EPD
INTERNATIONAL EPD SYSTEM

ENVIRONMENTAL PRODUCT DECLARATION

IXIO-D

FROM **BEA SENSORS**

Type II Environmental Product Declaration, according to ISO 14021.
Life cycle impact assessment (LCIA) realised following ISO 14025:2006 and EN 15804 : 2012+A2:2019/AC:2021 guidance.

GENERAL INFORMATION

This environmental product declaration (EPD) is based on the international standard ISO 14021:2016 (Environmental labels and declarations – Self-declared environmental claims – Type II environmental labelling).

This analysis is the result of a full-scale life cycle assessment (LCA) study according to ISO 14040/44n and follows the guidance of the product category rules (PCR) for construction products defined in EN 15804 ("Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products").

PRODUCT INFORMATION

The IXIO-D is a combined technology sensor, opening and securing automatic sliding doors across the world since 2012. Artek inside offers a comfortable opening experience and the infrared curtains protect people from any contact with the doors. The IXIO-D secures the leading edge and door threshold during closing. Combined with the IXIO-S for safety during opening, it offers a complete solution for sliding doors, compliant with the EN 16005 and DIN 18650 safety standards.

More information on the product: eu.beasensors.com/en/product/ixio-d/

This product is manufactured on the production sites of BEA Sensors:

- BEA S.A. Allée des Noisetiers, 12 4031 Angleur, Belgium
- BEA S.A. Rue du Charbonnage, 7 4100 Seraing, Belgium
- BEA Beijing Xinghai Road Beijing Economic Technological Development Area, 100176 BEIJING, China

GOAL & SCOPE

FUNCTIONNAL UNIT

The functional unit is one piece of the IXIO-D ARTEK type sensor whose function is to open, close and secure an automatic sliding door. The lifetime is estimated at 10 years.

Reference flux

The reference flux refers to the quantity of products need to fulfil the function. In this case, it requires one piece of sensor weighting 360 g in addition to around 115 g of packaging.

Reference Service Life

According to CEN (2019), the Reference Service Life (RSL) is an estimation of the time length during which the product should remain functional when used under normal conditions. In this case, it corresponds to a 10-year lifetime.

Geographical consideration

This analysis is based on a sensor unit located in Europe, using the average European mix of the Ecoinvent 3.10 database.

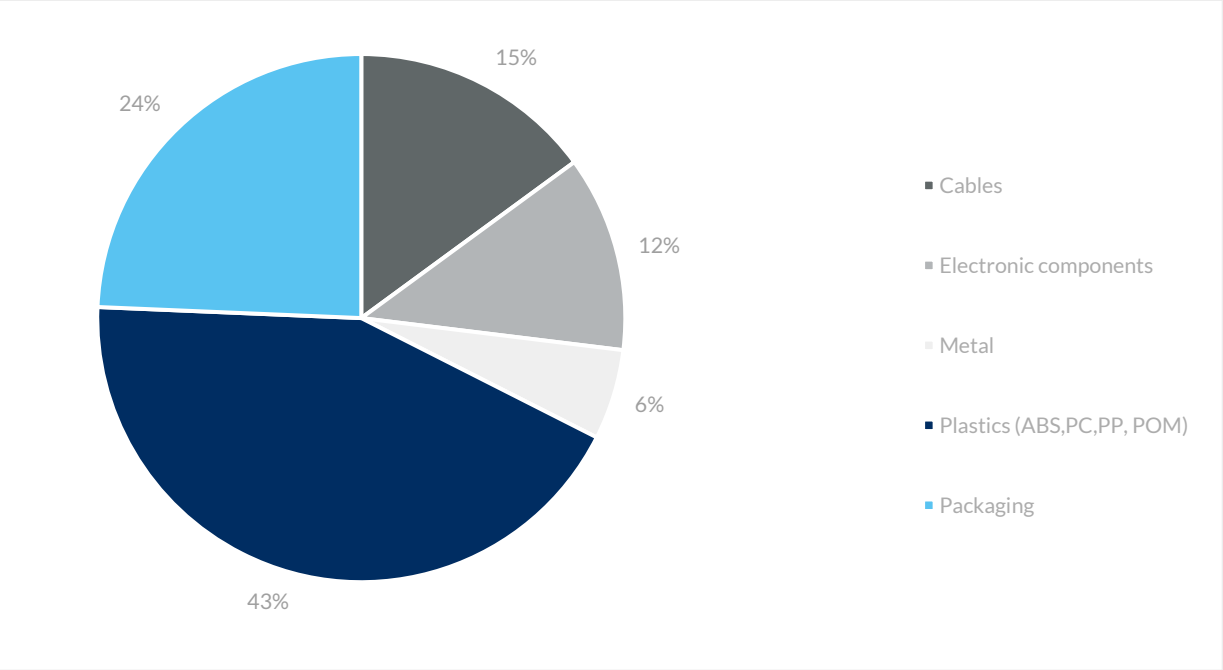
SYSTEM BOUNDARIES

The study is based on a cradle-to-grave analysis, following the EN15804+A2, meaning that the product system is assessed from the Product stage to the End-of-life stage (see Life-Cycle Inventory chapter for more information).

LIFE-CYCLE INVENTORY

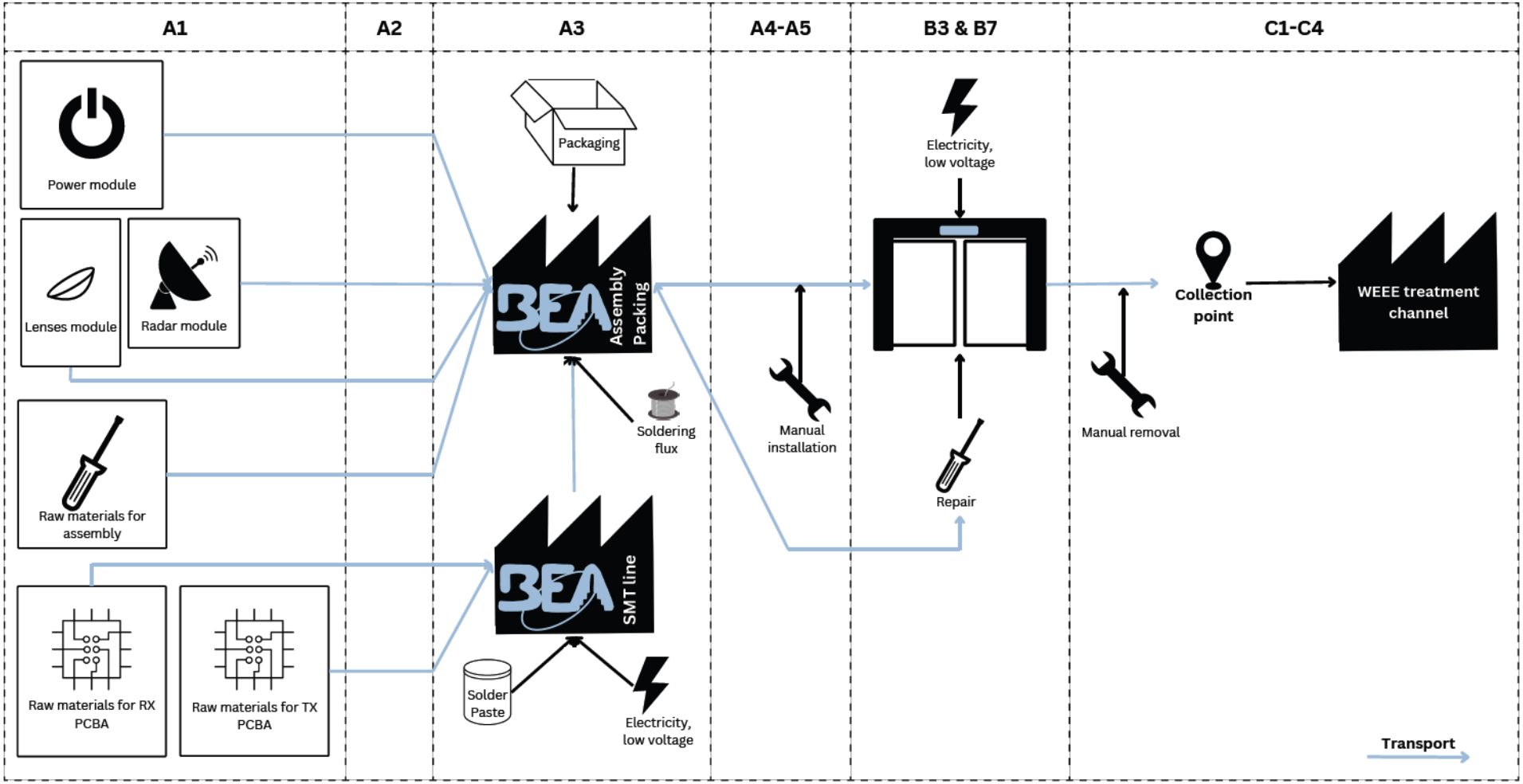
MATERIAL COMPOSITION

IXIO D materials share by mass



Plastic:	Plastic part composed of Acrylonitrile-Butadiene-Styrene, Polycarbonate, Polyoxymethylene
Electronic:	Printed wiring board and mounted SMT or though hole electronic components
Metal:	Steel and other metals
Cable:	Internal and external cables
Packaging:	Materials that protect and custom the product for delivery. It mostly contains paper and recycled cardboard, as well as a limited quantity of soft plastics.

Data collection and system diagram:



Following the EN15804+A2, the various modules are referring to:

A1-A3: PRODUCTION STAGE

- A1: Raw materials & components used for sensor assembly.
- A2: Transport of raw materials listed in A1 to BEA production sites.
- A3: BEA Manufacturing, assembly & packing operations.

A4-A5: INSTALLATION

- A4: The transportation from BEA Manufacturing site to the sensor's installation site.
- A5: On-site installation.

B1 – B6: USE STAGE

- B3: Repair of sensor under warranty
- B6: Operational energy use of the sensor during a 10 years-lifetime.

Modules B2, B4, B5 and B7, respectively Maintenance, Replacement, Refurbishment and Operational water use are not relevant for the product and are not part of the product system's life-cycle. For this reason, they have not been considered.

C1-C4: END-OF-LIFE

- C1: The deconstruction C1, which refers to on-site disassembly including sorting.
- C2: The transportation of the obsolete product to the nearest WEEE collection site C2.
- C3: The waste processing.
- C4: The waste disposal.

D: RESOURCE RECOVERY STAGE

Estimated benefits and loads beyond the product system boundary, from the recycling of a unit of sensor.

CUT-OFF CRITERIA:

Cut-off rules define criteria for exclusion of inputs and outputs. In principle, all inputs and outputs process must be included in the product system's model. However, in case of insufficient or not relevant input data, the cut-off criteria allow information of up to 1 % of the total mass of the product to be omitted.

First, material and energy inputs for the process of wire bonding (assembly operations at BEA manufacturing site) are neglected. It consists of bonding an aluminium wire (finer than hair), to conduct electricity from the PCB to very specific emitters or photodiodes. Considering that this operation requires a very poor volume of raw material and energy, and in view of the difficulties to evaluate wire weight and the energy required, those inputs are omitted.

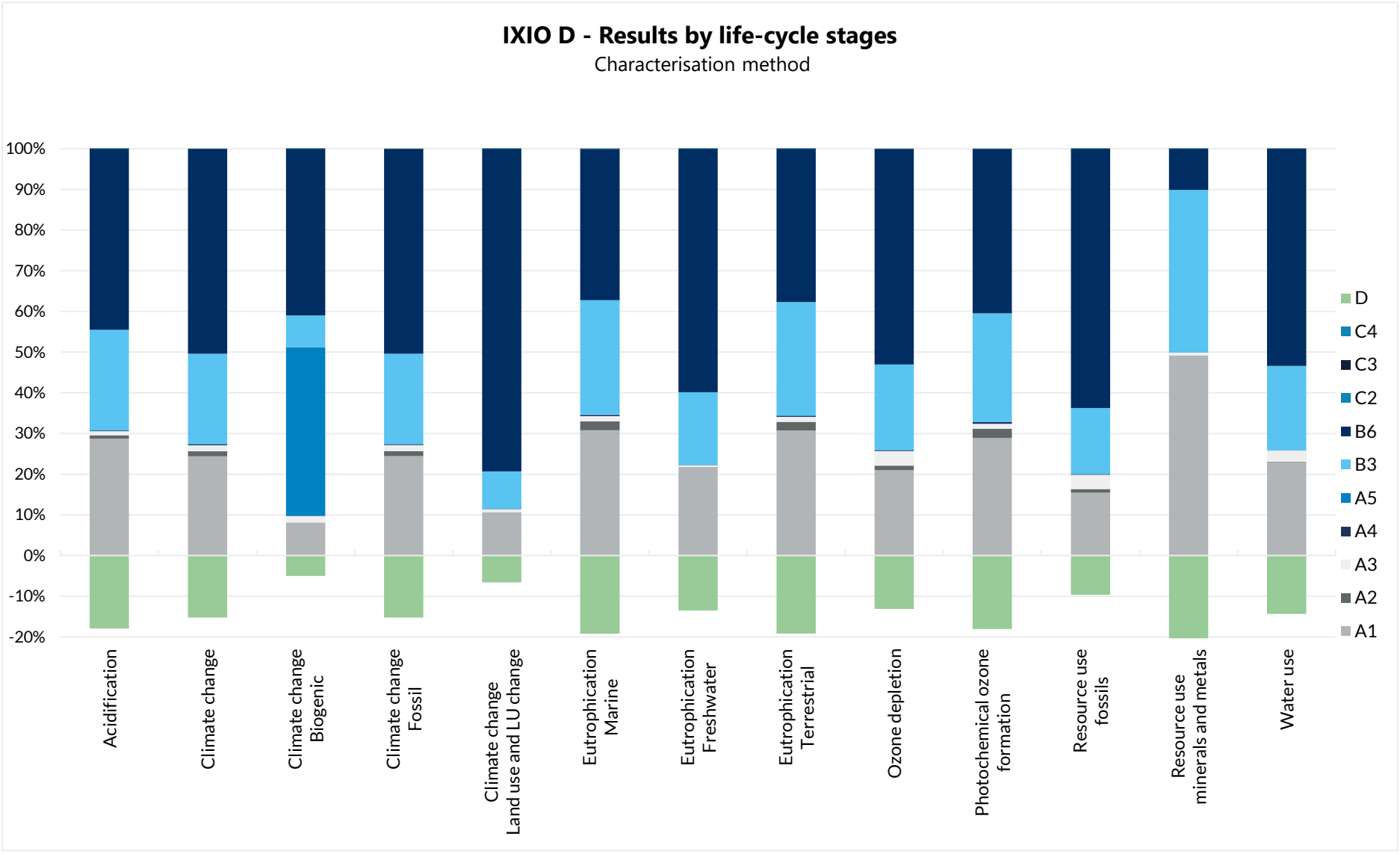
Then, packaging of incoming raw materials, are considered as not relevant in the present LCA. On the one hand, because this packaging can contain the raw material from 10 to more than 1000 times the functional unit. On the other hand, materials and configuration vary depending on the delivery.

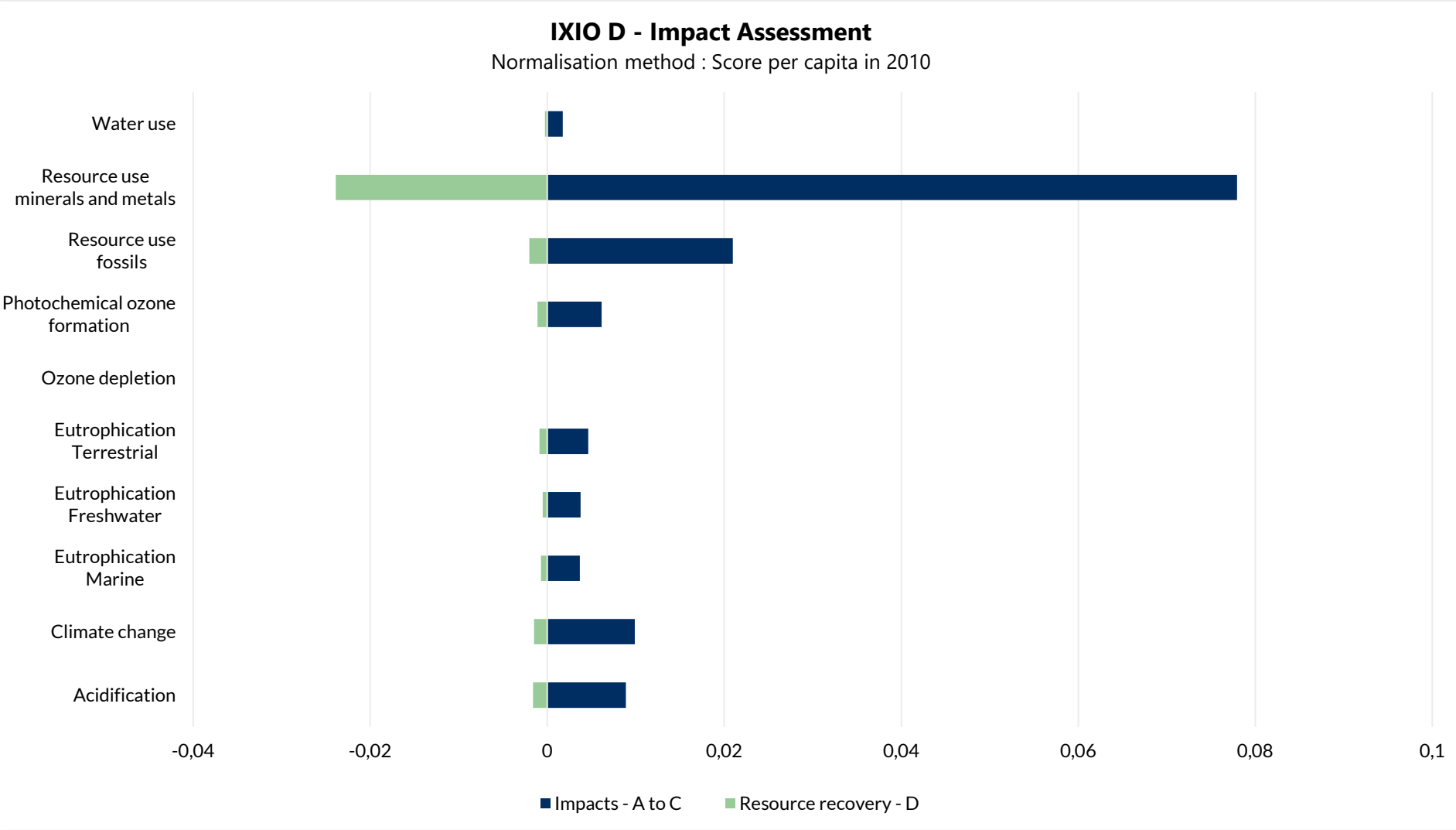
MODELLING METHODOLOGY:

Data collection and modelling are organised according to the modularity principle depicted in the system diagram. This means that modules are built sequentially from the product stage to the end-of-life stage. The collection is performed through Microsoft Excel, while the modelling is performed through SimaPro 9.6.0.1 software, following Environmental Footprint EF3.1 methodology. The database Ecoinvent 3.10 is mainly used and completed by the Industry data 2.0 when neede

IMPACTS

			Product stage			*Construction process stage*		*Use stage*		*End of life stage*			*Resource recovery stage*
			Raw material supply	*Transport*	*Manufacturing*	*Transport*	*Construction installation*	*Repair*	*Operational energy use*	*Transport*	*Waste processing*	*Disposal*	*Reuse-Recovery-Recycling-potential*
Impact category	**Parameter**	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**B3**	**B6**	**C2**	**C3**	**C4**	**D**
Acidification	AP	mol H+ eq	1,42E-01	4,09E-03	4,93E-03	6,98E-04	3,96E-05	1,22E-01	2,19E-01	2,31E-05	9,03E-05	3,94E-05	-8,85E-02
Climate change	GWP - total	kg CO2 eq	1,82E+01	9,05E-01	1,10E+00	1,85E-01	8,78E-02	1,65E+01	3,75E+01	5,08E-03	7,27E-02	1,01E-02	-1,14E+01
Climate change - Biogenic	GWP - biogenic	kg CO2 eq	1,63E-02	7,39E-05	3,29E-03	3,78E-05	8,37E-02	1,58E-02	8,28E-02	2,08E-06	1,91E-05	3,26E-06	-1,02E-02
Climate change - Fossil	GWP - fossil	kg CO2 eq	1,82E+01	9,05E-01	1,10E+00	1,85E-01	4,01E-03	1,65E+01	3,73E+01	5,07E-03	7,26E-02	1,01E-02	-1,13E+01
Climate change - Land use and LU change	GWP - luluc	kg CO2 eq	1,52E-02	8,52E-05	1,11E-03	5,69E-05	1,54E-06	1,32E-02	1,14E-01	2,52E-06	1,37E-05	4,45E-05	-9,48E-03
Eutrophication, marine	EP - freshwater	kg N eq	2,22E-02	1,58E-03	9,14E-04	2,44E-04	6,96E-05	2,03E-02	2,68E-02	7,55E-06	1,97E-05	8,94E-06	-1,39E-02
Eutrophication, freshwater	EP - marine	kg P eq	1,31E-03	2,17E-06	3,18E-05	1,39E-06	1,72E-07	1,08E-03	3,61E-03	6,24E-08	1,66E-06	3,65E-07	-8,16E-04
Eutrophication, terrestrial	EP - terrestrial	mol N eq	2,52E-01	1,73E-02	9,85E-03	2,69E-03	1,62E-04	2,29E-01	3,09E-01	8,40E-05	2,20E-04	9,87E-05	-1,57E-01
Ozone depletion	ODP	kg CFC11 eq	2,73E-07	1,41E-08	4,62E-08	3,45E-09	6,23E-11	2,74E-07	6,88E-07	9,88E-11	7,07E-10	6,62E-11	-1,70E-07
Photochemical ozone formation	POCP	kg NMVOC eq	7,27E-02	5,57E-03	3,12E-03	1,04E-03	7,70E-05	6,72E-02	1,02E-01	3,39E-05	9,00E-05	3,55E-05	-4,54E-02
Resource use, fossils	ADPF	MJ	2,11E+02	1,20E+01	4,76E+01	2,57E+00	4,33E-02	2,22E+02	8,69E+02	7,13E-02	3,66E-01	1,10E-01	-1,32E+02
Resource use, minerals and metals	ADPE	kg Sb eq	2,44E-03	6,27E-07	3,76E-05	6,97E-07	8,59E-09	1,98E-03	5,01E-04	4,13E-08	1,16E-07	1,55E-08	-1,52E-03
Water use	WDP	m3 depriv.	4,63E+00	1,94E-02	5,65E-01	9,66E-03	-2,78E-03	4,19E+00	1,08E+01	3,67E-04	3,87E-03	2,29E-03	-2,89E+00


IXIO D - Results by life-cycle stages
Characterisation method
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
-10%
-20%
D
C4
C3
C2
B6
B3
A5
A4
A3
A2
A1
Acidification
Climate change
Climate change Biogenic
Climate change Fossil
Climate change Land use and LU change
Eutrophication Marine
Eutrophication Freshwater
Eutrophication Terrestrial
Ozone depletion
Photochemical ozone formation
Resource use fossils
Resource use minerals and metals
Water use


IXIO D - Impact Assessment
Normalisation method : Score per capita in 2010
Water use
Resource use minerals and metals
Resource use fossils
Photochemical ozone formation
Ozone depletion
Eutrophication Terrestrial
Eutrophication Freshwater
Eutrophication Marine
Climate change
Acidification
-0,04
-0,02
0
0,02
0,04
0,06
0,08
0,1
Impacts - A to C
Resource recovery - D

ABBREVIATIONS

Abbreviation	Definition
General Abbreviations	
EN	European Norm (Standard)
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
CEN	European Committee for Standardization
CLC	Co-location centre
CPC	Central product classification
GHS	Globally harmonized system of classification and labelling of chemicals
GRI	Global Reporting Initiative
SVHC	Substances of Very High Concern
ND	Not Declared
LCA	Life Cycle Assessment
RSL	Reference service life

LEGAL DISCLAIMER

This publication is for information purposes only.
BEA reserves the right to modify product design and specifications at any time. Features such as those described in this EPD may be modified during further product development. This publication therefore does not guarantee that the product's composition and functionality will be guaranteed over a defined period.

Please note that the data declared in this EPD follow the PCR for Electronic and Electric Equipment, and Electronic Components (non-Construction, PCR 2024:06). It means it cannot be compared with data calculated based on other product category rules (PCR). The results and values given are valid only in the context specified, using a specific software and environmental impacts database.
BEA therefore assumes no responsibility for any errors or consequences that may result from the use of this information.

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