**	0.00E+00	0.00E+00	4.28E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	1.31E-01	**3.00E-02**	0.00E+00	0.00E+00	3.00E-02	0.00E+00	1.01E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 41: Results for 1 kg of SJS-FP-FR system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	8.50E+00	**8.20E+00**	7.82E+00	9.20E-02	2.94E-01	2.78E-01	3.54E-03	1.14E-03	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	2.03E-07	**1.97E-07**	1.92E-07	1.48E-09	3.02E-09	4.47E-09	1.49E-09	1.31E-11	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	3.59E-02	**3.56E-02**	3.35E-02	8.39E-05	2.02E-03	2.53E-04	8.38E-06	4.96E-06	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	4.46E-02	**4.40E-02**	4.30E-02	2.06E-04	7.92E-04	5.48E-04	1.42E-05	4.76E-06	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	4.66E-01	**4.56E-01**	4.41E-01	3.45E-03	1.14E-02	9.05E-03	1.89E-04	6.36E-05	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	9.48E+01	**9.06E+01**	8.64E+01	1.27E+00	2.88E+00	3.85E+00	4.88E-02	1.22E-02	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	1.03E+02	**9.89E+01**	9.35E+01	1.37E+00	4.08E+00	4.15E+00	5.57E-02	1.56E-02	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	7.92E+00	**7.92E+00**	7.92E+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
RPR_E	MJ	2.16E+01	**2.15E+01**	2.11E+01	1.71E-02	4.64E-01	5.20E-02	4.31E-03	1.77E-03	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	4.75E-02	**4.75E-02**	0.00E+00	0.00E+00	4.75E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	1.25E-01	**1.24E-01**	1.20E-01	1.77E-04	4.02E-03	5.37E-04	9.63E-05	6.99E-06	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	1.44E-01	**9.10E-02**	0.00E+00	0.00E+00	9.10E-02	0.00E+00	5.28E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.02E-08	**2.02E-08**	1.69E-08	1.44E-11	3.31E-09	4.38E-11	2.02E-12	1.99E-12	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.47E-08	**3.45E-08**	3.15E-08	7.34E-11	2.84E-09	2.23E-10	1.04E-11	1.09E-11	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	3.47E-03	**3.47E-03**	0.00E+00	0.00E+00	3.47E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	8.97E-02	**2.05E-02**	0.00E+00	0.00E+00	2.05E-02	0.00E+00	6.92E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 42: Results for 1 kg of Submerseal system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	6.60E+00	**6.28E+00**	5.34E+00	1.37E-01	8.03E-01	2.78E-01	5.71E-03	2.74E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	4.16E-07	**4.09E-07**	3.99E-07	2.19E-09	7.60E-09	4.47E-09	1.52E-09	3.15E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	3.12E-02	**3.08E-02**	2.50E-02	1.24E-04	5.69E-03	2.53E-04	1.04E-05	1.19E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.51E-02	**2.44E-02**	2.20E-02	2.69E-04	2.11E-03	5.48E-04	1.85E-05	1.14E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	3.20E-01	**3.08E-01**	2.73E-01	4.44E-03	3.08E-02	9.05E-03	2.60E-04	1.53E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	8.97E+01	**8.52E+01**	7.58E+01	1.89E+00	7.49E+00	3.85E+00	7.89E-02	2.94E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	9.03E+01	**8.54E+01**	7.25E+01	2.04E+00	1.08E+01	4.15E+00	8.81E-02	3.75E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.65E+01	**1.65E+01**	1.65E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	6.35E+00	**6.25E+00**	4.95E+00	2.55E-02	1.27E+00	5.20E-02	4.72E-03	4.26E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	1.24E-01	**1.24E-01**	0.00E+00	0.00E+00	1.24E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	7.93E-02	**7.83E-02**	6.68E-02	2.64E-04	1.13E-02	5.37E-04	1.00E-04	1.68E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	5.42E-01	**2.63E-01**	0.00E+00	0.00E+00	2.63E-01	0.00E+00	2.79E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	2.56E-08	**2.55E-08**	1.60E-08	2.15E-11	9.52E-09	4.38E-11	2.36E-12	4.77E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.51E-08	**3.46E-08**	2.64E-08	1.10E-10	8.06E-09	2.23E-10	1.21E-11	2.61E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	9.08E-03	**9.08E-03**	0.00E+00	0.00E+00	9.08E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	kg	3.25E-01	**4.52E-02**	0.00E+00	0.00E+00	4.52E-02	0.00E+00	2.79E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	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
Exported energy	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 43: Results for 1 kg of BG (Below Grade) system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.45E+00	**5.08E+00**	5.02E+00	1.58E-02	4.94E-02	2.78E-01	4.55E-03	6.30E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	4.05E-07	**3.97E-07**	3.95E-07	2.53E-10	1.51E-09	4.47E-09	2.22E-09	7.24E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.24E-02	**2.18E-02**	2.17E-02	1.43E-05	1.30E-04	2.53E-04	1.19E-05	2.74E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.09E-02	**2.00E-02**	1.98E-02	3.11E-05	1.74E-04	5.48E-04	1.98E-05	2.63E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.72E-01	**2.57E-01**	2.55E-01	5.13E-04	2.25E-03	9.05E-03	2.59E-04	3.51E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	6.67E+01	**6.18E+01**	6.05E+01	2.18E-01	1.14E+00	3.85E+00	6.26E-02	6.75E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.38E+01	**6.84E+01**	6.69E+01	2.35E-01	1.28E+00	4.15E+00	7.22E-02	8.63E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	5.80E+00	**5.80E+00**	5.80E+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
RPR_E	MJ	9.15E+00	**8.99E+00**	8.94E+00	2.95E-03	5.20E-02	5.20E-02	6.33E-03	9.79E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	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
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	5.19E-02	**5.07E-02**	4.99E-02	3.05E-05	7.29E-04	5.37E-04	1.43E-04	3.86E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	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
High-level radioactive waste	m^3	1.65E-08	**1.63E-08**	1.63E-08	2.48E-12	3.62E-11	4.38E-11	2.91E-12	1.10E-10	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	2.83E-08	**2.75E-08**	2.73E-08	1.26E-11	2.04E-10	2.23E-10	1.50E-11	6.00E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	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
Output flows												
Components for reuse	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
Materials for recycling	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
Materials for energy recovery	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
Exported energy	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 44: Results for 1 kg of Emcrete (Elastomeric Header) system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.87E+00	**5.57E+00**	5.30E+00	1.53E-02	2.58E-01	2.78E-01	0.00E+00	0.00E+00	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.34E-07	**1.29E-07**	1.23E-07	2.46E-10	5.94E-09	4.47E-09	0.00E+00	0.00E+00	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.24E-02	**2.22E-02**	2.13E-02	1.39E-05	8.03E-04	2.53E-04	0.00E+00	0.00E+00	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.59E-02	**2.53E-02**	2.43E-02	3.03E-05	9.98E-04	5.48E-04	0.00E+00	0.00E+00	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	3.58E-01	**3.47E-01**	3.34E-01	4.99E-04	1.28E-02	9.05E-03	0.00E+00	0.00E+00	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	8.28E+01	**7.87E+01**	7.37E+01	2.13E-01	4.74E+00	3.85E+00	0.00E+00	0.00E+00	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	9.77E+01	**9.33E+01**	8.77E+01	2.29E-01	5.33E+00	4.15E+00	0.00E+00	0.00E+00	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	8.62E-01	**8.62E-01**	8.62E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR_E	MJ	5.10E+00	**5.04E+00**	4.67E+00	2.87E-03	3.64E-01	5.20E-02	0.00E+00	0.00E+00	1.79E-03	0.00E+00	1.42E-03
RPR_M	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
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	5.62E-02	**5.54E-02**	5.32E-02	2.97E-05	2.16E-03	5.37E-04	0.00E+00	0.00E+00	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	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
High-level radioactive waste	m^3	1.69E-08	**1.69E-08**	1.67E-08	2.42E-12	1.95E-10	4.38E-11	0.00E+00	0.00E+00	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.39E-08	**3.37E-08**	3.27E-08	1.23E-11	1.01E-09	2.23E-10	0.00E+00	0.00E+00	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	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
Output flows												
Components for reuse	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
Materials for recycling	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
Materials for energy recovery	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
Exported energy	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 45: Results for 1 kg of Migutan FP (Plaza Decks) system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	4.71E+00	**4.41E+00**	4.18E+00	3.71E-02	1.90E-01	2.78E-01	6.06E-03	6.03E-03	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	4.35E-07	**4.27E-07**	4.22E-07	5.83E-10	4.33E-09	4.47E-09	2.96E-09	6.93E-11	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	1.83E-02	**1.80E-02**	1.73E-02	3.82E-05	6.34E-04	2.53E-04	1.58E-05	2.62E-05	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.08E-02	**2.01E-02**	1.89E-02	4.27E-04	7.44E-04	5.48E-04	2.65E-05	2.51E-05	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.35E-01	**2.24E-01**	2.06E-01	7.87E-03	9.67E-03	9.05E-03	3.46E-04	3.36E-04	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	6.21E+01	**5.78E+01**	5.40E+01	4.87E-01	3.32E+00	3.85E+00	8.35E-02	6.46E-02	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	6.53E+01	**6.07E+01**	5.64E+01	5.24E-01	3.75E+00	4.15E+00	9.63E-02	8.26E-02	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	7.89E+00	**7.89E+00**	7.89E+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
RPR_E	MJ	8.43E+00	**8.35E+00**	8.03E+00	5.44E-03	3.15E-01	5.20E-02	8.43E-03	9.37E-03	1.79E-03	0.00E+00	1.42E-03
RPR_M	MJ	3.29E-02	**3.29E-02**	0.00E+00	0.00E+00	3.29E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	5.83E-02	**5.74E-02**	5.55E-02	5.57E-05	1.83E-03	5.37E-04	1.91E-04	3.69E-05	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	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
High-level radioactive waste	m^3	1.50E-08	**1.49E-08**	1.48E-08	4.55E-12	1.47E-10	4.38E-11	3.87E-12	1.05E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	2.24E-08	**2.20E-08**	2.13E-08	2.33E-11	7.62E-10	2.23E-10	2.00E-11	5.74E-11	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	2.40E-03	**2.40E-03**	0.00E+00	0.00E+00	2.40E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Output flows												
Components for reuse	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
Materials for recycling	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
Materials for energy recovery	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
Exported energy	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 46: Results for 1 kg of RoofJoint System (Roof) system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.53E+00	**5.17E+00**	5.11E+00	1.55E-02	3.99E-02	2.78E-01	4.55E-03	6.43E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	4.19E-07	**4.11E-07**	4.09E-07	2.49E-10	1.23E-09	4.47E-09	2.22E-09	7.39E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.27E-02	**2.22E-02**	2.21E-02	1.41E-05	1.04E-04	2.53E-04	1.19E-05	2.79E-04	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.14E-02	**2.05E-02**	2.03E-02	3.06E-05	1.39E-04	5.48E-04	1.98E-05	2.68E-04	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	2.76E-01	**2.62E-01**	2.60E-01	5.05E-04	1.78E-03	9.05E-03	2.59E-04	3.58E-03	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	6.79E+01	**6.30E+01**	6.19E+01	2.15E-01	9.25E-01	3.85E+00	6.26E-02	6.89E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	7.50E+01	**6.95E+01**	6.83E+01	2.32E-01	1.03E+00	4.15E+00	7.22E-02	8.81E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	6.01E+00	**6.01E+00**	6.01E+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
RPR_E	MJ	9.43E+00	**9.26E+00**	9.22E+00	2.90E-03	4.24E-02	5.20E-02	6.33E-03	9.99E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	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
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	5.30E-02	**5.17E-02**	5.11E-02	3.00E-05	6.43E-04	5.37E-04	1.43E-04	3.94E-04	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	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
High-level radioactive waste	m^3	1.66E-08	**1.64E-08**	1.64E-08	2.45E-12	2.84E-11	4.38E-11	2.91E-12	1.12E-10	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	2.88E-08	**2.80E-08**	2.78E-08	1.25E-11	1.61E-10	2.23E-10	1.50E-11	6.12E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	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
Output flows												
Components for reuse	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
Materials for recycling	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
Materials for energy recovery	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
Exported energy	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 47: Results for 1 kg of Thermaflex (Parking Decks) system

Indicators	Units	TOTAL	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4
Environmental indicators												
Global warming potential	kg CO_2 eq.	5.35E+00	**5.03E+00**	4.66E+00	1.85E-02	3.56E-01	2.78E-01	4.55E-03	1.60E-02	9.59E-03	0.00E+00	6.26E-03
Ozone depletion potential	kg CFC-11 eq.	1.23E-07	**1.16E-07**	1.07E-07	2.97E-10	8.16E-09	4.47E-09	2.22E-09	1.83E-10	1.54E-10	0.00E+00	1.93E-10
Eutrophication potential	kg N eq.	2.06E-02	**2.03E-02**	1.91E-02	1.68E-05	1.11E-03	2.53E-04	1.19E-05	6.93E-05	8.71E-06	0.00E+00	7.49E-06
Acidification potential	kg SO_2 eq.	2.32E-02	**2.25E-02**	2.17E-02	3.65E-05	8.29E-04	5.48E-04	1.98E-05	6.66E-05	1.89E-05	0.00E+00	4.00E-05
Smog formation potential	kg O_3 eq.	3.25E-01	**3.13E-01**	3.01E-01	6.03E-04	1.21E-02	9.05E-03	2.59E-04	8.89E-04	3.12E-04	0.00E+00	1.07E-03
Abiotic depletion potential, fossil	MJ	7.36E+01	**6.92E+01**	6.24E+01	2.57E-01	6.55E+00	3.85E+00	6.26E-02	1.71E-01	1.33E-01	0.00E+00	1.52E-01
Resource use												
$NRPR_E$	MJ	8.73E+01	**8.26E+01**	7.41E+01	2.77E-01	8.22E+00	4.15E+00	7.22E-02	2.19E-01	1.43E-01	0.00E+00	1.63E-01
$NRPR_M$	MJ	1.33E+00	**1.33E+00**	1.33E+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
RPR_E	MJ	4.40E+00	**4.31E+00**	3.89E+00	3.46E-03	4.18E-01	5.20E-02	6.33E-03	2.48E-02	1.79E-03	0.00E+00	1.42E-03
RPR_M	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
Recovered energy	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
Secondary materials	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
Renewable secondary fuels	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
Non-renewable secondary fuels	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
Water consumption	m3	4.92E-02	**4.82E-02**	4.53E-02	3.58E-05	2.89E-03	5.37E-04	1.43E-04	9.77E-05	1.85E-05	0.00E+00	1.60E-04
Waste and output flows												
Hazardous waste disposed	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
Non-hazardous waste disposed	kg	3.73E-02	**3.73E-02**	0.00E+00	0.00E+00	3.73E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
High-level radioactive waste	m^3	1.73E-08	**1.72E-08**	1.59E-08	2.92E-12	1.33E-09	4.38E-11	2.91E-12	2.78E-11	1.51E-12	0.00E+00	1.27E-12
Interm./low-level radioactive waste	m^3	3.29E-08	**3.25E-08**	2.78E-08	1.49E-11	4.69E-09	2.23E-10	1.50E-11	1.52E-10	7.69E-12	0.00E+00	6.79E-12
Biogenic carbon												
Biogenic carbon content in product	kg C	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
Biogenic carbon content in accompanying packaging	kg C	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
Output flows												
Components for reuse	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
Materials for recycling	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
Materials for energy recovery	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
Exported energy	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

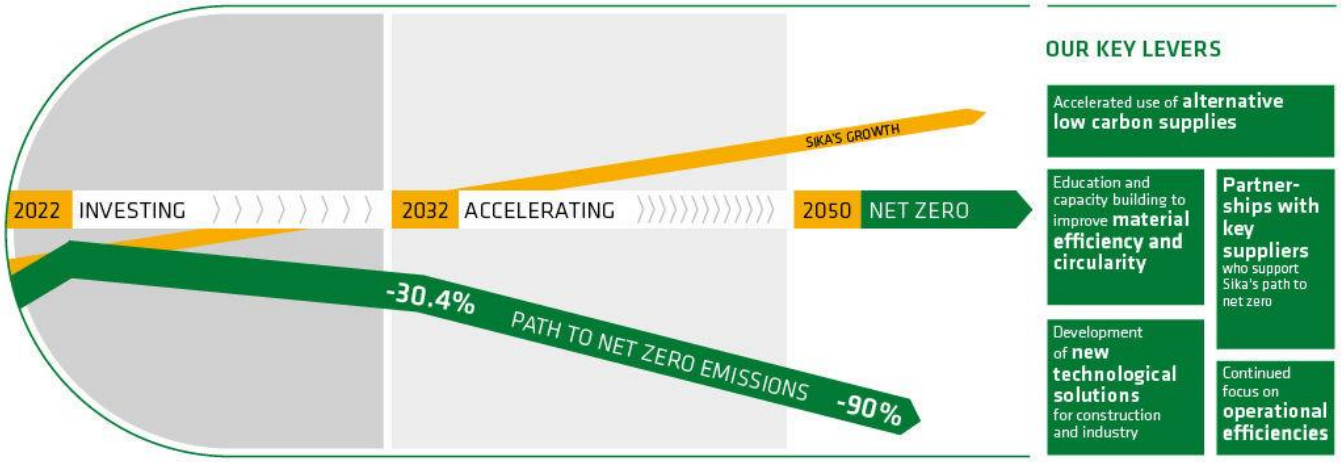
5. Additional environmental information

This section provides additional relevant environmental information not derived from the LCA.

Sika's Commitment to sustainability

Providing long lasting and high-performance solutions to the benefit of our customers, Sika is committed to pioneering sustainable solutions that are safer, have the lowest impact on resources and address global environmental challenges. Therefore, Sika assumes the responsibility to provide sustainable solutions to improve material, water and energy efficiency in construction and transportation. Sika strives to create more value for all its stakeholders with its products, systems and solutions along the whole value chain and throughout the entire life span of its products. In 2023, Sika launched its new strategy for the upcoming five years. **Strategy 2028** lays out ambitious financial targets and non-financial objectives, marking a continued commitment to excellence and expansion. The strategy is based on four key pillars: Market Penetration, Innovation & Sustainability, Acquisitions, People & Culture. It is aligned with eight megatrends that are transforming the industry and driving Sika's continuous success.

Sika is committed to reach **net-zero** no later than 2050. Sika commits to report annually on its progress towards meeting these targets (see figure below). Sika also acknowledges that the latest climate science may change and is committed to reviewing all active targets every 5 years to ensure consistency with the latest Science Based Targets Initiative (SBTi) criteria.



On the perspective of reducing the environmental impacts of their products, some components studied in the present document present a biobased carbon content, measured in accordance with ASTM D6866-24.

SPM | Sustainability Portfolio Management

Sika is the 1st company within the specialty chemicals and building materials sector to develop and implement the **Sustainability Portfolio Management (SPM)** Concept based on the World Business Council of Sustainable Development framework. The SPM evaluates solutions based on 12 sustainability and 6 performance categories. SPM is used to classify, and market sustainable solutions.

Within this commitment, Sika Emseal plays a key role by engineering expansion joint solutions with the **lowest total cost of ownership**. Sika Emseal products are intentionally designed for long-term durability and reliable performance, reducing the need for frequent replacements and minimizing both material use and lifecycle environmental impact.

Emissions of dangerous substances

No regulated substances of very high concern are identified as being contained by the products under study.

6. GLOSSARY

6.1. Acronyms

AP	Acidification potential
ASTM	American Society for Testing and Materials
EP	Eutrophication potential
GHG	Greenhouse gas
GWP	Global warming potential
ISO	International Organization for Standardization
kg C	Kilogram of carbon
kg CFC-11 eq.	Kilogram of trichlorofluoromethane equivalent
kg CO_2 eq.	Kilogram of carbon dioxide equivalent
kg N eq.	Kilogram of nitrogen equivalent
kg O_3 eq.	Kilogram of ozone equivalent
kg SO_2 eq.	Kilogram of sulphur dioxide equivalent
L	litre
LCA	Life cycle assessment
LEED	Leadership in Energy and Environmental Design
LHV	Lower heating value
MJ	Megajoule
m^3	Cubic metre
$NRPR_E$	Non-renewable primary resources used as an energy carrier (fuel)
$NRPR_M$	Non-renewable primary resources with energy content used as materials
ODP	Ozone depletion potential
PCR	Product category rules
POCP	Photochemical ozone (smog) creation potential
RPR_E	Renewable primary resources used as an energy carrier (fuel)
RPR_M	Renewable primary resources with energy content used as materials
VOC	Volatile organic compound

6.2. Environmental impact categories and parameters assessed

The **acidification potential** refers to the change in acidity (i.e., reduction in pH) in soil and water due to human activity. The increase in NO_x and SO_2 emissions generated by the transportation, manufacturing and energy sectors are the main causes of this impact category. The acidification of land and water has multiple consequences: degradation of aquatic and terrestrial ecosystems, endangering numerous species and food security. The concentration of the gases responsible for the acidification is expressed in sulphur dioxide equivalents (**kg SO_2 equivalent**).

The **eutrophication potential** measures the enrichment of an aquatic or terrestrial ecosystem due to the release of nutrients (e.g., nitrates, phosphates) resulting from natural or human activity (e.g., the discharge of wastewater into watercourses). In an aquatic environment, this activity results in the growth of algae which consume dissolved oxygen present in water when they degrade and thus affect species sensitive to the concentration of dissolved oxygen. Also, the increase in nutrients in soils makes it difficult for the terrestrial environment to manage the excess of biomass produced. The concentration of nutrients causing this impact is expressed in nitrogen equivalents (**kg N equivalent**).

Net freshwater consumption accounts for the imbalance in the natural water cycle created by the water evaporated, consumed by a system or released to a different watershed (i.e., not its original source). This imbalance can cause water scarcity and affect biodiversity. This indicator refers to the waste of the resource rather than its pollution. Also, it does not refer to water that is used but returned to the original source (e.g., water for hydroelectric turbines, cooling or river transportation) or lost from a natural system (e.g., due to evaporation of rainwater). The quantity of fresh water consumed is expressed as a volume of water in metre cube (**m^3 of water consumed**).

The **global warming potential** refers to the impact of a temperature increase on the global climate patterns (e.g., severe flooding and drought events, accelerated melting of glaciers) due to the release of greenhouse gases (GHG) (e.g., carbon dioxide and methane from fossil fuel combustion). GHG emissions contribute to the increase in the absorption of radiation from the sun at the earth's surface. These emissions are expressed in units of kg of carbon dioxide equivalents (**kg CO_2 equivalent**).

The **ozone depletion potential** indicator measures the potential of stratospheric ozone level reduction due to the release of some molecules such as refrigerants used in cooling systems (e.g., chlorofluorocarbons). When they react with ozone (O_3), the ozone concentration in the stratosphere diminishes and is no longer sufficient to absorb ultraviolet (UV) radiation which can cause high risks to human health (e.g., skin cancers and cataracts) and the terrestrial environment. The concentration of molecules that are responsible of ozone depletion is expressed in kilograms of trichlorofluoromethane equivalents (**kg CFC-11 equivalent**)**.**

The **smog formation potential (or photochemical ozone creation potential)** indicator covers the emissions of pollutants such as nitrogen oxides and volatile organic compounds (VOCs) into the atmosphere. They are mainly generated by motor vehicles, power plants and industrial facilities. When reacting with the sunlight, these pollutants create smog which can affect human health and cause various respiratory problems. The concentration of pollutants causing smog is expressed in kg of ozone equivalents (**kg O_3 equivalent**).

The **renewable/non-renewable primary energy consumption** parameters refer to the use of energy from renewable resources (e.g., wind, solar, hydro) and non-renewable resources (e.g., natural gas, coal, petroleum). The quantity of primary energy used is expressed in megajoules, on the basis of the lower heating value of the resources (**MJ, LHV**)**.**

The **renewable/non-renewable material resources consumption** parameters represent the quantity of material made from renewable resources or non-renewable resources used to manufacture a product, excluding recovered or recycled materials. The quantity of these resources is reported in megajoules (**MJ, LHV**).

7. REFERENCES

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