Environmental Product Declaration

Panduit RJ45 Jack Modules

CATEGORY 5E, CATEGORY 6, CATEGORY 6A

Panduit Category 5e, 6, and 6A RJ45 Jack Modules

At Panduit, we're serious about sustainability.
Everyone's talking about sustainability these days. Companies are making huge changes in the way they do business to meet the demands for energy efficiency, meet environmental standards and exceed international benchmarks.

At Panduit, sustainability drives our business practices. We are committed to providing you with the most cost-efficient and environmentally sound solutions available. Because sustainable business practices have always been at the core of what we do, it's a natural progression for us to create award-winning solutions that put sustainable business at the foundation of your infrastructure, too.

We walk the talk.
Our world headquarters, a LEED Gold® certified building, is a testament to our commitment to design and implement healthy, energy efficient, and sustainable business environments. Through our experience and expertise, we can help you build an infrastructure that can contribute toward your projects' LEED certification.

CERTIFIED
ENVIRONMENTAL PRODUCT DECLARATION
UL.COM/EPD

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025 and ISO 21930-2017. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc. Accuracy of Results: EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. Comparability: EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	UL Environment https://www.ul.com/ 333 Pfingsten Road Northbrook, IL 60611 https://spot.ul.com
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	General Program Instructions v.2.5 March 2020
MANUFACTURER NAME AND ADDRESS	Panduit Corporation 18900 Panduit Drive Tinley Park, IL 60487
DECLARATION NUMBER	4790076521.107.2 (Updated May 2025)
DECLARED PRODUCT & FUNCTIONAL UNIT OF DECLARED UNIT	Panduit RJ45 Jack Modules Functional Unit = 1 RJ45 Connector
REFERENCE PCR AND VERSION NUMBER	-PCR for Construction Products and CPC 54 Construction Services, 2012:01 V2.34, updated in November 2021, valid until February 28, 2022 -Added Jack Modules 2025: Construction Products Product Category Rules (PCR) 2019:14, Version 1.3.4, EPD International
DESCRIPTION OF PRODUCT APPLICATION/USE	Panduit cable products are primarily used in commercial, residential, and educational settings.
PRODUCT RSL DESCRIPTION	February 24, 2022
MARKETS OF APPLICABILITY	Global
DATE OF ISSUE	May 2, 2025
PERIOD OF VALIDITY	5 Years
EPD TYPE	Product Specific
DATASET VARIABILITY	N/A
EPD SCOPE	Cradle-to-Grave with Options
YEAR(S) OF REPORTED PRIMARY DATA	2020
LCA SOFTWARE & VERSION NUMBER	SimaPro v9.2
LCI DATABASE(S) & VERSION NUMBER	Ecoinvent v3.5 & USLCI v2.0
LCIA METHODOLOGY & VERSION NUMBER	TRACI 2.1; CML 4.1
The sub-category PCR review was conducted by:	UL Environment - PCR Review Panel - epd@ul.com
This declaration was independently verified in accordance with ISO 14025: 2006. The UL Environment "Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report," v3.2 (Dec 2018), based on ISO 21930:2017, serves as the core PCR, with additional considerations from CEN Norm EN 15804 (2013) and the USGBC/UL Environment Part A Enhancement (2017) ☐ INTERNAL ☒ EXTERNAL	Cooper McC Cooper McCollum, UL Environment
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	Sustainable Solutions Corporation
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Thomas P. Gloria, Industrial Ecology Consultants

Environmental declarations from different programs (ISO 14025) may not be comparable.
Comparison of the environmental performance using EPD information shall consider all relevant information modules over the full life cycle of the products within the building.
This PCR allows EPD comparability only when the same functional requirements between products are ensured and the requirements of ISO 21930:2017 §5.5 are met. It should be noted that different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

General Information

Description of Company/Organization

For more than 65 years, Panduit has been providing innovative infrastructure solutions to help connect our world. That innovation continues today with Panduit's delivery of dependable, scalable network connectivity and robust, reliable electrical infrastructure. Each product and solution we create helps modern enterprises make more meaningful connections and thrive.

Product Description

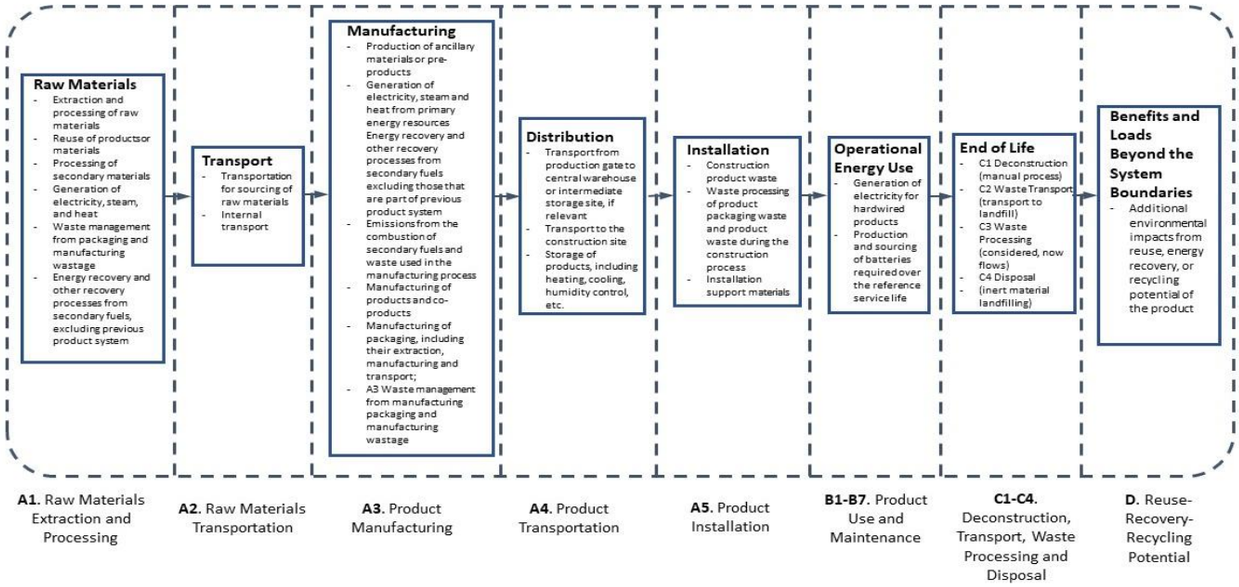
Panduit® RJ45 Jacks facilitate the modular connection of a patch cord to a permanent channel. In this declaration, Mini-Com® and Keystone footprints are covered. All jacks are 100% performance tested, individually serialized, and come with a headroom guarantee. The following Jack modules are included in this declaration:

Panduit Mini-Com® Unshielded Category 5e TG Style Jack Module, Part number: CJ5E88TG**
Panduit Mini-Com® Unshielded Category 6 TG Style Jack Module, Part number: CJ688TG**
Panduit Mini-Com® Unshielded Category 6A TG Style Jack Module, Part number: CJ6X88TG**
Panduit Mini-Com® Shielded Category 5e TG Style Jack Module, Part number: CJS5E88TG**Y
Panduit Mini-Com® Shielded Category 6 TG Style Jack Module, Part number: CJS688TG**Y
Panduit Mini-Com® Shielded Category 6A TG Style Jack Module, Part number: CJS6X88TG**Y
Panduit Mini-Com® Unshielded Category 5e TG Style 28/30 AWG Jack Module, Part number: CJT5E88TG**
Panduit Mini-Com® Unshielded Category 6 TG Style 28/30 AWG Jack Module, Part number: CJT688TG**
Panduit Mini-Com® Unshielded Category 6A TG Style 28/30 AWG Jack Module, Part number: CJT6X88TG**
Panduit Mini-Com® Unshielded Category 5e TG Style Right Angle Jack Module, Part number: CJR5E88TG**
Panduit Mini-Com® Unshielded Category 6 TG Style Right Angle Jack Module, Part number: CJR688TG**
Panduit Mini-Com® Unshielded Category 6A TG Style Right Angle Jack Module, Part number: CJR6X88TG**
Panduit NetKey® Unshielded Category 5e Punchdown Jack Module, Part number: NKP5E88M**
Panduit NetKey® Unshielded Category 6 Punchdown Jack Module, Part number: NK688M**
Panduit NetKey® Unshielded Category 6A Punchdown Jack Module, Part number: NK6X88M**
Panduit Mini-Com® Unshielded Category 5e Coupler Module, Part number: CC5E88**
Panduit Mini-Com® Unshielded Category 6 Coupler Module, Part number: CC688**
Panduit Mini-Com® Shielded Category 5e Coupler Module, Part number: CCS5E88**

Panduit Mini-Com® Unshielded Category 6 Angled Left/Right TG Style Jack Module, Part number: CJLR688TG*
Panduit Mini-Com® Unshielded Category 6A Angled Left/Right TG Style Jack Module, Part number: CJLR6X88TG**
Panduit Mini-Com® Unshielded Category 6 Angled Up/Down TG Style Jack Module, Part number: CJUD688TG**
Panduit Mini-Com® Unshielded Category 6A Angled Up/Down TG Style Jack Module, Part number: CJUD6X88TG**
Panduit Mini-Com® Shielded Category 6 Angled Left/Right TG Style Jack Module, Part number: CJSLR688TG**Y
Panduit Mini-Com® Shielded Category 6A Angled Left/Right TG Style Jack Module, Part number: CJSUD688TG**Y
Panduit Mini-Com® Shielded Category 6 Angled Up/Down TG Style Jack Module, Part number: CJSLR6X88TG**Y
Panduit Mini-Com® Shielded Category 6A Angled Up/Down TG Style Jack Module, Part number: CJSUD6X88TG**Y
Panduit Mini-Com® Unshielded Category 5e TG Style Jack Module, Part number: CJH5E88TG**
Panduit Mini-Com® Unshielded Category 6 TG Style Jack Module, Part number: CJH688TG**
Panduit Mini-Com® Unshielded Category 6A TG Style Jack Module, Part number: CJH6X88TG**
Panduit Mini-Com® Shielded Category 5e TG Style Jack Module, Part number: CJSH5E88TG**Y
Panduit Mini-Com® Shielded Category 6 TG Style Jack Module, Part number: CJSH688TG**Y
Panduit Mini-Com® Shielded Category 6A TG Style Jack Module, Part number: CJSH6X88TG**Y
Panduit Mini-Com® Unshielded Category 6A Coupler Module, Part number: CC6X88**
Panduit Mini-Com® Shielded Category 6A Coupler Module, Part number: CCS6X88**
Panduit Mini-Com® Unshielded Category 6A Field-Term Plug, Part number: FP6X88MTG*
Panduit Mini-Com® Unshielded Category 6A Field-Term Plug, Part number: FPUD6X88MTG*
Panduit Mini-Com® Shielded Category 6A Field-Term Plug, Part number: FPS6X88MTG*
** denotes color code

Additional Products Added to this EPD in 2025:
Panduit Keystone Shielded Category 6A Punchdown Jack Module, Part number: SKJ6X88BL**
Panduit Keystone Shielded Category 6 Punchdown Jack Module, Part number: SK688BL**

Flow Diagram



Manufacturer Specific EPD

This product-specific EPD was developed based on the cradle-to-grave with options (modules A1-A5, C1-C4) Life Cycle Assessment. The EPD accounts for raw material extraction and processing, transport, product manufacturing, distribution, installation, and disposal. Manufacturing data were gathered directly from company personnel. For any product group EPDs, an impact assessment was completed for each product and the lowest and highest impacts were reported as representations of the product group. Product grouping was considered appropriate if the individual product impacts differed by no more than ±10% in any impact category.

Application

Product Applications:
Panduit's RJ45 jack, plug, and coupler modules are used in conjunction with twisted-pair copper cable for ethernet data transmission.

Material Composition

The primary product components and/or materials must be indicated as a percentage mass to enable the user of the EPD to understand the composition of the product in delivery status.

The average composition of a Panduit RJ45 Jacks Data Networking cable is as follows:

	Percentage in Mass (%)											
	Unshielded						Shielded					
Material	5e Min	5e Max	6 Min	6 Max	6A Min	6A Max	5e Min	5e Max	6 Min	6 Max	6A Min	6A Max
Polycarbonate	80.7%	81.0%	80.7%	81.0%	78.0%	78.3%	26.0%	25.5%	26.0%	25.5%	26.0%	25.5%
Metal Contacts	9.8%	9.7%	9.8%	9.7%	9.4%	9.3%	70.6%	69.6%	70.6%	69.6%	70.6%	69.6%
Printed Circuit Board	8.5%	8.4%	8.5%	8.4%	8.2%	8.1%	3.4%	3.3%	3.4%	3.3%	3.4%	3.3%
Aluminum	0.0%	0.0%	0.0%	0.0%	3.4%	3.3%	0.0%	1.4%	0.0%	1.4%	0.0%	1.4%
Other	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%

	Percentage in Mass (%)
	SK688BL** and SKJ6X88BL**
Material	Shielded
Polycarbonate	42.4%
Metal Contacts	52.7%
Printed Circuit Board	4.9%
Aluminum	0.0%
Other	<1%

Placing on the Market / Application Rules

The standards that can be applied to this product are:
ANSI/TIA 568.2-D and ISO 11801
IEC 60603-7 and IEC 60512-99-001
UL 1863 and UL 2043
IEEE 802.3af, IEEE 802.3at and IEEE 802.3bt

Properties of Declared Product as Shipped

Panduit RJ45 Jacks are delivered as a complete unit, inclusive of all installation materials and instructions.

Methological Framework

Functional Unit

The declaration refers to the functional unit of 1 RJ45 Connector as specified in the PCR.

Name	Value	Unit
Declared unit	1 RJ45 Connector	
Minimum Mass	0.007	kg
Conversion factor to 1 kg	142.86	-
Maximum Mass	0.017	kg
Conversion factor to 1 kg	58.82	-

System Boundary

This is a cradle to grave Environmental Product Declaration. The following life cycle phases were considered:

Product Stage			Construction Process Stage		Use Stage							End of Life Stage*				Benefits and Loads Beyond the System Boundaries
Raw material supply	Transport	Manufacturing	Transport from gate to the site	Construction/ installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction /demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	MND

Description of the System Boundary Stages Corresponding to the PCR

(X = Included; MND = Module Not Declared)

*This includes provision of all materials, products and energy, packaging processing and its transport, as well as waste processing up to the end-of waste state or disposal of final residues.

Allocation

Allocation was determined on a per connector basis.

Cut-off Criteria

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

For Hazardous Substances the following requirements apply:

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

This EPD is in compliance with the cut-off criteria. No processes were neglected or excluded. Capital items for the production processes (machine, buildings, etc.) were not taken into consideration.

Data Sources

Primary data were collected for every process in the product system under the control of Panduit. Secondary data from the ecoinvent database were utilized when necessary. These data were evaluated and have temporal, geographic, and technical coverage appropriate to the scope of the product category.

Data Quality

The data sources used are complete and representative of global systems in terms of the geographic and technological coverage and are a recent vintage (i.e. less than ten years old). The data used for primary data are based on direct information sources of the manufacturers. Secondary data sets were used for raw materials extraction and processing, end of life, transportation, and energy production flows. Wherever secondary data is used, the study adopts critically reviewed data for consistency, precision, and reproducibility to limit uncertainty.

Period Under Review

The period under review is the full calendar year of 2020.

Treatment of Biogenic Carbon

The uptake and release of biogenic carbon throughout the product life cycle follows ISO 21930:2017 Section 7.2.7.

Comparability and Benchmarking

A comparison or an evaluation of EPD data is only possible if all data sets to be compared were created according to EN 15804 and the building context, respectively the product-specific characteristics of performance, are taken into account. Environmental declarations from different programs may not be comparable. Full conformance with the PCR allows for EPD comparability only when all stages a product's life cycle have been considered. However, variations and deviations are possible.

Units

The LCA results within this EPD are reported in SI units.

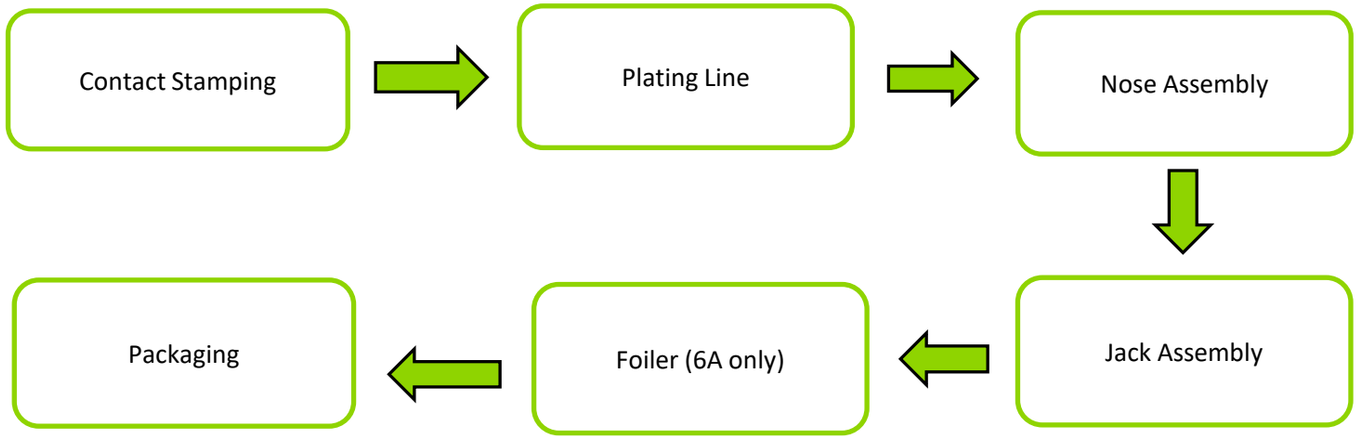
Additional Environmental Information

Background data

For life cycle modeling of the considered products, the SimaPro v9.2 Software System for Life Cycle Engineering, developed by PRe Sustainability, is used. The ecoinvent database contains consistent and documented datasets which are documented online. To ensure comparability of results in the LCA, the basic data of the ecoinvent database were used for energy, transportation, and auxiliary materials.

Manufacturing

The primary manufacturing processes occur in multiple locations. Metal contacts are stamped to create the stamped contact, which then runs through a plating line to create the stamped and plated contact. Polycarbonate is then introduced to create the nose component. After this process, the jack is assembled using additional polycarbonate. At this point, CAT 5e and 6 jacks are completed, however the CAT 6A products either run though a foiler or a manual shield is applied to complete the process. After the jack is completed, it is cooled and packaged.



Packaging

All packaging is fully recyclable. The packaging material is composed primarily of wood pallets, with cardboard and plastic materials used for individual product packaging.

	Quantity (% By Weight)				
	Unshielded		Shielded		Shielded
Material	Min	Max	Min	Max	SK688BL** and SKJ6X88BL**
Cardboard	47.2%	47.2%	47.2%	47.2%	48.3%
Other	2.0%	2.0%	2.0%	2.0%	0.0%
Paper Label	0.0%	0.0%	0.0%	0.0%	0.4%
Plastic	36.2%	36.2%	36.2%	36.2%	36.7%
Wood	14.5%	14.5%	14.5%	14.5%	14.6%

Transportation

Transport to Building Site (A4)					
	Unshielded		Shielded		
Name	Min	Max	Min	Max	Unit
Fuel type	Diesel				
Liters of fuel	38	38	38	38	l/100km
Transport distance	300	300	300	300	km
Capacity utilization (including empty runs)	-	-	-	-	%
Gross density of products transported	-	-	-	-	kg/m^3
Weight of products transported	-	-	-	-	kg
Volume of products transported	-	-	-	-	m^3
Capacity utilization volume factor	-	-	-	-	-

Product Installation

Panduit RJ45 Jacks are distributed through and installed by trained installation technicians adhering to local/national standards and requirements. The RJ45 connector requires no energy or additional materials for installation, and no scrap is created from the installation process. Only packaging waste is included in the installation.

Installation into the building (A5)					
	Unshielded		Shielded		
Name	Min	Max	Min	Max	Unit
Auxiliary materials	-	-	-	-	kg
Water consumption	-	-	-	-	m^3
Other resources	-	-	-	-	kg
Electricity consumption	-	-	-	-	kWh
Other energy carriers	-	-	-	-	MJ
Product loss per functional unit	-	-	-	-	kg
Waste materials at construction site	-	-	-	-	kg
Output substance (recycle)	-	-	-	-	kg
Output substance (landfill)	-	-	-	-	kg
Output substance (incineration)	-	-	-	-	kg
Packaging waste (recycle)	5.3E-03	5.3E-03	5.3E-03	5.3E-03	kg
Packaging waste (landfill)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	kg
Packaging waste (incineration)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	kg
Direct emissions to ambient air*, soil, and water	-	-	-	-	kg CO_2
VOC emissions	-	-	-	-	kg

*CO2 emissions to air from disposal of packaging

Disposal

A distance of 50 miles (80 km) was assumed to transport the connectors to the waste processing facility. It is assumed that the product is not recycled and is disposed as the average US municipal solid waste disposition - 80% landfill and 20% incineration. As the products are not recycled, there are no Module D recycling benefits considered in this study.

End of Life (C1-C4)						
	Unshielded		Shielded		Shielded	
Name	Min	Max	Min	Max	SK688BL** and SKJ6X88BL**	Unit
Collected separately	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	kg
Collected as mixed construction waste	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	kg
Reuse	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	kg
Recycling	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	kg
Landfilling	5.2E-03	5.4E-03	1.3E-02	1.4E-02	9.1E-03	kg
Incineration with energy recovery	1.3E-03	1.4E-03	3.3E-03	3.4E-03	2.3E-03	kg
Energy conversion	4.4E+01	4.4E+01	4.4E+01	4.4E+01	4.4E+01	%
Removals of biogenic carbon	-	-	-	-	-	kg

LCA Results - Unshielded 5e Minimum Impact

Results shown below were calculated using TRACI 2.1 Methodology.

TRACI 2.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.5E+00	2.6E-03	4.0E-05	0.0E+00	0.0E+00	3.2E-05	0.0E+00	2.5E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	2.5E-01	4.6E-03	1.4E-04	0.0E+00	0.0E+00	5.8E-05	0.0E+00	2.0E-01	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.9E-02	1.5E-06	4.4E-08	0.0E+00	0.0E+00	1.1E-08	0.0E+00	1.6E-03	0.0E+00
EP	Eutrophication potential	kg N-Eq.	1.5E-02	7.8E-04	8.2E-06	0.0E+00	0.0E+00	5.2E-06	0.0E+00	2.6E-02	0.0E+00
SP	Smog formation potential	kg O_3-Eq.	3.8E-01	2.7E-05	2.9E-07	0.0E+00	0.0E+00	1.9E-07	0.0E+00	9.3E-04	0.0E+00
FFD	Fossil Fuel Depletion	MJ-surplus	1.2E+00	9.8E-14	1.5E-11	0.0E+00	0.0E+00	1.2E-15	0.0E+00	2.2E-08	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results shown below were calculated using CML 2001 - April 2013 Methodology.

CML 4.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	2.6E-03	4.1E-05	0.0E+00	0.0E+00	3.2E-05	0.0E+00	2.5E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.3E-08	9.7E-14	1.1E-11	0.0E+00	0.0E+00	1.2E-15	0.0E+00	1.7E-08	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.3E-02	2.2E-05	2.3E-07	0.0E+00	0.0E+00	1.6E-07	0.0E+00	7.4E-04	0.0E+00
EP	Eutrophication potential	kg$(PO_4)^3$-Eq.	4.1E-03	4.1E-06	5.3E-08	0.0E+00	0.0E+00	2.8E-08	0.0E+00	6.8E-04	0.0E+00
POCP	Formation potential of tropospheric ozone photochemical oxidants	kg ethane-Eq.	6.5E-04	6.9E-07	8.8E-09	0.0E+00	0.0E+00	7.3E-09	0.0E+00	2.6E-05	0.0E+00
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	3.2E+01	3.3E-02	9.8E-04	0.0E+00	0.0E+00	4.1E-04	0.0E+00	1.6E+00	0.0E+00
ADPF	Abiotic depletion potential for fossil resources	MJ	7.7E-05	0.0E+00	4.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-07	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the resource use throughout the life cycle of the product.

Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
RPR_E	Renewable primary energy as energy carrier	MJ	3.5E+01	3.5E-02	1.1E-03	0.0E+00	0.0E+00	4.4E-04	0.0E+00	1.9E+00	0.0E+00
RPR_M	Renewable primary energy resources as material utilization	MJ	1.0E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
$NRPR_E$	Nonrenewable primary energy as energy carrier	MJ	3.5E+01	3.5E-02	3.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.4E-02	0.0E+00
$NRPR_M$	Nonrenewable primary energy as material utilization	MJ	4.5E-01	0.0E+00	8.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.8E-03	0.0E+00
SM	Use of secondary material	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	Use of renewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RE	Energy recovered from disposed waste	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	Use of net fresh water	m^3	6.3E-03	0.0E+00	1.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-01	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
HWD	Hazardous waste disposed	kg	1.4E-05	1.1E-06	0.0E+00	0.0E+00	0.0E+00	4.6E-10	0.0E+00	0.0E+00	0.0E+00
NHWD	Non-hazardous waste disposed	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HLRW	High-level radioactive waste	kg or m^3	4.9E-06	1.6E-07	0.0E+00	0.0E+00	0.0E+00	1.9E-10	0.0E+00	0.0E+00	0.0E+00
ILLRW	Intermediate- and low-level radioactive waste	kg or m^3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CRU	Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MR	Materials for recycling	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MER	Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EE	Recovered energy exported from system	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

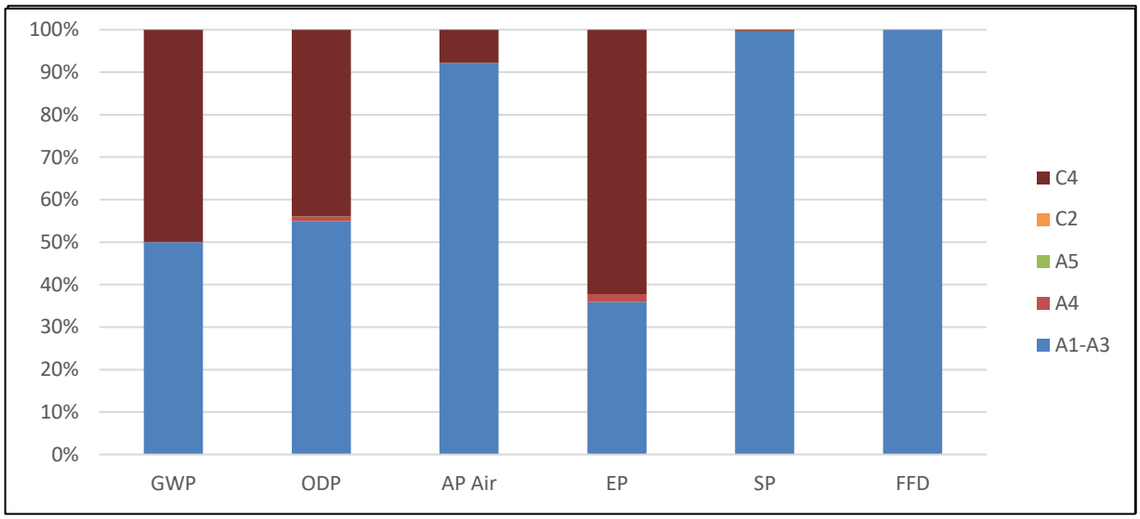
Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
BCRP	Biogenic Carbon Removal from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCE	Calcination Carbon Emissions	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCR	Carbonation Carbon Removal	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

LCA Interpretation - Unshielded 5e Minimum Impact

The production life cycle stage (A1-A3) dominates the impacts across all impact categories. This is mainly due to the packaging of the product, and secondly to the upstream production of materials used in the product, along with electricity use in the manufacturing of the product. The waste life cycle stage (C4) has the second largest impact across all impact categories.



LCA Results - Unshielded 5e Maximum Impact

Results shown below were calculated using TRACI 2.1 Methodology.

TRACI 2.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.5E+00	2.6E-03	4.0E-05	0.0E+00	0.0E+00	3.2E-05	0.0E+00	2.5E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.6E-08	4.7E-03	1.4E-04	0.0E+00	0.0E+00	5.8E-05	0.0E+00	2.0E-01	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.5E-02	1.5E-06	4.4E-08	0.0E+00	0.0E+00	1.1E-08	0.0E+00	1.6E-03	0.0E+00
EP	Eutrophication potential	kg N-Eq.	5.7E-03	7.8E-04	8.2E-06	0.0E+00	0.0E+00	5.3E-06	0.0E+00	2.7E-02	0.0E+00
SP	Smog formation potential	kg O_3-Eq.	3.9E-01	2.7E-05	2.9E-07	0.0E+00	0.0E+00	1.9E-07	0.0E+00	9.4E-04	0.0E+00
FFD	Fossil Fuel Depletion	MJ-surplus	4.4E+00	9.9E-14	1.5E-11	0.0E+00	0.0E+00	1.2E-15	0.0E+00	2.2E-08	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results shown below were calculated using CML 2001 - April 2013 Methodology.

CML 4.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	2.6E-03	4.1E-05	0.0E+00	0.0E+00	3.2E-05	0.0E+00	2.5E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.3E-08	9.8E-14	1.1E-11	0.0E+00	0.0E+00	1.2E-15	0.0E+00	1.7E-08	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.3E-02	2.2E-05	2.3E-07	0.0E+00	0.0E+00	1.6E-07	0.0E+00	7.5E-04	0.0E+00
EP	Eutrophication potential	kg$(PO_4)^3$-Eq.	4.1E-03	4.1E-06	5.3E-08	0.0E+00	0.0E+00	2.8E-08	0.0E+00	6.9E-04	0.0E+00
POCP	Formation potential of tropospheric ozone photochemical oxidants	kg ethane-Eq.	6.5E-04	7.0E-07	8.8E-09	0.0E+00	0.0E+00	7.4E-09	0.0E+00	2.6E-05	0.0E+00
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	3.2E+01	3.3E-02	9.8E-04	0.0E+00	0.0E+00	4.2E-04	0.0E+00	1.6E+00	0.0E+00
ADPF	Abiotic depletion potential for fossil resources	MJ	7.7E-05	0.0E+00	4.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-07	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the resource use throughout the life cycle of the product.

Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
RPR_E	Renewable primary energy as energy carrier	MJ	3.5E+01	3.5E-02	1.1E-03	0.0E+00	0.0E+00	4.4E-04	0.0E+00	1.9E+00	0.0E+00
RPR_M	Renewable primary energy resources as material utilization	MJ	9.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
$NRPR_E$	Nonrenewable primary energy as energy carrier	MJ	3.5E+01	3.5E-02	3.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.5E-02	0.0E+00
$NRPR_M$	Nonrenewable primary energy as material utilization	MJ	4.5E-01	0.0E+00	8.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.0E-02	0.0E+00
SM	Use of secondary material	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	Use of renewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RE	Energy recovered from disposed waste	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	Use of net fresh water	m^3	6.3E-03	0.0E+00	1.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-01	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
HWD	Hazardous waste disposed	kg	1.5E-05	1.1E-06	0.0E+00	0.0E+00	0.0E+00	4.6E-10	0.0E+00	0.0E+00	0.0E+00
NHWD	Non-hazardous waste disposed	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HLRW	High-level radioactive waste	kg or m^3	5.1E-06	1.6E-07	0.0E+00	0.0E+00	0.0E+00	1.9E-10	0.0E+00	0.0E+00	0.0E+00
ILLRW	Intermediate- and low-level radioactive waste	kg or m^3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CRU	Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MR	Materials for recycling	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MER	Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EE	Recovered energy exported from system	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

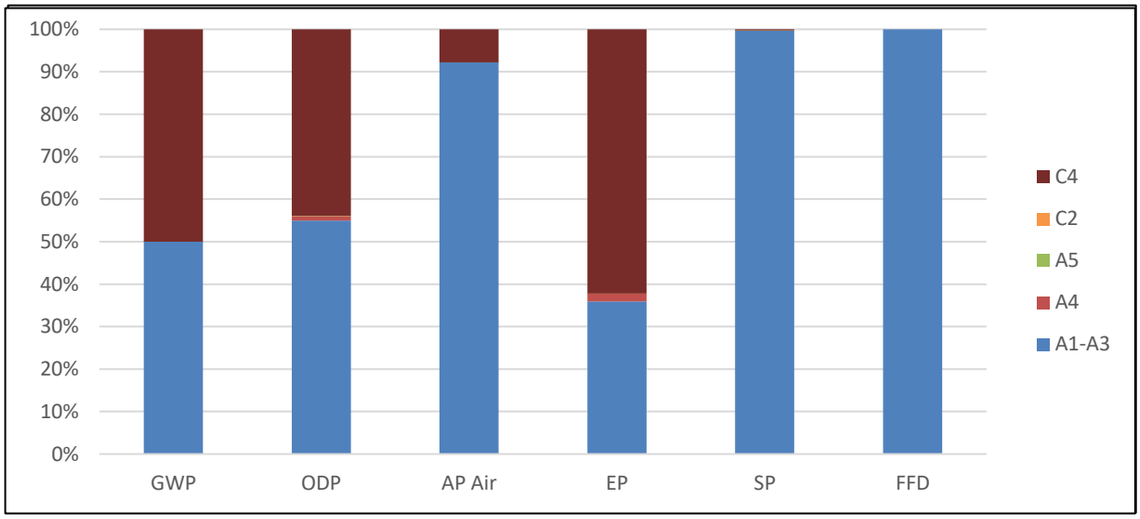
Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
BCRP	Biogenic Carbon Removal from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCE	Calcination Carbon Emissions	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCR	Carbonation Carbon Removal	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

LCA Results - Unshielded 5e Maximum Impact

The production life cycle stage (A1-A3) dominates the impacts across all impact categories. This is mainly due to the packaging of the product, and secondly to the upstream production of materials used in the product, along with electricity use in the manufacturing of the product. The waste life cycle stage (C4) has the second largest impact across all impact categories.



LCA Results - Unshielded 6 Minimum Impact

Results shown below were calculated using TRACI 2.1 Methodology.

TRACI 2.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	1.8E-03	4.0E-05	0.0E+00	0.0E+00	3.2E-05	0.0E+00	2.5E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.6E-08	3.3E-03	1.4E-04	0.0E+00	0.0E+00	5.8E-05	0.0E+00	2.0E-01	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.6E-02	9.8E-07	4.4E-08	0.0E+00	0.0E+00	1.1E-08	0.0E+00	1.6E-03	0.0E+00
EP	Eutrophication potential	kg N-Eq.	5.7E-03	5.1E-04	8.2E-06	0.0E+00	0.0E+00	5.2E-06	0.0E+00	2.6E-02	0.0E+00
SP	Smog formation potential	kg O_3-Eq.	3.9E-01	1.8E-05	2.9E-07	0.0E+00	0.0E+00	1.9E-07	0.0E+00	9.3E-04	0.0E+00
FFD	Fossil Fuel Depletion	MJ-surplus	4.4E+00	6.9E-14	1.5E-11	0.0E+00	0.0E+00	1.2E-15	0.0E+00	2.2E-08	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results shown below were calculated using CML 2001 - April 2013 Methodology.

CML 4.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	1.8E-03	4.1E-05	0.0E+00	0.0E+00	3.2E-05	0.0E+00	2.5E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.3E-08	6.8E-14	1.1E-11	0.0E+00	0.0E+00	1.2E-15	0.0E+00	1.7E-08	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.4E-02	1.4E-05	2.3E-07	0.0E+00	0.0E+00	1.6E-07	0.0E+00	7.4E-04	0.0E+00
EP	Eutrophication potential	kg$(PO_4)^3$-Eq.	4.1E-03	2.7E-06	5.3E-08	0.0E+00	0.0E+00	2.8E-08	0.0E+00	6.8E-04	0.0E+00
POCP	Formation potential of tropospheric ozone photochemical oxidants	kg ethane-Eq.	6.2E-04	4.8E-07	8.8E-09	0.0E+00	0.0E+00	7.3E-09	0.0E+00	2.6E-05	0.0E+00
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	3.3E+01	2.3E-02	9.8E-04	0.0E+00	0.0E+00	4.1E-04	0.0E+00	1.6E+00	0.0E+00
ADPF	Abiotic depletion potential for fossil resources	MJ	7.7E-05	0.0E+00	4.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.6E-07	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the resource use throughout the life cycle of the product.

Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
RPR_E	Renewable primary energy as energy carrier	MJ	3.5E+01	2.5E-02	1.1E-03	0.0E+00	0.0E+00	4.4E-04	0.0E+00	1.9E+00	0.0E+00
RPR_M	Renewable primary energy resources as material utilization	MJ	9.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
$NRPR_E$	Nonrenewable primary energy as energy carrier	MJ	1.0E-01	0.0E+00	3.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.4E-02	0.0E+00
$NRPR_M$	Nonrenewable primary energy as material utilization	MJ	5.6E-02	0.0E+00	8.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.8E-03	0.0E+00
SM	Use of secondary material	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	Use of renewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RE	Energy recovered from disposed waste	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	Use of net fresh water	m^3	6.7E-03	0.0E+00	1.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-01	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
HWD	Hazardous waste disposed	kg	1.5E-05	1.1E-06	0.0E+00	0.0E+00	0.0E+00	4.6E-10	0.0E+00	0.0E+00	0.0E+00
NHWD	Non-hazardous waste disposed	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HLRW	High-level radioactive waste	kg or m^3	5.1E-06	1.5E-07	0.0E+00	0.0E+00	0.0E+00	1.9E-10	0.0E+00	0.0E+00	0.0E+00
ILLRW	Intermediate- and low-level radioactive waste	kg or m^3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CRU	Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MR	Materials for recycling	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MER	Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EE	Recovered energy exported from system	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

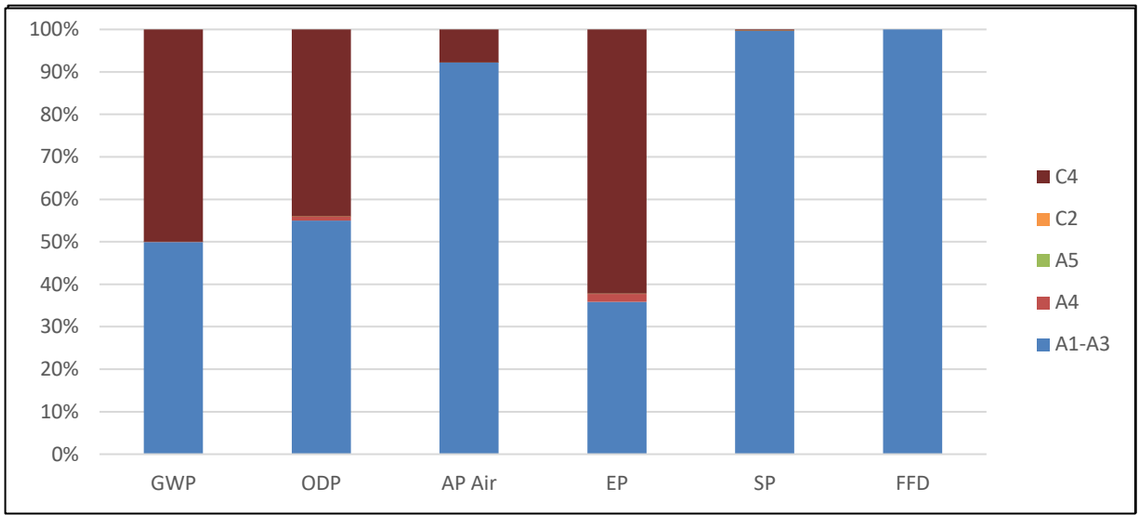
Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
BCRP	Biogenic Carbon Removal from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCE	Calcination Carbon Emissions	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCR	Carbonation Carbon Removal	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

LCA Results - Unshielded 6 Minimum Impact

The production life cycle stage (A1-A3) dominates the impacts across all impact categories. This is mainly due to the packaging of the product, and secondly to the upstream production of materials used in the product, along with electricity use in the manufacturing of the product. The waste life cycle stage (C4) has the second largest impact across all impact categories.



LCA Results - Unshielded 6 Maximum Impact

Results shown below were calculated using TRACI 2.1 Methodology.

TRACI 2.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	1.8E-03	4.0E-05	0.0E+00	0.0E+00	3.2E-05	0.0E+00	2.5E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.6E-08	3.3E-03	1.4E-04	0.0E+00	0.0E+00	5.8E-05	0.0E+00	2.0E-01	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.6E-02	9.8E-07	4.4E-08	0.0E+00	0.0E+00	1.1E-08	0.0E+00	1.6E-03	0.0E+00
EP	Eutrophication potential	kg N-Eq.	5.7E-03	5.1E-04	8.2E-06	0.0E+00	0.0E+00	5.3E-06	0.0E+00	2.7E-02	0.0E+00
SP	Smog formation potential	kg O_3-Eq.	3.9E-01	1.8E-05	2.9E-07	0.0E+00	0.0E+00	1.9E-07	0.0E+00	9.4E-04	0.0E+00
FFD	Fossil Fuel Depletion	MJ-surplus	4.4E+00	7.0E-14	1.5E-11	0.0E+00	0.0E+00	1.2E-15	0.0E+00	2.2E-08	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results shown below were calculated using CML 2001 - April 2013 Methodology.

CML 4.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	1.8E-03	4.1E-05	0.0E+00	0.0E+00	3.2E-05	0.0E+00	2.5E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.3E-08	6.9E-14	1.1E-11	0.0E+00	0.0E+00	1.2E-15	0.0E+00	1.7E-08	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.4E-02	1.5E-05	2.3E-07	0.0E+00	0.0E+00	1.6E-07	0.0E+00	7.5E-04	0.0E+00
EP	Eutrophication potential	kg$(PO_4)^3$-Eq.	4.1E-03	2.7E-06	5.3E-08	0.0E+00	0.0E+00	2.8E-08	0.0E+00	6.9E-04	0.0E+00
POCP	Formation potential of tropospheric ozone photochemical oxidants	kg ethane-Eq.	6.2E-04	4.8E-07	8.8E-09	0.0E+00	0.0E+00	7.3E-09	0.0E+00	2.6E-05	0.0E+00
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	3.3E+01	2.3E-02	9.8E-04	0.0E+00	0.0E+00	4.1E-04	0.0E+00	1.6E+00	0.0E+00
ADPF	Abiotic depletion potential for fossil resources	MJ	7.7E-05	0.0E+00	4.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-07	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the resource use throughout the life cycle of the product.

Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
RPR_E	Renewable primary energy as energy carrier	MJ	3.5E+01	2.5E-02	1.1E-03	0.0E+00	0.0E+00	4.4E-04	0.0E+00	1.9E+00	0.0E+00
RPR_M	Renewable primary energy resources as material utilization	MJ	1.0E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
$NRPR_E$	Nonrenewable primary energy as energy carrier	MJ	1.0E-01	2.5E-02	3.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.5E-02	0.0E+00
$NRPR_M$	Nonrenewable primary energy as material utilization	MJ	5.6E-02	0.0E+00	8.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.0E-02	0.0E+00
SM	Use of secondary material	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	Use of renewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RE	Energy recovered from disposed waste	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	Use of net fresh water	m^3	6.7E-03	0.0E+00	1.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-01	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
HWD	Hazardous waste disposed	kg	1.5E-05	1.1E-06	0.0E+00	0.0E+00	0.0E+00	4.6E-10	0.0E+00	0.0E+00	0.0E+00
NHWD	Non-hazardous waste disposed	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HLRW	High-level radioactive waste	kg or m^3	5.1E-06	1.5E-07	0.0E+00	0.0E+00	0.0E+00	1.9E-10	0.0E+00	0.0E+00	0.0E+00
ILLRW	Intermediate- and low-level radioactive waste	kg or m^3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CRU	Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MR	Materials for recycling	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MER	Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EE	Recovered energy exported from system	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

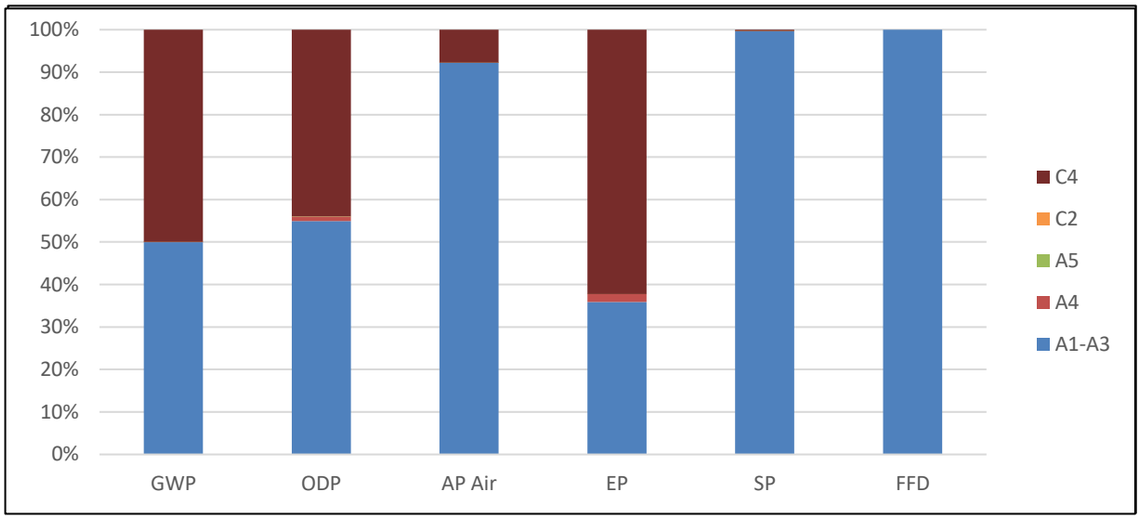
Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
BCRP	Biogenic Carbon Removal from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCE	Calcination Carbon Emissions	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCR	Carbonation Carbon Removal	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

LCA Results - Unshielded 6 Maximum Impact

The production life cycle stage (A1-A3) dominates the impacts across all impact categories. This is mainly due to the packaging of the product, and secondly to the upstream production of materials used in the product, along with electricity use in the manufacturing of the product. The waste life cycle stage (C4) has the second largest impact across all impact categories.



LCA Results - Unshielded 6A Minimum Impact

Results shown below were calculated using TRACI 2.1 Methodology.

TRACI 2.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	1.9E-03	4.0E-05	0.0E+00	0.0E+00	3.4E-05	0.0E+00	2.5E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.6E-08	3.5E-03	1.4E-04	0.0E+00	0.0E+00	6.1E-05	0.0E+00	2.2E-01	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.6E-02	1.0E-06	4.4E-08	0.0E+00	0.0E+00	1.1E-08	0.0E+00	1.6E-03	0.0E+00
EP	Eutrophication potential	kg N-Eq.	5.7E-03	5.4E-04	8.2E-06	0.0E+00	0.0E+00	5.6E-06	0.0E+00	2.8E-02	0.0E+00
SP	Smog formation potential	kg O_3-Eq.	4.0E-01	1.9E-05	2.9E-07	0.0E+00	0.0E+00	2.0E-07	0.0E+00	9.8E-04	0.0E+00
FFD	Fossil Fuel Depletion	MJ-surplus	4.4E+00	7.3E-14	1.5E-11	0.0E+00	0.0E+00	1.3E-15	0.0E+00	2.3E-08	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results shown below were calculated using CML 2001 - April 2013 Methodology.

CML 4.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	1.9E-03	4.1E-05	0.0E+00	0.0E+00	3.4E-05	0.0E+00	2.5E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.3E-08	7.3E-14	1.1E-11	0.0E+00	0.0E+00	1.3E-15	0.0E+00	1.8E-08	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.4E-02	1.5E-05	2.3E-07	0.0E+00	0.0E+00	1.7E-07	0.0E+00	7.8E-04	0.0E+00
EP	Eutrophication potential	kg$(PO_4)^3$-Eq.	4.1E-03	2.8E-06	5.3E-08	0.0E+00	0.0E+00	3.0E-08	0.0E+00	6.9E-04	0.0E+00
POCP	Formation potential of tropospheric ozone photochemical oxidants	kg ethane-Eq.	6.3E-04	5.0E-07	8.8E-09	0.0E+00	0.0E+00	7.7E-09	0.0E+00	2.7E-05	0.0E+00
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	3.3E+01	2.5E-02	9.8E-04	0.0E+00	0.0E+00	4.4E-04	0.0E+00	1.7E+00	0.0E+00
ADPF	Abiotic depletion potential for fossil resources	MJ	7.7E-05	0.0E+00	4.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-07	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the resource use throughout the life cycle of the product.

Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
RPR_E	Renewable primary energy as energy carrier	MJ	3.6E+01	2.6E-02	1.1E-03	0.0E+00	0.0E+00	4.6E-04	0.0E+00	2.0E+00	0.0E+00
RPR_M	Renewable primary energy resources as material utilization	MJ	9.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
$NRPR_E$	Nonrenewable primary energy as energy carrier	MJ	2.2E-01	0.0E+00	3.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.5E-02	0.0E+00
$NRPR_M$	Nonrenewable primary energy as material utilization	MJ	5.7E-02	0.0E+00	8.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.0E-02	0.0E+00
SM	Use of secondary material	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	Use of renewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RE	Energy recovered from disposed waste	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	Use of net fresh water	m^3	6.8E-03	0.0E+00	1.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-01	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
HWD	Hazardous waste disposed	kg	1.7E-05	1.1E-06	0.0E+00	0.0E+00	0.0E+00	4.6E-10	0.0E+00	0.0E+00	0.0E+00
NHWD	Non-hazardous waste disposed	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HLRW	High-level radioactive waste	kg or m^3	5.1E-06	1.5E-07	0.0E+00	0.0E+00	0.0E+00	1.9E-10	0.0E+00	0.0E+00	0.0E+00
ILLRW	Intermediate- and low-level radioactive waste	kg or m^3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CRU	Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MR	Materials for recycling	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MER	Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EE	Recovered energy exported from system	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

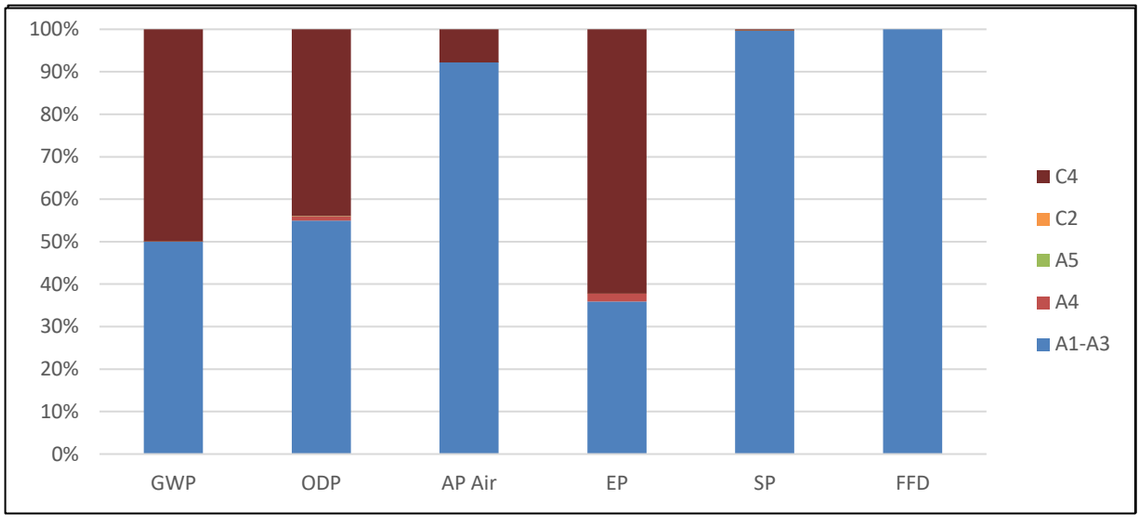
Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
BCRP	Biogenic Carbon Removal from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCE	Calcination Carbon Emissions	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCR	Carbonation Carbon Removal	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

LCA Results - Unshielded 6A Minimum Impact

The production life cycle stage (A1-A3) dominates the impacts across all impact categories. This is mainly due to the packaging of the product, and secondly to the upstream production of materials used in the product, along with electricity use in the manufacturing of the product. The waste life cycle stage (C4) has the second largest impact across all impact categories.



LCA Results - Unshielded 6A Maximum Impact

Results shown below were calculated using TRACI 2.1 Methodology.

TRACI 2.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	1.9E-03	4.0E-05	0.0E+00	0.0E+00	3.4E-05	0.0E+00	2.6E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.6E-08	3.5E-03	1.4E-04	0.0E+00	0.0E+00	6.2E-05	0.0E+00	2.2E-01	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.6E-02	1.0E-06	4.4E-08	0.0E+00	0.0E+00	1.1E-08	0.0E+00	1.6E-03	0.0E+00
EP	Eutrophication potential	kg N-Eq.	5.7E-03	5.4E-04	8.2E-06	0.0E+00	0.0E+00	5.6E-06	0.0E+00	2.8E-02	0.0E+00
SP	Smog formation potential	kg O_3-Eq.	3.9E-01	1.9E-05	2.9E-07	0.0E+00	0.0E+00	2.0E-07	0.0E+00	1.0E-03	0.0E+00
FFD	Fossil Fuel Depletion	MJ-surplus	4.4E+00	7.4E-14	1.5E-11	0.0E+00	0.0E+00	1.3E-15	0.0E+00	2.3E-08	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results shown below were calculated using CML 2001 - April 2013 Methodology.

CML 4.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	1.9E-03	4.1E-05	0.0E+00	0.0E+00	3.4E-05	0.0E+00	2.6E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.3E-08	7.3E-14	1.1E-11	0.0E+00	0.0E+00	1.3E-15	0.0E+00	1.8E-08	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.4E-02	1.5E-05	2.3E-07	0.0E+00	0.0E+00	1.7E-07	0.0E+00	7.9E-04	0.0E+00
EP	Eutrophication potential	kg$(PO_4)^3$-Eq.	4.1E-03	2.9E-06	5.3E-08	0.0E+00	0.0E+00	3.0E-08	0.0E+00	7.1E-04	0.0E+00
POCP	Formation potential of tropospheric ozone photochemical oxidants	kg ethane-Eq.	6.2E-04	5.1E-07	8.8E-09	0.0E+00	0.0E+00	7.8E-09	0.0E+00	2.8E-05	0.0E+00
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	3.3E+01	2.5E-02	9.8E-04	0.0E+00	0.0E+00	4.4E-04	0.0E+00	1.7E+00	0.0E+00
ADPF	Abiotic depletion potential for fossil resources	MJ	7.7E-05	0.0E+00	4.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-07	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the resource use throughout the life cycle of the product.

Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
RPR_E	Renewable primary energy as energy carrier	MJ	3.5E+01	2.6E-02	1.1E-03	0.0E+00	0.0E+00	4.7E-04	0.0E+00	2.1E+00	0.0E+00
RPR_M	Renewable primary energy resources as material utilization	MJ	9.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
$NRPR_E$	Nonrenewable primary energy as energy carrier	MJ	1.1E-01	0.0E+00	3.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.6E-02	0.0E+00
$NRPR_M$	Nonrenewable primary energy as material utilization	MJ	5.7E-02	0.0E+00	8.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.0E-02	0.0E+00
SM	Use of secondary material	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	Use of renewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RE	Energy recovered from disposed waste	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	Use of net fresh water	m^3	6.7E-03	0.0E+00	1.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.6E-01	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
HWD	Hazardous waste disposed	kg	1.7E-05	1.1E-06	0.0E+00	0.0E+00	0.0E+00	4.6E-10	0.0E+00	0.0E+00	0.0E+00
NHWD	Non-hazardous waste disposed	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HLRW	High-level radioactive waste	kg or m^3	5.1E-06	1.5E-07	0.0E+00	0.0E+00	0.0E+00	1.9E-10	0.0E+00	0.0E+00	0.0E+00
ILLRW	Intermediate- and low-level radioactive waste	kg or m^3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CRU	Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MR	Materials for recycling	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MER	Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EE	Recovered energy exported from system	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

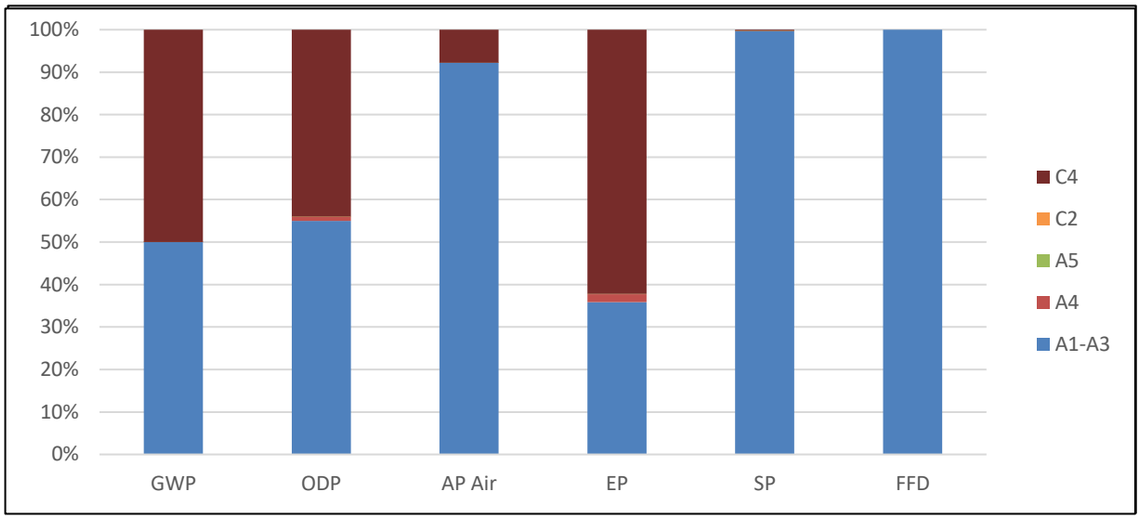
Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
BCRP	Biogenic Carbon Removal from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCE	Calcination Carbon Emissions	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCR	Carbonation Carbon Removal	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

LCA Results - Unshielded 6A Maximum Impact

The production life cycle stage (A1-A3) dominates the impacts across all impact categories. This is mainly due to the packaging of the product, and secondly to the upstream production of materials used in the product, along with electricity use in the manufacturing of the product. The waste life cycle stage (C4) has the second largest impact across all impact categories.



LCA Results - Shielded 5e Minimum Impact

Results shown below were calculated using TRACI 2.1 Methodology.

TRACI 2.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	5.3E-03	4.0E-05	0.0E+00	0.0E+00	6.6E-05	0.0E+00	1.9E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.8E-08	9.6E-03	1.4E-04	0.0E+00	0.0E+00	1.2E-04	0.0E+00	4.6E-01	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.8E-02	3.1E-06	4.4E-08	0.0E+00	0.0E+00	2.2E-08	0.0E+00	1.3E-03	0.0E+00
EP	Eutrophication potential	kg N-Eq.	1.5E-02	1.6E-03	8.2E-06	0.0E+00	0.0E+00	1.1E-05	0.0E+00	5.1E-02	0.0E+00
SP	Smog formation potential	kg O_3-Eq.	4.1E-01	5.6E-05	2.9E-07	0.0E+00	0.0E+00	3.9E-07	0.0E+00	1.7E-03	0.0E+00
FFD	Fossil Fuel Depletion	MJ-surplus	4.5E+00	2.0E-13	1.5E-11	0.0E+00	0.0E+00	2.5E-15	0.0E+00	4.9E-08	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results shown below were calculated using CML 2001 - April 2013 Methodology.

CML 4.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	5.3E-03	4.1E-05	0.0E+00	0.0E+00	6.6E-05	0.0E+00	1.9E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.5E-08	2.0E-13	1.1E-11	0.0E+00	0.0E+00	2.5E-15	0.0E+00	3.7E-08	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.6E-02	4.5E-05	2.3E-07	0.0E+00	0.0E+00	3.3E-07	0.0E+00	1.4E-03	0.0E+00
EP	Eutrophication potential	kg$(PO_4)^3$-Eq.	8.0E-03	8.4E-06	5.3E-08	0.0E+00	0.0E+00	5.8E-08	0.0E+00	7.1E-04	0.0E+00
POCP	Formation potential of tropospheric ozone photochemical oxidants	kg ethane-Eq.	7.5E-04	1.4E-06	8.8E-09	0.0E+00	0.0E+00	1.5E-08	0.0E+00	5.1E-05	0.0E+00
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	3.3E+01	6.8E-02	9.8E-04	0.0E+00	0.0E+00	8.5E-04	0.0E+00	3.4E+00	0.0E+00
ADPF	Abiotic depletion potential for fossil resources	MJ	1.4E-04	0.0E+00	4.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-07	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the resource use throughout the life cycle of the product.

Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
RPR_E	Renewable primary energy as energy carrier	MJ	3.5E+01	7.2E-02	1.1E-03	0.0E+00	0.0E+00	9.0E-04	0.0E+00	3.9E+00	0.0E+00
RPR_M	Renewable primary energy resources as material utilization	MJ	9.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
$NRPR_E$	Nonrenewable primary energy as energy carrier	MJ	6.3E-01	0.0E+00	3.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.3E-02	0.0E+00
$NRPR_M$	Nonrenewable primary energy as material utilization	MJ	1.2E-01	0.0E+00	8.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-02	0.0E+00
SM	Use of secondary material	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	Use of renewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RE	Energy recovered from disposed waste	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	Use of net fresh water	m^3	9.3E-03	0.0E+00	1.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-01	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
HWD	Hazardous waste disposed	kg	1.7E-05	1.1E-06	0.0E+00	0.0E+00	0.0E+00	4.6E-10	0.0E+00	0.0E+00	0.0E+00
NHWD	Non-hazardous waste disposed	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HLRW	High-level radioactive waste	kg or m^3	7.1E-06	1.6E-07	0.0E+00	0.0E+00	0.0E+00	1.9E-10	0.0E+00	0.0E+00	0.0E+00
ILLRW	Intermediate- and low-level radioactive waste	kg or m^3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CRU	Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MR	Materials for recycling	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MER	Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EE	Recovered energy exported from system	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

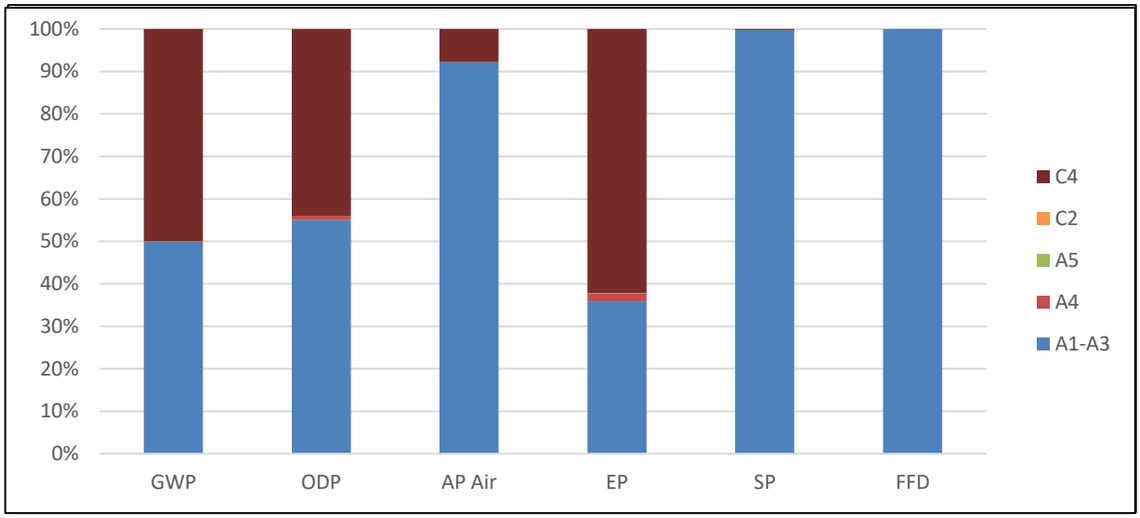
Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
BCRP	Biogenic Carbon Removal from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCE	Calcination Carbon Emissions	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCR	Carbonation Carbon Removal	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

LCA Results - Shielded 5e Minimum Impact

The production life cycle stage (A1-A3) dominates the impacts across all impact categories. This is mainly due to the packaging of the product, and secondly to the upstream production of materials used in the product, along with electricity use in the manufacturing of the product. The waste life cycle stage (C4) has the second largest impact across all impact categories.



LCA Results - Shielded 5e Maximum Impact

Results shown below were calculated using TRACI 2.1 Methodology.

TRACI 2.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	6.3E-03	4.0E-05	0.0E+00	0.0E+00	7.7E-05	0.0E+00	4.6E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.9E-08	1.1E-02	1.4E-04	0.0E+00	0.0E+00	1.4E-04	0.0E+00	5.1E-01	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.8E-02	3.6E-06	4.4E-08	0.0E+00	0.0E+00	2.6E-08	0.0E+00	2.8E-03	0.0E+00
EP	Eutrophication potential	kg N-Eq.	1.8E-02	1.9E-03	8.2E-06	0.0E+00	0.0E+00	1.3E-05	0.0E+00	6.2E-02	0.0E+00
SP	Smog formation potential	kg O_3-Eq.	4.1E-01	6.6E-05	2.9E-07	0.0E+00	0.0E+00	4.6E-07	0.0E+00	2.2E-03	0.0E+00
FFD	Fossil Fuel Depletion	MJ-surplus	4.5E+00	2.4E-13	1.5E-11	0.0E+00	0.0E+00	3.0E-15	0.0E+00	5.4E-08	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results shown below were calculated using CML 2001 - April 2013 Methodology.

CML 4.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	6.3E-03	4.1E-05	0.0E+00	0.0E+00	7.8E-05	0.0E+00	4.6E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.5E-08	2.4E-13	1.1E-11	0.0E+00	0.0E+00	2.9E-15	0.0E+00	4.2E-08	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.6E-02	5.3E-05	2.3E-07	0.0E+00	0.0E+00	3.8E-07	0.0E+00	1.7E-03	0.0E+00
EP	Eutrophication potential	kg$(PO_4)^3$-Eq.	9.5E-03	9.9E-06	5.3E-08	0.0E+00	0.0E+00	6.8E-08	0.0E+00	1.3E-03	0.0E+00
POCP	Formation potential of tropospheric ozone photochemical oxidants	kg ethane-Eq.	7.7E-04	1.7E-06	8.8E-09	0.0E+00	0.0E+00	1.8E-08	0.0E+00	6.2E-05	0.0E+00
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	3.3E+01	8.0E-02	9.8E-04	0.0E+00	0.0E+00	1.0E-03	0.0E+00	3.9E+00	0.0E+00
ADPF	Abiotic depletion potential for fossil resources	MJ	1.4E-04	0.0E+00	4.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.6E-07	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the resource use throughout the life cycle of the product.

Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
RPR_E	Renewable primary energy as energy carrier	MJ	3.6E+01	8.5E-02	1.1E-03	0.0E+00	0.0E+00	1.1E-03	0.0E+00	4.6E+00	0.0E+00
RPR_M	Renewable primary energy resources as material utilization	MJ	9.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
$NRPR_E$	Nonrenewable primary energy as energy carrier	MJ	5.9E-01	0.0E+00	3.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.1E-02	0.0E+00
$NRPR_M$	Nonrenewable primary energy as material utilization	MJ	1.2E-01	0.0E+00	8.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-02	0.0E+00
SM	Use of secondary material	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	Use of renewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RE	Energy recovered from disposed waste	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	Use of net fresh water	m^3	1.0E-02	0.0E+00	1.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.0E-01	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
HWD	Hazardous waste disposed	kg	1.8E-05	1.8E-06	0.0E+00	0.0E+00	0.0E+00	4.6E-10	0.0E+00	0.0E+00	0.0E+00
NHWD	Non-hazardous waste disposed	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HLRW	High-level radioactive waste	kg or m^3	7.4E-06	4.5E-07	0.0E+00	0.0E+00	0.0E+00	1.9E-10	0.0E+00	0.0E+00	0.0E+00
ILLRW	Intermediate- and low-level radioactive waste	kg or m^3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CRU	Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MR	Materials for recycling	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MER	Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EE	Recovered energy exported from system	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

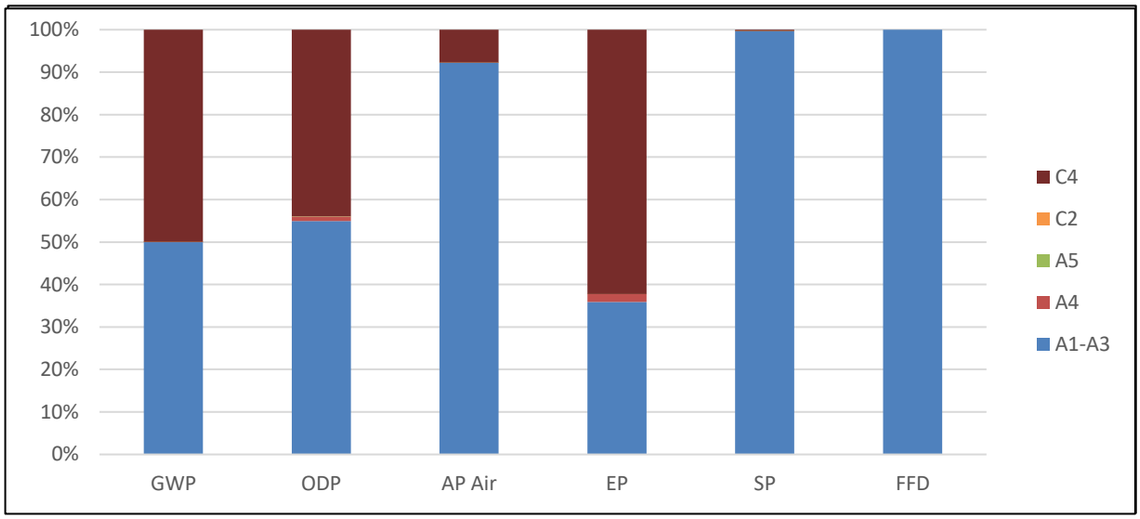
Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
BCRP	Biogenic Carbon Removal from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCE	Calcination Carbon Emissions	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCR	Carbonation Carbon Removal	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

LCA Results - Shielded 5e Maximum Impact

The production life cycle stage (A1-A3) dominates the impacts across all impact categories. This is mainly due to the packaging of the product, and secondly to the upstream production of materials used in the product, along with electricity use in the manufacturing of the product. The waste life cycle stage (C4) has the second largest impact across all impact categories.



LCA Results - Shielded 6 Minimum Impact

Results shown below were calculated using TRACI 2.1 Methodology.

TRACI 2.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	3.8E-03	4.0E-05	0.0E+00	0.0E+00	6.6E-05	0.0E+00	1.9E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.8E-08	6.7E-03	1.4E-04	0.0E+00	0.0E+00	1.2E-04	0.0E+00	4.6E-01	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.8E-02	2.0E-06	4.4E-08	0.0E+00	0.0E+00	2.2E-08	0.0E+00	1.3E-03	0.0E+00
EP	Eutrophication potential	kg N-Eq.	1.5E-02	1.0E-03	8.2E-06	0.0E+00	0.0E+00	1.1E-05	0.0E+00	5.1E-02	0.0E+00
SP	Smog formation potential	kg O_3-Eq.	4.1E-01	3.7E-05	2.9E-07	0.0E+00	0.0E+00	4.0E-07	0.0E+00	1.7E-03	0.0E+00
FFD	Fossil Fuel Depletion	MJ-surplus	4.5E+00	1.4E-13	1.5E-11	0.0E+00	0.0E+00	2.5E-15	0.0E+00	4.9E-08	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results shown below were calculated using CML 2001 - April 2013 Methodology.

CML 4.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	3.8E-03	4.1E-05	0.0E+00	0.0E+00	6.6E-05	0.0E+00	1.9E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.4E-08	1.4E-13	1.1E-11	0.0E+00	0.0E+00	2.5E-15	0.0E+00	3.7E-08	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.6E-02	3.0E-05	2.3E-07	0.0E+00	0.0E+00	3.3E-07	0.0E+00	1.4E-03	0.0E+00
EP	Eutrophication potential	kg$(PO_4)^3$-Eq.	8.0E-03	5.5E-06	5.3E-08	0.0E+00	0.0E+00	5.8E-08	0.0E+00	7.1E-04	0.0E+00
POCP	Formation potential of tropospheric ozone photochemical oxidants	kg ethane-Eq.	7.2E-04	9.8E-07	8.8E-09	0.0E+00	0.0E+00	1.5E-08	0.0E+00	5.1E-05	0.0E+00
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	3.3E+01	4.8E-02	9.8E-04	0.0E+00	0.0E+00	8.5E-04	0.0E+00	3.4E+00	0.0E+00
ADPF	Abiotic depletion potential for fossil resources	MJ	1.4E-04	0.0E+00	4.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-07	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the resource use throughout the life cycle of the product.

Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
RPR_E	Renewable primary energy as energy carrier	MJ	3.6E+01	5.1E-02	1.1E-03	0.0E+00	0.0E+00	9.0E-04	0.0E+00	3.9E+00	0.0E+00
RPR_M	Renewable primary energy resources as material utilization	MJ	9.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
$NRPR_E$	Nonrenewable primary energy as energy carrier	MJ	3.0E-01	0.0E+00	3.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.3E-02	0.0E+00
$NRPR_M$	Nonrenewable primary energy as material utilization	MJ	1.2E-01	0.0E+00	8.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-02	0.0E+00
SM	Use of secondary material	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	Use of renewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RE	Energy recovered from disposed waste	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	Use of net fresh water	m^3	9.0E-03	0.0E+00	1.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-01	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
HWD	Hazardous waste disposed	kg	1.7E-05	1.1E-06	0.0E+00	0.0E+00	0.0E+00	4.6E-10	0.0E+00	0.0E+00	0.0E+00
NHWD	Non-hazardous waste disposed	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HLRW	High-level radioactive waste	kg or m^3	7.1E-06	1.5E-07	0.0E+00	0.0E+00	0.0E+00	1.9E-10	0.0E+00	0.0E+00	0.0E+00
ILLRW	Intermediate- and low-level radioactive waste	kg or m^3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CRU	Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MR	Materials for recycling	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MER	Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EE	Recovered energy exported from system	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

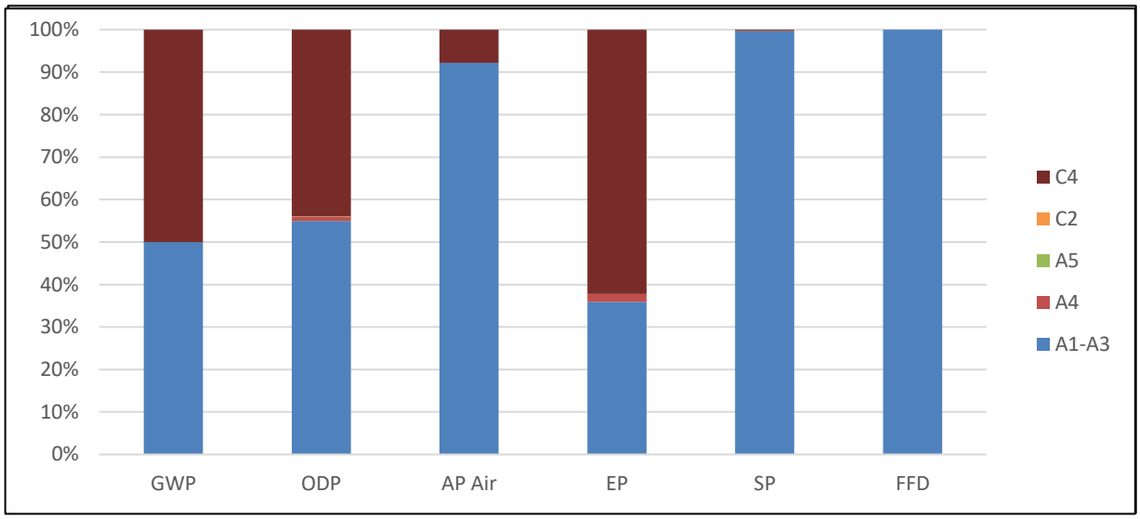
Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
BCRP	Biogenic Carbon Removal from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCE	Calcination Carbon Emissions	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCR	Carbonation Carbon Removal	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

LCA Results - Shielded 6 Minimum Impact

The production life cycle stage (A1-A3) dominates the impacts across all impact categories. This is mainly due to the packaging of the product, and secondly to the upstream production of materials used in the product, along with electricity use in the manufacturing of the product. The waste life cycle stage (C4) has the second largest impact across all impact categories.



LCA Results - Shielded 6 Maximum Impact

Results shown below were calculated using TRACI 2.1 Methodology.

TRACI 2.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	6.3E-03	4.0E-05	0.0E+00	0.0E+00	7.7E-05	0.0E+00	4.6E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.9E-08	1.1E-02	1.4E-04	0.0E+00	0.0E+00	1.4E-04	0.0E+00	5.1E-01	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.8E-02	3.6E-06	4.4E-08	0.0E+00	0.0E+00	2.6E-08	0.0E+00	2.8E-03	0.0E+00
EP	Eutrophication potential	kg N-Eq.	1.8E-02	1.9E-03	8.2E-06	0.0E+00	0.0E+00	1.3E-05	0.0E+00	6.2E-02	0.0E+00
SP	Smog formation potential	kg O_3-Eq.	4.1E-01	6.6E-05	2.9E-07	0.0E+00	0.0E+00	4.6E-07	0.0E+00	2.2E-03	0.0E+00
FFD	Fossil Fuel Depletion	MJ-surplus	4.5E+00	2.4E-13	1.5E-11	0.0E+00	0.0E+00	3.0E-15	0.0E+00	5.4E-08	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results shown below were calculated using CML 2001 - April 2013 Methodology.

CML 4.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	6.3E-03	4.1E-05	0.0E+00	0.0E+00	7.8E-05	0.0E+00	4.6E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.5E-08	2.4E-13	1.1E-11	0.0E+00	0.0E+00	2.9E-15	0.0E+00	4.2E-08	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.6E-02	5.3E-05	2.3E-07	0.0E+00	0.0E+00	3.8E-07	0.0E+00	1.7E-03	0.0E+00
EP	Eutrophication potential	kg$(PO_4)^3$-Eq.	9.5E-03	9.9E-06	5.3E-08	0.0E+00	0.0E+00	6.8E-08	0.0E+00	1.3E-03	0.0E+00
POCP	Formation potential of tropospheric ozone photochemical oxidants	kg ethane-Eq.	7.7E-04	1.7E-06	8.8E-09	0.0E+00	0.0E+00	1.8E-08	0.0E+00	6.2E-05	0.0E+00
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	3.3E+01	8.0E-02	9.8E-04	0.0E+00	0.0E+00	1.0E-03	0.0E+00	3.9E+00	0.0E+00
ADPF	Abiotic depletion potential for fossil resources	MJ	1.4E-04	0.0E+00	4.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.6E-07	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the resource use throughout the life cycle of the product.

Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
RPR_E	Renewable primary energy as energy carrier	MJ	3.6E+01	8.5E-02	1.1E-03	0.0E+00	0.0E+00	1.1E-03	0.0E+00	4.6E+00	0.0E+00
RPR_M	Renewable primary energy resources as material utilization	MJ	9.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
$NRPR_E$	Nonrenewable primary energy as energy carrier	MJ	5.9E-01	0.0E+00	3.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.1E-02	0.0E+00
$NRPR_M$	Nonrenewable primary energy as material utilization	MJ	1.2E-01	0.0E+00	8.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-02	0.0E+00
SM	Use of secondary material	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	Use of renewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RE	Energy recovered from disposed waste	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	Use of net fresh water	m^3	1.0E-02	0.0E+00	1.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.0E-01	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
HWD	Hazardous waste disposed	kg	1.8E-05	1.8E-06	0.0E+00	0.0E+00	0.0E+00	4.6E-10	0.0E+00	0.0E+00	0.0E+00
NHWD	Non-hazardous waste disposed	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HLRW	High-level radioactive waste	kg or m^3	7.4E-06	4.5E-07	0.0E+00	0.0E+00	0.0E+00	1.9E-10	0.0E+00	0.0E+00	0.0E+00
ILLRW	Intermediate- and low-level radioactive waste	kg or m^3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CRU	Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MR	Materials for recycling	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MER	Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EE	Recovered energy exported from system	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

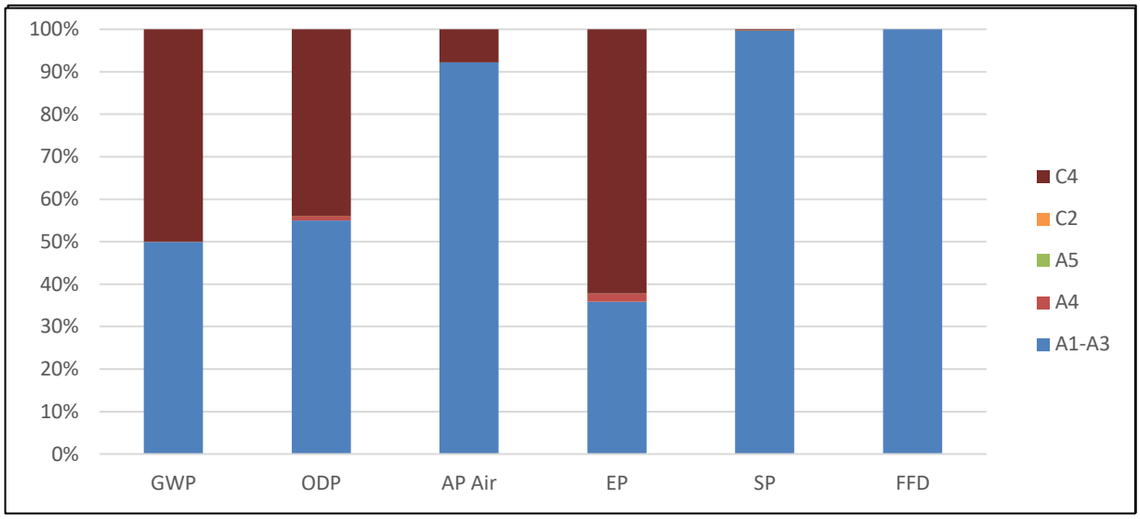
Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
BCRP	Biogenic Carbon Removal from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCE	Calcination Carbon Emissions	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCR	Carbonation Carbon Removal	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

LCA Results - Shielded 6 Maximum Impact

The production life cycle stage (A1-A3) dominates the impacts across all impact categories. This is mainly due to the packaging of the product, and secondly to the upstream production of materials used in the product, along with electricity use in the manufacturing of the product. The waste life cycle stage (C4) has the second largest impact across all impact categories.



LCA Results - Shielded 6A Minimum Impact

Results shown below were calculated using TRACI 2.1 Methodology.

TRACI 2.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	3.8E-03	4.0E-05	0.0E+00	0.0E+00	6.7E-05	0.0E+00	1.9E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.8E-08	6.8E-03	1.4E-04	0.0E+00	0.0E+00	1.2E-04	0.0E+00	4.6E-01	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.8E-02	2.0E-06	4.4E-08	0.0E+00	0.0E+00	2.2E-08	0.0E+00	1.3E-03	0.0E+00
EP	Eutrophication potential	kg N-Eq.	1.5E-02	1.1E-03	8.2E-06	0.0E+00	0.0E+00	1.1E-05	0.0E+00	5.2E-02	0.0E+00
SP	Smog formation potential	kg O_3-Eq.	4.1E-01	3.7E-05	2.9E-07	0.0E+00	0.0E+00	4.0E-07	0.0E+00	1.8E-03	0.0E+00
FFD	Fossil Fuel Depletion	MJ-surplus	4.5E+00	1.4E-13	1.5E-11	0.0E+00	0.0E+00	2.5E-15	0.0E+00	4.9E-08	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results shown below were calculated using CML 2001 - April 2013 Methodology.

CML 4.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	3.8E-03	4.1E-05	0.0E+00	0.0E+00	6.7E-05	0.0E+00	1.9E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.4E-08	1.4E-13	1.1E-11	0.0E+00	0.0E+00	2.5E-15	0.0E+00	3.8E-08	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.6E-02	3.0E-05	2.3E-07	0.0E+00	0.0E+00	3.3E-07	0.0E+00	1.4E-03	0.0E+00
EP	Eutrophication potential	kg$(PO_4)^3$-Eq.	8.0E-03	5.6E-06	5.3E-08	0.0E+00	0.0E+00	5.8E-08	0.0E+00	7.1E-04	0.0E+00
POCP	Formation potential of tropospheric ozone photochemical oxidants	kg ethane-Eq.	7.2E-04	9.9E-07	8.8E-09	0.0E+00	0.0E+00	1.5E-08	0.0E+00	5.2E-05	0.0E+00
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	3.3E+01	4.8E-02	9.8E-04	0.0E+00	0.0E+00	8.6E-04	0.0E+00	3.4E+00	0.0E+00
ADPF	Abiotic depletion potential for fossil resources	MJ	1.4E-04	0.0E+00	4.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-07	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the resource use throughout the life cycle of the product.

Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
RPR_E	Renewable primary energy as energy carrier	MJ	3.6E+01	5.1E-02	1.1E-03	0.0E+00	0.0E+00	9.1E-04	0.0E+00	3.9E+00	0.0E+00
RPR_M	Renewable primary energy resources as material utilization	MJ	9.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
$NRPR_E$	Nonrenewable primary energy as energy carrier	MJ	3.0E-01	0.0E+00	3.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.3E-02	0.0E+00
$NRPR_M$	Nonrenewable primary energy as material utilization	MJ	1.2E-01	0.0E+00	8.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-02	0.0E+00
SM	Use of secondary material	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	Use of renewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RE	Energy recovered from disposed waste	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	Use of net fresh water	m^3	8.9E-03	0.0E+00	1.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-01	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
HWD	Hazardous waste disposed	kg	1.7E-05	1.1E-06	0.0E+00	0.0E+00	0.0E+00	4.6E-10	0.0E+00	0.0E+00	0.0E+00
NHWD	Non-hazardous waste disposed	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HLRW	High-level radioactive waste	kg or m^3	7.1E-06	1.5E-07	0.0E+00	0.0E+00	0.0E+00	1.9E-10	0.0E+00	0.0E+00	0.0E+00
ILLRW	Intermediate- and low-level radioactive waste	kg or m^3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CRU	Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MR	Materials for recycling	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MER	Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EE	Recovered energy exported from system	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

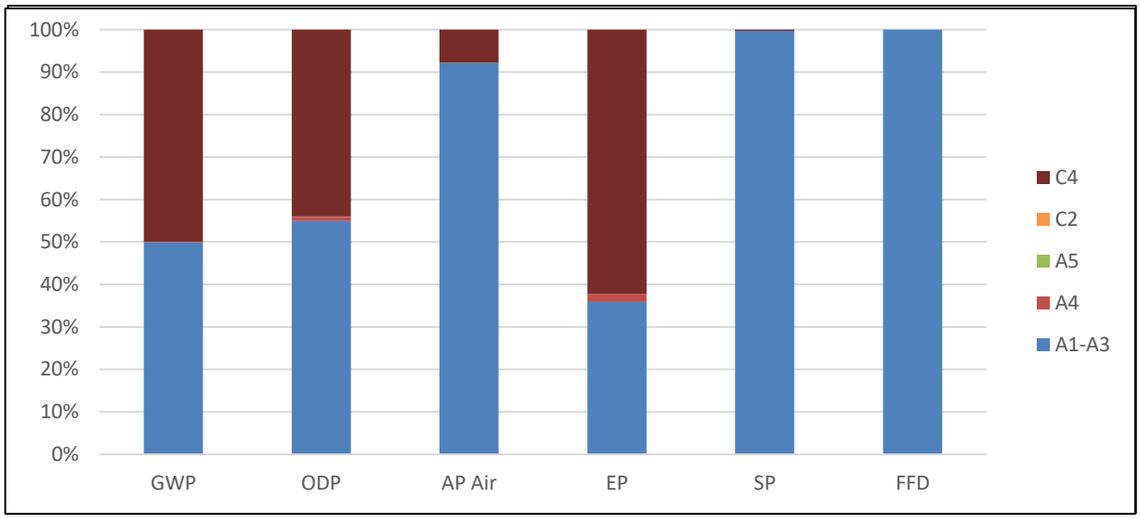
Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
BCRP	Biogenic Carbon Removal from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCE	Calcination Carbon Emissions	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCR	Carbonation Carbon Removal	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

LCA Results - Shielded 6A Minimum Impact

The production life cycle stage (A1-A3) dominates the impacts across all impact categories. This is mainly due to the packaging of the product, and secondly to the upstream production of materials used in the product, along with electricity use in the manufacturing of the product. The waste life cycle stage (C4) has the second largest impact across all impact categories.



LCA Results - Shielded 6A Maximum Impact

Results shown below were calculated using TRACI 2.1 Methodology.

TRACI 2.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	6.3E-03	4.0E-05	0.0E+00	0.0E+00	7.8E-05	0.0E+00	4.7E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.9E-08	1.1E-02	1.4E-04	0.0E+00	0.0E+00	1.4E-04	0.0E+00	5.2E-01	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.8E-02	3.6E-06	4.4E-08	0.0E+00	0.0E+00	2.6E-08	0.0E+00	2.9E-03	0.0E+00
EP	Eutrophication potential	kg N-Eq.	1.8E-02	1.9E-03	8.2E-06	0.0E+00	0.0E+00	1.3E-05	0.0E+00	6.4E-02	0.0E+00
SP	Smog formation potential	kg O_3-Eq.	4.1E-01	6.7E-05	2.9E-07	0.0E+00	0.0E+00	4.7E-07	0.0E+00	2.2E-03	0.0E+00
FFD	Fossil Fuel Depletion	MJ-surplus	4.5E+00	2.4E-13	1.5E-11	0.0E+00	0.0E+00	3.0E-15	0.0E+00	5.5E-08	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results shown below were calculated using CML 2001 - April 2013 Methodology.

CML 4.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	2.6E+00	6.3E-03	4.1E-05	0.0E+00	0.0E+00	7.8E-05	0.0E+00	4.7E+00	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.5E-08	2.4E-13	1.1E-11	0.0E+00	0.0E+00	3.0E-15	0.0E+00	4.2E-08	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	1.6E-02	5.4E-05	2.3E-07	0.0E+00	0.0E+00	3.9E-07	0.0E+00	1.8E-03	0.0E+00
EP	Eutrophication potential	kg$(PO_4)^3$-Eq.	9.5E-03	1.0E-05	5.3E-08	0.0E+00	0.0E+00	6.9E-08	0.0E+00	1.3E-03	0.0E+00
POCP	Formation potential of tropospheric ozone photochemical oxidants	kg ethane-Eq.	7.7E-04	1.7E-06	8.8E-09	0.0E+00	0.0E+00	1.8E-08	0.0E+00	6.3E-05	0.0E+00
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	3.3E+01	8.1E-02	9.8E-04	0.0E+00	0.0E+00	1.0E-03	0.0E+00	4.0E+00	0.0E+00
ADPF	Abiotic depletion potential for fossil resources	MJ	1.4E-04	0.0E+00	4.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.6E-07	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the resource use throughout the life cycle of the product.

Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
RPR_E	Renewable primary energy as energy carrier	MJ	3.6E+01	8.6E-02	1.1E-03	0.0E+00	0.0E+00	1.1E-03	0.0E+00	4.7E+00	0.0E+00
RPR_M	Renewable primary energy resources as material utilization	MJ	9.1E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
$NRPR_E$	Nonrenewable primary energy as energy carrier	MJ	5.9E-01	0.0E+00	3.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.2E-02	0.0E+00
$NRPR_M$	Nonrenewable primary energy as material utilization	MJ	1.2E-01	0.0E+00	8.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-02	0.0E+00
SM	Use of secondary material	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	Use of renewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RE	Energy recovered from disposed waste	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	Use of net fresh water	m^3	1.0E-02	0.0E+00	1.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.1E-01	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
HWD	Hazardous waste disposed	kg	2.0E-05	1.8E-06	0.0E+00	0.0E+00	0.0E+00	4.6E-10	0.0E+00	0.0E+00	0.0E+00
NHWD	Non-hazardous waste disposed	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
HLRW	High-level radioactive waste	kg or m^3	7.5E-06	4.5E-07	0.0E+00	0.0E+00	0.0E+00	1.9E-10	0.0E+00	0.0E+00	0.0E+00
ILLRW	Intermediate- and low-level radioactive waste	kg or m^3	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CRU	Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MR	Materials for recycling	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MER	Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EE	Recovered energy exported from system	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

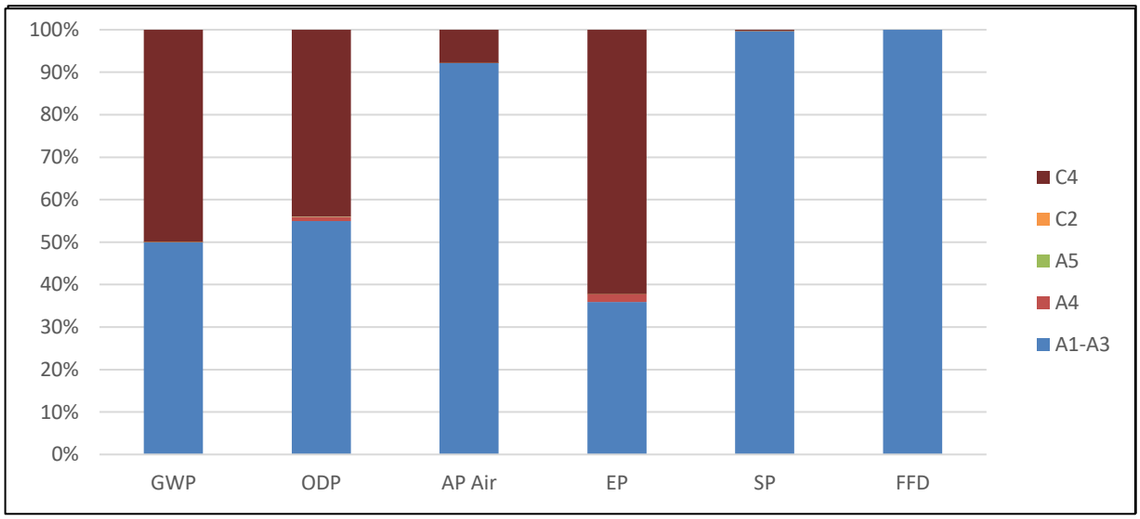
Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

Resource Use											
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**B4**	**B6**	**C2**	**C3**	**C4**	**D**
BCRP	Biogenic Carbon Removal from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCE	Calcination Carbon Emissions	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCR	Carbonation Carbon Removal	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

LCA Results - Shielded 6A Maximum Impact

The production life cycle stage (A1-A3) dominates the impacts across all impact categories. This is mainly due to the packaging of the product, and secondly to the upstream production of materials used in the product, along with electricity use in the manufacturing of the product. The waste life cycle stage (C4) has the second largest impact across all impact categories.



LCA Results - Additional SKJ6X88BL** and SK688BL** Jack Modules

Results shown below were calculated using TRACI 2.1 Methodology.

TRACI 2.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	3.0E-01	3.0E-03	3.3E-05	0.0E+00	0.0E+00	5.3E-05	0.0E+00	2.2E-03	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.4E-08	1.1E-13	1.0E-12	0.0E+00	0.0E+00	2.0E-15	0.0E+00	3.2E-12	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	5.1E-03	2.9E-05	2.1E-07	0.0E+00	0.0E+00	3.1E-07	0.0E+00	9.6E-07	0.0E+00
EP	Eutrophication potential	kg N-Eq.	4.0E-03	1.6E-06	4.0E-08	0.0E+00	0.0E+00	1.8E-08	0.0E+00	7.0E-07	0.0E+00
SP	Smog formation potential	kg O_3-Eq.	2.9E-02	8.3E-04	5.7E-06	0.0E+00	0.0E+00	8.6E-06	0.0E+00	2.7E-05	0.0E+00
FFD	Fossil Fuel Depletion	MJ-surplus	6.2E-02	5.7E-03	3.9E-07	0.0E+00	0.0E+00	1.0E-04	0.0E+00	1.9E-06	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results shown below were calculated using CML 2001 - April 2013 Methodology.

CML 4.1 Impact Assessment

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
GWP	Global warming potential	kg CO_2-Eq.	3.0E-01	3.0E-03	3.3E-05	0.0E+00	0.0E+00	5.3E-05	0.0E+00	2.2E-03	0.0E+00
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	1.2E-08	1.1E-13	7.6E-13	0.0E+00	0.0E+00	2.0E-15	0.0E+00	3.2E-12	0.0E+00
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	5.6E-03	2.4E-05	1.7E-07	0.0E+00	0.0E+00	3.1E-07	0.0E+00	9.6E-07	0.0E+00
EP	Eutrophication potential	kg$(PO_4)^3$-Eq.	1.8E-03	4.4E-06	4.2E-08	0.0E+00	0.0E+00	1.8E-08	0.0E+00	7.0E-07	0.0E+00
POCP	Formation potential of tropospheric ozone photochemical oxidants	kg ethane-Eq.	2.3E-04	7.8E-07	9.9E-09	0.0E+00	0.0E+00	8.6E-06	0.0E+00	2.7E-05	0.0E+00
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	1.5E-04	0.0E+00	5.2E-11	0.0E+00	0.0E+00	1.0E-04	0.0E+00	1.9E-06	0.0E+00
ADPF	Abiotic depletion potential for fossil resources	MJ	2.0E+00	3.8E-02	4.2E-05	2.0E+00	0.0E+00	5.3E-05	0.0E+00	2.2E-03	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the resource use throughout the life cycle of the product.

Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
RPR_E	Renewable primary energy as energy carrier	MJ	7.3E-01	0.0E+00	7.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.8E-05	0.0E+00
RPR_M	Renewable primary energy resources as material utilization	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
$NRPR_E$	Nonrenewable primary energy as energy carrier	MJ	2.2E+00	3.8E-02	5.1E-05	0.0E+00	0.0E+00	6.8E-04	0.0E+00	2.4E-04	0.0E+00
$NRPR_M$	Nonrenewable primary energy as material utilization	MJ	2.1E-01	0.0E+00	1.0E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SM	Use of secondary material	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RSF	Use of renewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RE	Energy recovered from disposed waste	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	Use of net fresh water	m^3	3.6E-03	0.0E+00	8.5E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.2E-06	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain the output flows and wastes throughout the life cycle of the product.

Output Flows and Waste Categories

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
HWD	Hazardous waste disposed	kg	3.1E-05	0.0E+00	5.2E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-08	0.0E+00
NHWD	Non-hazardous waste disposed	kg	1.6E-02	0.0E+00	5.3E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.0E-02	0.0E+00
HLRW	High-level radioactive waste	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ILLRW	Intermediate- and low-level radioactive waste	kg	6.9E-06	0.0E+00	1.3E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.2E-10	0.0E+00
CRU	Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MR	Materials for recycling	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MER	Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.3E-03	2.3E-03	0.0E+00
EE	Recovered energy exported from system	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.8E-02	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

Results below contain direct greenhouse gas emissions and removals throughout the life cycle of the product.

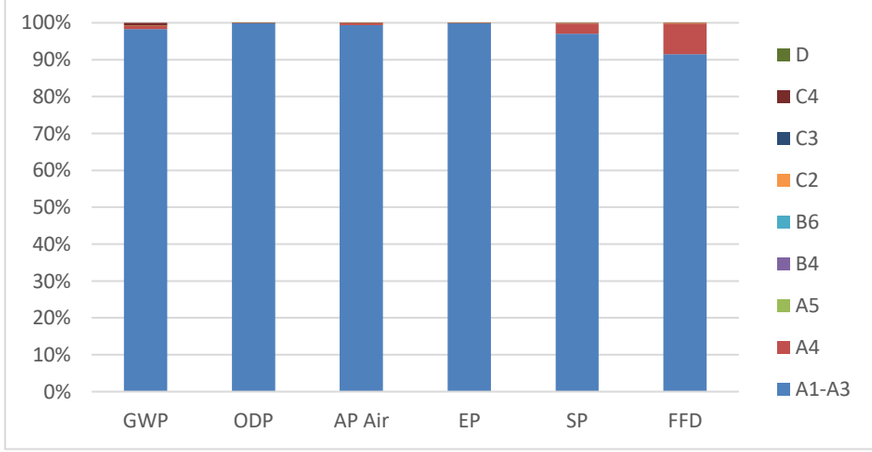
Resource Use

Parameter	Parameter	Unit	A1-A3	A4	A5	B4	B6	C2	C3	C4	D
BCRP	Biogenic Carbon Removal from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEP	Biogenic Carbon Emissions from Product	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCRK	Biogenic Carbon Removal from Packaging	kg CO_2	4.6E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEK	Biogenic Carbon Emissions from Packaging	kg CO_2	0.0E+00	0.0E+00	4.6E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BCEW	Biogenic Carbon Emissions from Combustion of Waste from Renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCE	Calcination Carbon Emissions	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CCR	Carbonation Carbon Removal	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CWNR	Carbon Emissions from Combustion of Waste from Non-renewable Sources Used in Production Process	kg CO_2	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

**All use phase and disposal stages have been considered and only those with non-zero values have been reported*

LCA Interpretation - Additional SKJ6X88BL** and SK688BL** Jack Modules

The production life cycle stage (A1-A3) dominates the impacts across all impact categories, and this is heavily due to the raw materials in the products themselves.



Additional Environmental Information

Environmental and Health During Manufacturing

Panduit is committed to Environmental, Social, and Governance (ESG) as we establish and meet critical performance benchmarks in the key areas of environmental stewardship, community support, diversity and inclusion, and ethics and compliance.
Our ESG commitments will help shape our journey as we continue to innovate and enable our customers to create more meaningful connections.

Environmental and Health During Installation

No damage to health or impairment is expected under normal use corresponding to the intended use of the product.

Extraordinary Effects

Fire
None
Water
None
Mechanical Destruction
None

Delayed Emissions

Global warming potential is calculated using the TRACI 2.1 and CML 4.1 impact assessment methodologies. Delayed emissions are not considered.

Environmental Activities and Certifications

Panduit is constantly exploring ways to minimize its ecological footprint—from sustainable manufacturing processes and energy savings initiatives at our facilities, to the use of environmentally friendly materials in our products, to our world headquarters being recognized as a LEED Gold® certified building.
During the past five years, Panduit has achieved a 20% reduction in our global carbon footprint, a 13% reduction in total electricity usage, and a 36% reduction in total fossil fuel usage.

Further Information

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References

- PCR Part A — UL Environment / IBU Core PCR Part A: Product Category Rules for Building-Related Products and Services; Part A: Calculation Rules for the Life Cycle Assessment and Requirements of the Project report (Version 2.0).
- PCR Part B — PCR for Construction Products and CPC 54 Construction Services, 2012:01 V2.34, updated in November 2021, valid until Feb. 28, 2022.
- SimaPro v9.1.1 — PRe Sustainability. SimaPro Life Cycle Assessment version 9.1.1(software).
- ISO 14025 — ISO 14025:2011-10, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.
- ISO 14040 — ISO 14040:2009-11, Environmental management — Life cycle assessment — Principles and framework.
- ISO 14044 — ISO 14044:2006-10, Environmental management — Life cycle assessment — Requirements and guidelines.
- EN 15804 — EN 15804:2012-04: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction product
- ULE 2020 — UL Environment, General Program Instructions, v2.5, March 2020.
- ISO 21930: 2017 — ISO 21930:2017, Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services.

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