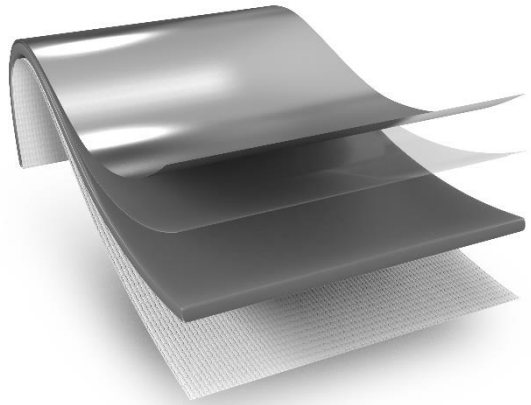
ENVIRONMENTAL PRODUCT DECLARATION

in compliance with ISO 14025 and EN 15804:2012+A2:2019

Isoltema® Group

BUTYL MEMBRANES & TAPES



- ***Bu-tylene Alu Brico***
- ***Bu-tylene Alu Brico (BK)***
- ***Bu-tylene Alu Brico FR***
- ***Bu-tylene Alu Sound***

Manufacturing plant:
via dell'Industria 2 • 47020 Longiano (FC) • Italy

Program Operator: **EPDItaly**	Registration number: **EPDITALY0622**
Publisher: **EPDItaly**	Issue Date: **14/02/2024**
Declaration number: **Isoltema EPD ALU BUT**	Valid until: **14/02/2029**

1. GENERAL INFORMATION

EPD Owner: ISOLTEMA S.p.A.
via G.Perticari 6/8, 47035 Gambettola (FC), Italy

Production site: via dell'Industria 2, 47020 Longiano (FC), Italy

Product names: Bu-tylene Alu Brico; Bu-tylene Alu Brico (BK); Bu-tylene Alu Brico FR; Bu-tylene Alu Sound.

Products description: High-performance membranes and tapes made with butyl compound and protective film.

CPC Code: 5453 - Roofing and waterproofing services

Comparability: Environmental statements published within the same product category, but from different programmes, may not be comparable. In particular, EPDs of construction products may not be comparable if they do not comply with EN 15804:2012+A2:2019.

Responsibility: ISOLTEMA spa releases EPDItaly from any non-compliance with environmental legislation. The holder of the declaration will be responsible for the information and supporting evidence. EPDItaly accepts no responsibility for the information, data and results provided by the EPD Owner for the life cycle assessment.

PCR: PCR ICMQ 3.0 – "Prodotti e servizi per le costruzioni" – rev. 3 – 02/12/2019, EPD Italy

Standards: ISO 14040:2006/Amd 1:2020. Environmental management – Life Cycle Assessment – Principles and framework
ISO 14044:2006/Amd 1:2017/Amd 2:2020. Environmental management – Life Cycle Assessment – Requirements and guidelines
ISO 14025:2006. Environmental labels and declarations – Type III environmental declarations
Regulations of the EPDItaly programme rev.6.0 30/10/2023

Program Operator: EPDITALY, via Gaetano De Castillia 10, 20124 Milano, Italy. www.epditaly.it

Independent verification: Independent verification of the declaration and of data performed according to ISO 14025.

☐ Internal ☒ External

Third party verifier: SGS Italia S.p.A.
via Caldera 21, 20153 Milano - Accredited by: ACCREDIA (n.0005VV)

Organization contact: isoltema@isoltema.com

Technical contact: NIER Ingegneria SpA
via Clodoveo Bonazzi 2, 40013 Castel Maggiore (BO)
www.niering.it

2. COMPANY INFORMATION

ISOLTEMA is a key player on the global market of butyl and bituminous sealants, as well as in the design and implementation of solutions, including through plant and process engineering. Isoltema's many years of experience in the bituminous and butyl fields has led to the development of a wide and comprehensive range of products able to quickly cater to the needs of customers and be highly competitive on the world market. The results achieved in over 50 years of business activity stem from constant commitment in the field of research and development, from our expertise and experience and from extensive production flexibility.

Isoltema is the world's leading manufacturer of sealing tapes and waterproof self-adhesive membranes. A leadership that stems from the satisfaction of hundreds of customers around the world and which is expressed in major engineering works.

A leadership which has its roots in innovation and research, to find solutions tailored to the needs of many different sectors: construction, industrial and energy, automotive, and do-it-yourself. A leadership constantly renewed thanks to a service culture and customer satisfaction, along with extensive technical and scientific know-how and the ability to provide fast answers to any query.

For its products, the Group uses carefully selected Raw Materials supplied by certified producers which, together with internal controls, ensures that these are of the highest quality and in conformity with the very best industrial standards. All production processes are fully automated and controlled by PLC, to ensure the traceability of each operating phase. Our products must be suitable for application in any country in the world, in any environmental condition, while always complying with the specifications and performances indicated on the technical sheets. For this reason, with the R&D Laboratory inside the Company, a Total Quality Control program has been set up, aimed at monitoring every stage of the production process, from Raw Material to Finished Product, from the normal Ageing Process to Packaging Quality.

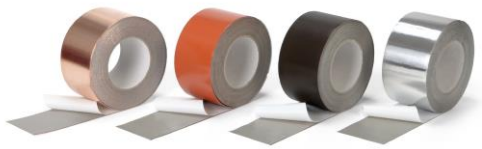
3. PRODUCT DESCRIPTION

Bu-tylene Alu Brico

Bu-tylene ALU BRICO is a self-adhesive sealing tape consisting of a high-performance butyl rubber adhesive compound, protected by a reinforced aluminium film. It is highly adhesive, even at low temperatures, to all common building materials; and it is highly resistant to ageing and UV rays. It is available in various sizes and colours for multipurpose applications. The products covered by this certification are listed below.

USES:

- Seal and join materials such as glass, steel, Plexiglas, polycarbonate, wood, aluminium, PVC.
- Can be used for the sealing of doors and windows frames, conservatories, gutters, piping and ducting.
- It can also be applied in construction on canopies, roofs, chimneys and skylights.



Bu-tylene Alu Brico

- Bu-tylene Alu Brico (0,6mm)
- Bu-tylene Alu Brico (0,8 mm)
- Bu-tylene Alu Brico (1 mm)
- Bu-tylene Alu Brico (1,5 mm)

Bu-tylene Alu Brico (BK)

- Bu-tylene Alu Brico (BK) (0,8 mm)
- Bu-tylene Alu Brico (BK) (1 mm)

Bu-tylene Alu Brico FR

- Bu-tylene Alu Brico FR (0,6 mm)
- Bu-tylene Alu Brico FR (1 mm)

Bu-tylene Alu Sound

The Bu-tylene ALU SOUND are self-adhesive antivibration membranes made of a viscoelastic butyl rubber compound, self-protected by a thick aluminium film. The specificity of these membranes is to absorb the vibrations and dissipate them into heat. It is available in three different configurations: rolls, flat sheets and tailor-made shapes. The products covered by this certification are listed below.

- Bu-tylene Alu Sound (1,6 mm)
- Bu-tylene Alu Sound (1,8 mm)

USES:

- Can be applied in stamping, fabrication and body assembly operations and can be used in horizontal, vertical & inverted applications.
- Compatible with metal sheets, plastic laminates, car bodies and compartments.
- In the construction industry, possible applications are on metal surfaces of windows sills and wall cladding composite panels.

The raw materials that make up membranes and tapes vary according to type and change in the proportions, type and weight. The analysed products consist of: butyl-based compound, aluminium film, and removable plastic liner.

The analysed products do not contain hazardous substances in concentrations exceeding 0.1%, as listed in the Candidate List of Substances of Very High Concern (SVHC) for authorization under the REACH Regulation.

Materials	Weight (%)
Butyl compound	*69 - 88*
Polymers (HDPE, PE, PP, LDPE)	*1 - 7*
Reinforcements (Aluminium)	*1 - 12*
Cardboard / Paper	*4 - 20*

3.1 PRODUCTION PROCESS

The products covered by this declaration are manufactured at the Longiano production facility, and the process is the same in terms of steps followed and inputs used. The first phase is the storage of raw materials. Poly-isobutene and calcium carbonate are delivered to the facility via tankers and stored in dedicated tanks. During the production of butyl compound, poly-isobutene and calcium carbonate are conveyed to the mixer through pipelines, while other raw materials are added manually. Once the butyl compound is produced, it is stored in the department and then sent to the production line.

The film and removable liner are positioned on the line, and the butyl compound is coated onto the film at the required thickness. The membrane is cooled in-line using air cooling and then, the finished and cooled roll is collected at the end of the line. Finally, the roll can either be boxed and palletized, in the case of membranes, or sent to the cutting and packaging department in the case of butyl tapes, where the membrane is cut to the required dimensions and packaged as per product specifications.

4. CALCULATION RULES

This EPD, and the Life Cycle Assessment on which it is based, concern the scenario defined as "*cradle to gate with modules C1-C4 and D*". Modules A4-A5 and B1-B7 are excluded as they highly depend on the specific application within the target market. Below are described the different phases of the analysed life cycle.

	PRODUCT STAGE			*CONSTRUCTION PROCESS STAGE*	*USE STAGE*	*END OF LIFE STAGE*	*BENEFITS BEYOND SYSTEM BOUNDARY*
	A1	*A2*	*A3*	*A4-A5*	*B1-B7*	*C1-C4*	*D*
	Extraction of raw materials, production of semi-finished and ancillary products.	Transportation of raw materials and semi-finished products to the production site.	Manufacturing, product assembly; Waste recycling processes.	Transportation from the production site to the installation site. Inputs used in the construction phase; End-of-life of packaging.	Energy consumed by the product during the entire reference lifetime	Inputs used in the de-installation phase; End of life of product materials and related transportation;	Reuse, recovery and recycling.
Modules declared	X	X	X	ND	ND	X	X
Geography	GLO	GLO	IT			EU	EU

Note: ND: Module not declared; GLO: Global; EU: Europe; IT: Italy.

Type of EPD: Declaration concerning a specific product at a specific plant, by a specific manufacturer

Geographical validity: The assessment was performed in relation to the Longiano production site. The reference market and end-of-life scenario consider the European context.

Temporal validity: The primary data used for the study refer to the year 2022.

Database used: Ecoinvent v.3.8

LCA Software: SimaPro v.9.4.0.2

Declared unit: 1 m^2 of packaged butyl membrane and tape.

4.1 ASSUMPTIONS

Below are listed the assumptions made for the LCA study underlying this EPD:

- All transports of input materials and raw materials from suppliers to the companies' facilities are included in the model with primary information.
- For road transport, a EURO 5 lorry 16-32 t has been considered.
- For electricity consumption from the grid, the Italian Residual Mix provided by the Association of Issuing Bodies (AIB) for 2022 has been considered.
- For the end-of-life phase, a scenario has been developed based on the following assumptions:
    - Demolition-related impacts (C1) are assumed to be negligible. This is based on the products' negligible weight compared to the support to which they are applied and considering that the demolition/removal of the sealing system occurs simultaneously with the demolition of the building/component.
    - For the transportation phase (C2), a conservative assumption of 100 km with a EURO 4 lorry 16-32 t has been used.
    - It is assumed that end-of-life products undergo no process for material recovery (C3) and are destined for landfill disposal (C4).
- For module D, potential impacts and benefits beyond the system boundaries related to the use of recycled raw materials have been quantified.

4.2 CUT-OFF RULES

All major raw materials, components, and all necessary energy are included within the system boundaries. The study includes data on elementary flows to and from the product system contributing to at least 99% of the declared environmental impacts.

In accordance with the reference regulatory standards, the Cut-off criterion has been set at 1% of mass flows and applied only to packaging components. Instrumental assets such as buildings, machinery, tools, and infrastructure, as well as general administrative activities that cannot be directly allocated to the production of the analysed products, have been excluded from the system boundaries.

Regarding the end-of-life phase of the product, the Cut-off approach has been applied, wherein only the transport impact to treatment plants is attributed to waste destined for recovery, while the impacts associated with treatment processes for waste recovery are allocated to the subsequent system.

4.3 ALLOCATION RULES

The allocation procedure follows the rules established by EN 15804. Energy, resources, waste, and emissions have been allocated to the analysed products based on the mass of products manufactured in the reference year.

4.4 DATA QUALITY

Specific data collected and provided by ISOLTEMA S.p.A. have been used for products analysis. Data concerning quantities of all incoming and outgoing materials were extracted from the company's management system, resources used in the process (electricity, methane, water) from invoices and meters, while waste quantities were extracted from the electronic waste register. The data refer to the reference period January-December 2022. For other data, secondary data from the Ecoinvent database were used. Regarding modules C1-C4 and D, no data were available due to the heterogeneous application of the products, and the most plausible scenario, landfill disposal, has been applied. This scenario was modelled based on secondary data from the Ecoinvent 3.8 database.

5. RESULTS

The following tables display the indicators of environmental impacts, resource use, waste production and output streams, in accordance with the PCRs. Results are expressed per Declared Unit and are divided according to the main phases of the life cycle.

5.1 Bu-tylene Alu Brico (0,6mm)

ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
GWP	kg CO_2 eq	1,74E+00	0,00E+00	1,65E-02	0,00E+00	1,06E-02	1,77E+00	4,13E-02
GWP-f	kg CO_2 eq	1,74E+00	0,00E+00	1,65E-02	0,00E+00	1,05E-02	1,77E+00	6,00E-02
GWP-b	kg CO_2 eq	1,05E-02	0,00E+00	1,50E-05	0,00E+00	8,48E-05	1,06E-02	-2,05E-02
GWP-L	kg CO_2 eq	1,79E-03	0,00E+00	6,54E-06	0,00E+00	1,07E-05	1,81E-03	1,82E-03
ODP	kg CFC11 eq	7,25E-07	0,00E+00	3,85E-09	0,00E+00	3,21E-09	7,32E-07	7,25E-09
AP	mol H^+ eq	7,17E-03	0,00E+00	8,36E-05	0,00E+00	8,90E-05	7,34E-03	5,70E-04
EP-fw	kg P eq	2,94E-04	0,00E+00	1,07E-06	0,00E+00	3,06E-06	2,98E-04	4,05E-05
EP-m	kg N eq	1,55E-03	0,00E+00	2,88E-05	0,00E+00	3,07E-05	1,61E-03	2,27E-04
EP-t	mol N eq	1,49E-02	0,00E+00	3,15E-04	0,00E+00	3,34E-04	1,56E-02	1,97E-03
POCP	kg NMVOC eq	5,51E-03	0,00E+00	8,98E-05	0,00E+00	9,66E-05	5,69E-03	3,39E-04
ADP-f*	MJ	4,01E+01	0,00E+00	2,52E-01	0,00E+00	2,48E-01	4,06E+01	9,14E-01
ADP-m*	kg Sb eq	1,40E-05	0,00E+00	5,79E-08	0,00E+00	3,45E-08	1,41E-05	4,92E-07
WDP*	m^3 depriv.	6,49E-01	0,00E+00	7,54E-04	0,00E+00	1,08E-02	6,61E-01	1,04E-01

Note: GWP: Global Warming Potential total; GWP-f: Global Warming Potential fossil; GWP-b: Global Warming Potential biogenic; GWP-L: Global Warming Potential land use and land use change; ODP: Depletion potential of the stratospheric ozone layer; AP: Acidification potential; EP-fw: Eutrophication potential-freshwater compartment; EP-m: Eutrophication potential-marine compartment; EP-t: Eutrophication potential-terrestrial compartment; POCP: Formation potential of tropospheric ozone; ADP-f: Abiotic Depletion for non-fossil resources potential; ADP-m: Abiotic Depletion for non-fossil resources potential; WDP: Water deprivation potential. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited.]

ADDITIONAL ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PM	Disease inc.	7,62E-08	0,00E+00	1,47E-09	0,00E+00	1,78E-09	7,95E-08	7,91E-09
IRP**	kBq U235 eq.	8,61E-02	0,00E+00	1,29E-03	0,00E+00	1,17E-03	8,85E-02	1,41E-02
ETP-fw*	CTUe	2,73E+01	0,00E+00	1,96E-01	0,00E+00	1,77E-01	2,77E+01	2,87E+00
HTP-nc*	CTUh	1,98E-08	0,00E+00	2,06E-10	0,00E+00	1,18E-10	2,02E-08	1,83E-09
HTP-c*	CTUh	8,98E-10	0,00E+00	6,36E-12	0,00E+00	7,59E-12	9,12E-10	8,70E-11
SQP*	Pt	5,68E+00	0,00E+00	1,73E-01	0,00E+00	5,93E-01	6,45E+00	3,55E+00

Note: PM: Potential incidence of disease due to PM emission; IRP = Potential Human exposure efficiency relative to U235; ETP-fw: Potential Comparative Toxic Unit for ecosystems; HTP-nc: Potential Comparative Toxic Unit for humans; HTP-c: Potential Comparative Toxic Unit for humans; SQP: Potential Soil quality index. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited. ****Disclaimer:** This impact category mainly concerns the possible impact of low-dose ionising radiation

from the nuclear fuel cycle on human health. It does not consider the effects caused by possible nuclear accidents, occupational exposure, or disposal of radioactive waste in underground facilities. Potential ionising radiation from soil, radon and some building materials are not measured by this indicator.]

USE OF RESOURCES

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PENRE	MJ	1,26E+01	0,00E+00	2,52E-01	0,00E+00	2,48E-01	1,31E+01	9,16E-01
PERE	MJ	1,46E+00	0,00E+00	3,55E-03	0,00E+00	4,23E-03	1,47E+00	7,84E-01
PENRM	MJ	2,75E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,75E+01	0,00E+00
PERM	MJ	8,24E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,24E-02	0,00E+00
PENRT	MJ	4,01E+01	0,00E+00	2,52E-01	0,00E+00	2,48E-01	4,06E+01	9,16E-01
PERT	MJ	1,54E+00	0,00E+00	3,55E-03	0,00E+00	4,23E-03	1,55E+00	7,84E-01
FW	m^3	1,69E-02	0,00E+00	2,81E-05	0,00E+00	2,62E-04	1,72E-02	3,63E-03
MS	kg	1,39E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,39E-01	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: PENRE: Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw material; PERE: Use of renewable primary energy excluding renewable primary energy resources used as raw material; PENRM: Use of non-renewable primary energy resources used as raw material; PERM: Use of renewable primary energy resources used as raw material; PENRT: Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials); PERT: Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials); FW: Net use of fresh water; MS: Use of secondary materials; RFS: Use of renewable secondary fuels, NRSF: Use of non-renewable secondary fuels.

WASTE PRODUCTION AND OUTPUT FLOWS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
HWD	kg	4,78E-04	0,00E+00	6,57E-07	0,00E+00	3,83E-07	4,79E-04	2,58E-06
NHWD	kg	2,12E-01	0,00E+00	1,29E-02	0,00E+00	1,00E+00	1,23E+00	1,09E-02
RWD	kg	4,41E-05	0,00E+00	1,70E-06	0,00E+00	1,48E-06	4,72E-05	5,63E-06
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	2,07E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,07E-03	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: HWD: hazardous landfill waste; NHWD: non-hazardous waste disposed; RWD: radioactive waste disposed; MER: materials for energy recovery; MFR: material for recycling; CRU: components for reuse; ETE: exported thermal energy; EEE: exported electricity energy.

5.2 Bu-tylene Alu Brico (0,8 mm)

ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
GWP	kg CO_2 eq	2,14E+00	0,00E+00	2,17E-02	0,00E+00	1,40E-02	2,17E+00	4,13E-02
GWP-f	kg CO_2 eq	2,14E+00	0,00E+00	2,17E-02	0,00E+00	1,38E-02	2,17E+00	6,00E-02
GWP-b	kg CO_2 eq	1,32E-02	0,00E+00	1,96E-05	0,00E+00	1,11E-04	1,33E-02	-2,05E-02
GWP-L	kg CO_2 eq	1,87E-03	0,00E+00	8,58E-06	0,00E+00	1,40E-05	1,89E-03	1,82E-03
ODP	kg CFC11 eq	7,56E-07	0,00E+00	5,05E-09	0,00E+00	4,21E-09	7,66E-07	7,25E-09
AP	mol H^+ eq	8,57E-03	0,00E+00	1,10E-04	0,00E+00	1,17E-04	8,80E-03	5,70E-04
EP-fw	kg P eq	3,30E-04	0,00E+00	1,41E-06	0,00E+00	4,02E-06	3,36E-04	4,05E-05
EP-m	kg N eq	1,83E-03	0,00E+00	3,78E-05	0,00E+00	4,02E-05	1,90E-03	2,27E-04
EP-t	mol N eq	1,79E-02	0,00E+00	4,13E-04	0,00E+00	4,38E-04	1,88E-02	1,97E-03
POCP	kg NMVOC eq	6,66E-03	0,00E+00	1,18E-04	0,00E+00	1,27E-04	6,91E-03	3,39E-04
ADP-f*	MJ	5,03E+01	0,00E+00	3,30E-01	0,00E+00	3,25E-01	5,10E+01	9,14E-01
ADP-m*	kg Sb eq	1,70E-05	0,00E+00	7,59E-08	0,00E+00	4,52E-08	1,72E-05	4,92E-07
WDP*	m^3 depriv.	7,71E-01	0,00E+00	9,89E-04	0,00E+00	1,42E-02	7,86E-01	1,04E-01

Note: GWP: Global Warming Potential total; GWP-f: Global Warming Potential fossil; GWP-b: Global Warming Potential biogenic; GWP-L: Global Warming Potential land use and land use change; ODP: Depletion potential of the stratospheric ozone layer; AP: Acidification potential; EP-fw: Eutrophication potential-freshwater compartment; EP-m: Eutrophication potential-marine compartment; EP-t: Eutrophication potential-terrestrial compartment; POCP: Formation potential of tropospheric ozone; ADP-f: Abiotic Depletion for non-fossil resources potential; ADP-m: Abiotic Depletion for non-fossil resources potential; WDP: Water deprivation potential. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited.]

ADDITIONAL ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PM	Disease inc.	9,10E-08	0,00E+00	1,93E-09	0,00E+00	2,34E-09	9,53E-08	7,91E-09
IRP**	kBq U235 eq.	9,91E-02	0,00E+00	1,70E-03	0,00E+00	1,53E-03	1,02E-01	1,41E-02
ETP-fw*	CTUe	3,29E+01	0,00E+00	2,58E-01	0,00E+00	2,32E-01	3,34E+01	2,87E+00
HTP-nc*	CTUh	2,36E-08	0,00E+00	2,70E-10	0,00E+00	1,55E-10	2,40E-08	1,83E-09
HTP-c*	CTUh	1,05E-09	0,00E+00	8,34E-12	0,00E+00	9,96E-12	1,07E-09	8,70E-11
SQP*	Pt	6,46E+00	0,00E+00	2,27E-01	0,00E+00	7,79E-01	7,47E+00	3,55E+00

Note: PM: Potential incidence of disease due to PM emission; IRP = Potential Human exposure efficiency relative to U235; ETP-fw: Potential Comparative Toxic Unit for ecosystems; HTP-nc: Potential Comparative Toxic Unit for humans; HTP-c: Potential Comparative Toxic Unit for humans; SQP: Potential Soil quality index. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited. ****Disclaimer:** This impact category mainly concerns the possible impact of low-dose ionising radiation from the nuclear fuel cycle on human health. It does not consider the effects caused by possible nuclear accidents, occupational exposure, or disposal of radioactive waste in underground facilities. Potential ionising radiation from soil, radon and some building materials are not measured by this indicator.]

USE OF RESOURCES

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PENRE	MJ	1,50E+01	0,00E+00	3,30E-01	0,00E+00	3,25E-01	1,57E+01	9,16E-01
PERE	MJ	1,58E+00	0,00E+00	4,65E-03	0,00E+00	5,55E-03	1,59E+00	7,84E-01
PENRM	MJ	3,53E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,53E+01	0,00E+00
PERM	MJ	1,33E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,33E-01	0,00E+00
PENRT	MJ	5,03E+01	0,00E+00	3,30E-01	0,00E+00	3,25E-01	5,10E+01	9,16E-01
PERT	MJ	1,71E+00	0,00E+00	4,65E-03	0,00E+00	5,55E-03	1,72E+00	7,84E-01
FW	m^3	2,00E-02	0,00E+00	3,68E-05	0,00E+00	3,44E-04	2,03E-02	3,63E-03
MS	kg	1,39E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,39E-01	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: PENRE: Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw material; PERE: Use of renewable primary energy excluding renewable primary energy resources used as raw material; PENRM: Use of non-renewable primary energy resources used as raw material; PERM: Use of renewable primary energy resources used as raw material; PENRT: Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials); PERT: Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials); FW: Net use of fresh water; MS: Use of secondary materials; RFS: Use of renewable secondary fuels, NRSF: Use of non-renewable secondary fuels.

WASTE PRODUCTION AND OUTPUT FLOWS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
HWD	kg	4,83E-04	0,00E+00	8,62E-07	0,00E+00	5,03E-07	4,85E-04	2,58E-06
NHWD	kg	2,55E-01	0,00E+00	1,70E-02	0,00E+00	1,32E+00	1,59E+00	1,09E-02
RWD	kg	5,27E-05	0,00E+00	2,23E-06	0,00E+00	1,94E-06	5,69E-05	5,63E-06
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	2,65E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,65E-03	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: HWD: hazardous landfill waste; NHWD: non-hazardous waste disposed; RWD: radioactive waste disposed; MER: materials for energy recovery; MFR: material for recycling; CRU: components for reuse; ETE: exported thermal energy; EEE: exported electricity energy.

5.3 Bu-tylene Alu Brico (1 mm)

ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
GWP	kg CO_2 eq	2,54E+00	0,00E+00	2,68E-02	0,00E+00	1,73E-02	2,58E+00	2,40E-02
GWP-f	kg CO_2 eq	2,54E+00	0,00E+00	2,68E-02	0,00E+00	1,71E-02	2,58E+00	3,49E-02
GWP-b	kg CO_2 eq	1,59E-02	0,00E+00	2,43E-05	0,00E+00	1,38E-04	1,61E-02	-1,19E-02
GWP-L	kg CO_2 eq	1,95E-03	0,00E+00	1,06E-05	0,00E+00	1,74E-05	1,98E-03	1,06E-03
ODP	kg CFC11 eq	7,88E-07	0,00E+00	6,25E-09	0,00E+00	5,21E-09	8,00E-07	4,22E-09
AP	mol H^+ eq	1,00E-02	0,00E+00	1,36E-04	0,00E+00	1,45E-04	1,03E-02	3,32E-04
EP-fw	kg P eq	3,71E-04	0,00E+00	1,74E-06	0,00E+00	4,97E-06	3,77E-04	2,36E-05
EP-m	kg N eq	2,11E-03	0,00E+00	4,68E-05	0,00E+00	4,98E-05	2,21E-03	1,32E-04
EP-t	mol N eq	2,11E-02	0,00E+00	5,11E-04	0,00E+00	5,42E-04	2,21E-02	1,15E-03
POCP	kg NMVOC eq	7,87E-03	0,00E+00	1,46E-04	0,00E+00	1,57E-04	8,17E-03	1,97E-04
ADP-f*	MJ	6,07E+01	0,00E+00	4,09E-01	0,00E+00	4,02E-01	6,15E+01	5,32E-01
ADP-m*	kg Sb eq	2,01E-05	0,00E+00	9,40E-08	0,00E+00	5,60E-08	2,02E-05	2,86E-07
WDP*	m^3 depriv.	8,94E-01	0,00E+00	1,22E-03	0,00E+00	1,75E-02	9,13E-01	6,03E-02

Note: GWP: Global Warming Potential total; GWP-f: Global Warming Potential fossil; GWP-b: Global Warming Potential biogenic; GWP-L: Global Warming Potential land use and land use change; ODP: Depletion potential of the stratospheric ozone layer; AP: Acidification potential; EP-fw: Eutrophication potential-freshwater compartment; EP-m: Eutrophication potential-marine compartment; EP-t: Eutrophication potential-terrestrial compartment; POCP: Formation potential of tropospheric ozone; ADP-f: Abiotic Depletion for non-fossil resources potential; ADP-m: Abiotic Depletion for non-fossil resources potential; WDP: Water deprivation potential. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited.]

ADDITIONAL ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PM	Disease inc.	1,07E-07	0,00E+00	2,39E-09	0,00E+00	2,90E-09	1,12E-07	4,60E-09
IRP**	kBq U235 eq.	1,13E-01	0,00E+00	2,10E-03	0,00E+00	1,90E-03	1,17E-01	8,18E-03
ETP-fw*	CTUe	3,86E+01	0,00E+00	3,19E-01	0,00E+00	2,87E-01	3,92E+01	1,67E+00
HTP-nc*	CTUh	2,74E-08	0,00E+00	3,34E-10	0,00E+00	1,92E-10	2,79E-08	1,07E-09
HTP-c*	CTUh	1,20E-09	0,00E+00	1,03E-11	0,00E+00	1,23E-11	1,22E-09	5,06E-11
SQP*	Pt	7,98E+00	0,00E+00	2,81E-01	0,00E+00	9,64E-01	9,22E+00	2,07E+00

Note: PM: Potential incidence of disease due to PM emission; IRP = Potential Human exposure efficiency relative to U235; ETP-fw: Potential Comparative Toxic Unit for ecosystems; HTP-nc: Potential Comparative Toxic Unit for humans; HTP-c: Potential Comparative Toxic Unit for humans; SQP: Potential Soil quality index. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited. ****Disclaimer:** This impact category mainly concerns the possible impact of low-dose ionising radiation from the nuclear fuel cycle on human health. It does not consider the effects caused by possible nuclear accidents, occupational exposure, or disposal of radioactive waste in underground facilities. Potential ionising radiation from soil, radon and some building materials are not measured by this indicator.]

USE OF RESOURCES

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PENRE	MJ	1,75E+01	0,00E+00	4,09E-01	0,00E+00	4,02E-01	1,83E+01	5,33E-01
PERE	MJ	9,53E-01	0,00E+00	5,76E-03	0,00E+00	6,87E-03	9,66E-01	4,56E-01
PENRM	MJ	4,31E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,31E+01	0,00E+00
PERM	MJ	1,06E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,06E+00	0,00E+00
PENRT	MJ	6,07E+01	0,00E+00	4,09E-01	0,00E+00	4,02E-01	6,15E+01	5,33E-01
PERT	MJ	2,02E+00	0,00E+00	5,76E-03	0,00E+00	6,87E-03	2,03E+00	4,56E-01
FW	m^3	2,31E-02	0,00E+00	4,56E-05	0,00E+00	4,25E-04	2,36E-02	2,11E-03
MS	kg	9,57E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,57E-02	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: PENRE: Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw material; PERE: Use of renewable primary energy excluding renewable primary energy resources used as raw material; PENRM: Use of non-renewable primary energy resources used as raw material; PERM: Use of renewable primary energy resources used as raw material; PENRT: Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials); PERT: Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials); FW: Net use of fresh water; MS: Use of secondary materials; RFS: Use of renewable secondary fuels, NRSF: Use of non-renewable secondary fuels.

WASTE PRODUCTION AND OUTPUT FLOWS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
HWD	kg	4,89E-04	0,00E+00	1,07E-06	0,00E+00	6,23E-07	4,91E-04	1,50E-06
NHWD	kg	3,00E-01	0,00E+00	2,10E-02	0,00E+00	1,63E+00	1,95E+00	6,33E-03
RWD	kg	6,20E-05	0,00E+00	2,76E-06	0,00E+00	2,41E-06	6,71E-05	3,28E-06
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	3,24E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,24E-03	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: HWD: hazardous landfill waste; NHWD: non-hazardous waste disposed; RWD: radioactive waste disposed; MER: materials for energy recovery; MFR: material for recycling; CRU: components for reuse; ETE: exported thermal energy; EEE: exported electricity energy.

5.4 Bu-tylene Alu Brico (1,5 mm)

ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
GWP	kg CO_2 eq	3,55E+00	0,00E+00	3,97E-02	0,00E+00	2,56E-02	3,61E+00	2,40E-02
GWP-f	kg CO_2 eq	3,55E+00	0,00E+00	3,97E-02	0,00E+00	2,53E-02	3,62E+00	3,49E-02
GWP-b	kg CO_2 eq	2,28E-02	0,00E+00	3,60E-05	0,00E+00	2,04E-04	2,30E-02	-1,19E-02
GWP-L	kg CO_2 eq	2,32E-03	0,00E+00	1,57E-05	0,00E+00	2,57E-05	2,36E-03	1,06E-03
ODP	kg CFC11 eq	8,70E-07	0,00E+00	9,26E-09	0,00E+00	7,71E-09	8,87E-07	4,22E-09
AP	mol H^+ eq	1,37E-02	0,00E+00	2,01E-04	0,00E+00	2,14E-04	1,41E-02	3,32E-04
EP-fw	kg P eq	4,75E-04	0,00E+00	2,58E-06	0,00E+00	7,36E-06	4,85E-04	2,36E-05
EP-m	kg N eq	2,88E-03	0,00E+00	6,92E-05	0,00E+00	7,37E-05	3,02E-03	1,32E-04
EP-t	mol N eq	2,90E-02	0,00E+00	7,57E-04	0,00E+00	8,02E-04	3,06E-02	1,15E-03
POCP	kg NMVOC eq	1,09E-02	0,00E+00	2,16E-04	0,00E+00	2,32E-04	1,13E-02	1,97E-04
ADP-f*	MJ	8,67E+01	0,00E+00	6,05E-01	0,00E+00	5,96E-01	8,79E+01	5,32E-01
ADP-m*	kg Sb eq	2,78E-05	0,00E+00	1,39E-07	0,00E+00	8,29E-08	2,81E-05	2,86E-07
WDP*	m^3 depriv.	1,21E+00	0,00E+00	1,81E-03	0,00E+00	2,60E-02	1,24E+00	6,03E-02

Note: GWP: Global Warming Potential total; GWP-f: Global Warming Potential fossil; GWP-b: Global Warming Potential biogenic; GWP-L: Global Warming Potential land use and land use change; ODP: Depletion potential of the stratospheric ozone layer; AP: Acidification potential; EP-fw: Eutrophication potential-freshwater compartment; EP-m: Eutrophication potential-marine compartment; EP-t: Eutrophication potential-terrestrial compartment; POCP: Formation potential of tropospheric ozone; ADP-f: Abiotic Depletion for non-fossil resources potential; ADP-m: Abiotic Depletion for non-fossil resources potential; WDP: Water deprivation potential. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited.]

ADDITIONAL ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PM	Disease inc.	1,46E-07	0,00E+00	3,54E-09	0,00E+00	4,29E-09	1,54E-07	4,60E-09
IRP**	kBq U235 eq.	1,50E-01	0,00E+00	3,11E-03	0,00E+00	2,81E-03	1,55E-01	8,18E-03
ETP-fw*	CTUe	5,32E+01	0,00E+00	4,72E-01	0,00E+00	4,25E-01	5,41E+01	1,67E+00
HTP-nc*	CTUh	3,70E-08	0,00E+00	4,95E-10	0,00E+00	2,85E-10	3,78E-08	1,07E-09
HTP-c*	CTUh	1,59E-09	0,00E+00	1,53E-11	0,00E+00	1,83E-11	1,62E-09	5,06E-11
SQP*	Pt	1,12E+01	0,00E+00	4,16E-01	0,00E+00	1,43E+00	1,31E+01	2,07E+00

Note: PM: Potential incidence of disease due to PM emission; IRP = Potential Human exposure efficiency relative to U235; ETP-fw: Potential Comparative Toxic Unit for ecosystems; HTP-nc: Potential Comparative Toxic Unit for humans; HTP-c: Potential Comparative Toxic Unit for humans; SQP: Potential Soil quality index. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited. ****Disclaimer:** This impact category mainly concerns the possible impact of low-dose ionising radiation from the nuclear fuel cycle on human health. It does not consider the effects caused by possible nuclear accidents, occupational exposure, or disposal of radioactive waste in underground facilities. Potential ionising radiation from soil, radon and some building materials are not measured by this indicator.]

USE OF RESOURCES

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PENRE	MJ	2,40E+01	0,00E+00	6,05E-01	0,00E+00	5,96E-01	2,52E+01	5,33E-01
PERE	MJ	1,13E+00	0,00E+00	8,53E-03	0,00E+00	1,02E-02	1,15E+00	4,56E-01
PENRM	MJ	6,27E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,27E+01	0,00E+00
PERM	MJ	1,60E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,60E+00	0,00E+00
PENRT	MJ	8,67E+01	0,00E+00	6,05E-01	0,00E+00	5,96E-01	8,79E+01	5,33E-01
PERT	MJ	2,73E+00	0,00E+00	8,53E-03	0,00E+00	1,02E-02	2,75E+00	4,56E-01
FW	m^3	3,12E-02	0,00E+00	6,75E-05	0,00E+00	6,30E-04	3,19E-02	2,11E-03
MS	kg	1,04E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,04E-01	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: PENRE: Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw material; PERE: Use of renewable primary energy excluding renewable primary energy resources used as raw material; PENRM: Use of non-renewable primary energy resources used as raw material; PERM: Use of renewable primary energy resources used as raw material; PENRT: Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials); PERT: Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials); FW: Net use of fresh water; MS: Use of secondary materials; RFS: Use of renewable secondary fuels, NRSF: Use of non-renewable secondary fuels.

WASTE PRODUCTION AND OUTPUT FLOWS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
HWD	kg	5,04E-04	0,00E+00	1,58E-06	0,00E+00	9,22E-07	5,06E-04	1,50E-06
NHWD	kg	4,13E-01	0,00E+00	3,11E-02	0,00E+00	2,41E+00	2,86E+00	6,33E-03
RWD	kg	8,50E-05	0,00E+00	4,09E-06	0,00E+00	3,56E-06	9,27E-05	3,28E-06
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	4,75E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,75E-03	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: HWD: hazardous landfill waste; NHWD: non-hazardous waste disposed; RWD: radioactive waste disposed; MER: materials for energy recovery; MFR: material for recycling; CRU: components for reuse; ETE: exported thermal energy; EEE: exported electricity energy.

5.5 Bu-tylene Alu Brico (BK) (0,8 mm)

ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
GWP	kg CO_2 eq	2,25E+00	0,00E+00	1,86E-02	0,00E+00	1,20E-02	2,28E+00	4,13E-02
GWP-f	kg CO_2 eq	2,24E+00	0,00E+00	1,86E-02	0,00E+00	1,19E-02	2,27E+00	6,00E-02
GWP-b	kg CO_2 eq	1,27E-02	0,00E+00	1,69E-05	0,00E+00	9,55E-05	1,28E-02	-2,05E-02
GWP-L	kg CO_2 eq	1,89E-03	0,00E+00	7,36E-06	0,00E+00	1,20E-05	1,91E-03	1,82E-03
ODP	kg CFC11 eq	7,55E-07	0,00E+00	4,34E-09	0,00E+00	3,61E-09	7,63E-07	7,25E-09
AP	mol H^+ eq	9,07E-03	0,00E+00	9,42E-05	0,00E+00	1,00E-04	9,26E-03	5,70E-04
EP-fw	kg P eq	3,31E-04	0,00E+00	1,21E-06	0,00E+00	3,45E-06	3,35E-04	4,05E-05
EP-m	kg N eq	1,93E-03	0,00E+00	3,24E-05	0,00E+00	3,45E-05	1,99E-03	2,27E-04
EP-t	mol N eq	1,90E-02	0,00E+00	3,55E-04	0,00E+00	3,76E-04	1,97E-02	1,97E-03
POCP	kg NMVOC eq	7,13E-03	0,00E+00	1,01E-04	0,00E+00	1,09E-04	7,34E-03	3,39E-04
ADP-f*	MJ	5,54E+01	0,00E+00	2,83E-01	0,00E+00	2,79E-01	5,60E+01	9,14E-01
ADP-m*	kg Sb eq	1,48E-05	0,00E+00	6,52E-08	0,00E+00	3,88E-08	1,49E-05	4,92E-07
WDP*	m^3 depriv.	8,10E-01	0,00E+00	8,49E-04	0,00E+00	1,22E-02	8,23E-01	1,04E-01

Note: GWP: Global Warming Potential total; GWP-f: Global Warming Potential fossil; GWP-b: Global Warming Potential biogenic; GWP-L: Global Warming Potential land use and land use change; ODP: Depletion potential of the stratospheric ozone layer; AP: Acidification potential; EP-fw: Eutrophication potential-freshwater compartment; EP-m: Eutrophication potential-marine compartment; EP-t: Eutrophication potential-terrestrial compartment; POCP: Formation potential of tropospheric ozone; ADP-f: Abiotic Depletion for non-fossil resources potential; ADP-m: Abiotic Depletion for non-fossil resources potential; WDP: Water deprivation potential. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited.]

ADDITIONAL ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PM	Disease inc.	9,70E-08	0,00E+00	1,66E-09	0,00E+00	2,01E-09	1,01E-07	7,91E-09
IRP**	kBq U235 eq.	9,93E-02	0,00E+00	1,46E-03	0,00E+00	1,31E-03	1,02E-01	1,41E-02
ETP-fw*	CTUe	2,86E+01	0,00E+00	2,21E-01	0,00E+00	1,99E-01	2,90E+01	2,87E+00
HTP-nc*	CTUh	2,15E-08	0,00E+00	2,32E-10	0,00E+00	1,33E-10	2,19E-08	1,83E-09
HTP-c*	CTUh	1,15E-09	0,00E+00	7,16E-12	0,00E+00	8,55E-12	1,16E-09	8,70E-11
SQP*	Pt	6,46E+00	0,00E+00	1,95E-01	0,00E+00	6,68E-01	7,32E+00	3,55E+00

Note: PM: Potential incidence of disease due to PM emission; IRP = Potential Human exposure efficiency relative to U235; ETP-fw: Potential Comparative Toxic Unit for ecosystems; HTP-nc: Potential Comparative Toxic Unit for humans; HTP-c: Potential Comparative Toxic Unit for humans; SQP: Potential Soil quality index. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited. ****Disclaimer:** This impact category mainly concerns the possible impact of low-dose ionising radiation from the nuclear fuel cycle on human health. It does not consider the effects caused by possible nuclear accidents, occupational exposure, or disposal of radioactive waste in underground facilities. Potential ionising radiation from soil, radon and some building materials are not measured by this indicator.]

USE OF RESOURCES

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PENRE	MJ	2,48E+01	0,00E+00	2,83E-01	0,00E+00	2,79E-01	2,53E+01	9,16E-01
PERE	MJ	1,59E+00	0,00E+00	4,00E-03	0,00E+00	4,77E-03	1,60E+00	7,84E-01
PENRM	MJ	3,07E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,07E+01	0,00E+00
PERM	MJ	8,24E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,24E-02	0,00E+00
PENRT	MJ	5,54E+01	0,00E+00	2,83E-01	0,00E+00	2,79E-01	5,60E+01	9,16E-01
PERT	MJ	1,68E+00	0,00E+00	4,00E-03	0,00E+00	4,77E-03	1,69E+00	7,84E-01
FW	m^3	2,07E-02	0,00E+00	3,16E-05	0,00E+00	2,95E-04	2,11E-02	3,63E-03
MS	kg	1,39E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,39E-01	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: PENRE: Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw material; PERE: Use of renewable primary energy excluding renewable primary energy resources used as raw material; PENRM: Use of non-renewable primary energy resources used as raw material; PERM: Use of renewable primary energy resources used as raw material; PENRT: Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials); PERT: Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials); FW: Net use of fresh water; MS: Use of secondary materials; RFS: Use of renewable secondary fuels, NRSF: Use of non-renewable secondary fuels.

WASTE PRODUCTION AND OUTPUT FLOWS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
HWD	kg	4,82E-04	0,00E+00	7,40E-07	0,00E+00	4,32E-07	4,83E-04	2,58E-06
NHWD	kg	2,54E-01	0,00E+00	1,46E-02	0,00E+00	1,13E+00	1,40E+00	1,09E-02
RWD	kg	5,67E-05	0,00E+00	1,92E-06	0,00E+00	1,67E-06	6,03E-05	5,63E-06
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	2,30E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,30E-03	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: HWD: hazardous landfill waste; NHWD: non-hazardous waste disposed; RWD: radioactive waste disposed; MER: materials for energy recovery; MFR: material for recycling; CRU: components for reuse; ETE: exported thermal energy; EEE: exported electricity energy.

5.6 Bu-tylene Alu Brico (BK) (1 mm)

ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
GWP	kg CO_2 eq	2,86E+00	0,00E+00	2,32E-02	0,00E+00	1,50E-02	2,89E+00	8,01E-02
GWP-f	kg CO_2 eq	2,94E+00	0,00E+00	2,32E-02	0,00E+00	1,48E-02	2,97E+00	1,16E-01
GWP-b	kg CO_2 eq	1,15E-02	0,00E+00	2,11E-05	0,00E+00	1,19E-04	1,16E-02	-3,98E-02
GWP-L	kg CO_2 eq	3,53E-03	0,00E+00	9,19E-06	0,00E+00	1,50E-05	3,55E-03	3,53E-03
ODP	kg CFC11 eq	8,25E-07	0,00E+00	5,41E-09	0,00E+00	4,51E-09	8,35E-07	1,41E-08
AP	mol H^+ eq	1,19E-02	0,00E+00	1,18E-04	0,00E+00	1,25E-04	1,22E-02	1,10E-03
EP-fw	kg P eq	5,11E-04	0,00E+00	1,51E-06	0,00E+00	4,30E-06	5,17E-04	7,85E-05
EP-m	kg N eq	2,81E-03	0,00E+00	4,05E-05	0,00E+00	4,31E-05	2,90E-03	4,40E-04
EP-t	mol N eq	2,59E-02	0,00E+00	4,43E-04	0,00E+00	4,69E-04	2,69E-02	3,82E-03
POCP	kg NMVOC eq	9,32E-03	0,00E+00	1,26E-04	0,00E+00	1,36E-04	9,58E-03	6,57E-04
ADP-f*	MJ	7,13E+01	0,00E+00	3,54E-01	0,00E+00	3,48E-01	7,20E+01	1,77E+00
ADP-m*	kg Sb eq	1,86E-05	0,00E+00	8,14E-08	0,00E+00	4,85E-08	1,87E-05	9,55E-07
WDP*	m^3 depriv.	1,07E+00	0,00E+00	1,06E-03	0,00E+00	1,52E-02	1,09E+00	2,01E-01

Note: GWP: Global Warming Potential total; GWP-f: Global Warming Potential fossil; GWP-b: Global Warming Potential biogenic; GWP-L: Global Warming Potential land use and land use change; ODP: Depletion potential of the stratospheric ozone layer; AP: Acidification potential; EP-fw: Eutrophication potential-freshwater compartment; EP-m: Eutrophication potential-marine compartment; EP-t: Eutrophication potential-terrestrial compartment; POCP: Formation potential of tropospheric ozone; ADP-f: Abiotic Depletion for non-fossil resources potential; ADP-m: Abiotic Depletion for non-fossil resources potential; WDP: Water deprivation potential. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited.]

ADDITIONAL ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PM	Disease inc.	1,32E-07	0,00E+00	2,07E-09	0,00E+00	2,51E-09	1,37E-07	1,53E-08
IRP**	kBq U235 eq.	1,48E-01	0,00E+00	1,82E-03	0,00E+00	1,64E-03	1,52E-01	2,73E-02
ETP-fw*	CTUe	3,91E+01	0,00E+00	2,76E-01	0,00E+00	2,48E-01	3,97E+01	5,57E+00
HTP-nc*	CTUh	2,81E-08	0,00E+00	2,89E-10	0,00E+00	1,66E-10	2,85E-08	3,56E-09
HTP-c*	CTUh	1,47E-09	0,00E+00	8,94E-12	0,00E+00	1,07E-11	1,49E-09	1,69E-10
SQP*	Pt	2,07E+01	0,00E+00	2,43E-01	0,00E+00	8,34E-01	2,18E+01	6,88E+00

Note: PM: Potential incidence of disease due to PM emission; IRP = Potential Human exposure efficiency relative to U235; ETP-fw: Potential Comparative Toxic Unit for ecosystems; HTP-nc: Potential Comparative Toxic Unit for humans; HTP-c: Potential Comparative Toxic Unit for humans; SQP: Potential Soil quality index. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited. ****Disclaimer:** This impact category mainly concerns the possible impact of low-dose ionising radiation from the nuclear fuel cycle on human health. It does not consider the effects caused by possible nuclear accidents, occupational exposure, or disposal of radioactive waste in underground facilities. Potential ionising radiation from soil, radon and some building materials are not measured by this indicator.]

USE OF RESOURCES

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PENRE	MJ	3,36E+01	0,00E+00	3,54E-01	0,00E+00	3,48E-01	3,43E+01	1,78E+00
PERE	MJ	1,61E+00	0,00E+00	4,99E-03	0,00E+00	5,95E-03	1,62E+00	1,52E+00
PENRM	MJ	3,77E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,77E+01	0,00E+00
PERM	MJ	2,88E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,88E+00	0,00E+00
PENRT	MJ	7,13E+01	0,00E+00	3,54E-01	0,00E+00	3,48E-01	7,20E+01	1,78E+00
PERT	MJ	4,49E+00	0,00E+00	4,99E-03	0,00E+00	5,95E-03	4,50E+00	1,52E+00
FW	m^3	2,84E-02	0,00E+00	3,94E-05	0,00E+00	3,68E-04	2,88E-02	7,05E-03
MS	kg	2,65E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,65E-01	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: PENRE: Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw material; PERE: Use of renewable primary energy excluding renewable primary energy resources used as raw material; PENRM: Use of non-renewable primary energy resources used as raw material; PERM: Use of renewable primary energy resources used as raw material; PENRT: Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials); PERT: Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials); FW: Net use of fresh water; MS: Use of secondary materials; RFS: Use of renewable secondary fuels, NRSF: Use of non-renewable secondary fuels.

WASTE PRODUCTION AND OUTPUT FLOWS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
HWD	kg	5,08E-04	0,00E+00	9,24E-07	0,00E+00	5,39E-07	5,09E-04	5,00E-06
NHWD	kg	3,49E-01	0,00E+00	1,82E-02	0,00E+00	1,41E+00	1,78E+00	2,11E-02
RWD	kg	8,00E-05	0,00E+00	2,39E-06	0,00E+00	2,08E-06	8,45E-05	1,09E-05
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	3,32E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,32E-03	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: HWD: hazardous landfill waste; NHWD: non-hazardous waste disposed; RWD: radioactive waste disposed; MER: materials for energy recovery; MFR: material for recycling; CRU: components for reuse; ETE: exported thermal energy; EEE: exported electricity energy.

5.7 Bu-tylene Alu Brico FR (0,6 mm)

ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
GWP	kg CO_2 eq	1,79E+00	0,00E+00	1,64E-02	0,00E+00	1,06E-02	1,82E+00	2,40E-02
GWP-f	kg CO_2 eq	1,79E+00	0,00E+00	1,64E-02	0,00E+00	1,05E-02	1,82E+00	3,49E-02
GWP-b	kg CO_2 eq	1,09E-02	0,00E+00	1,49E-05	0,00E+00	8,43E-05	1,10E-02	-1,19E-02
GWP-L	kg CO_2 eq	1,78E-03	0,00E+00	6,50E-06	0,00E+00	1,06E-05	1,80E-03	1,06E-03
ODP	kg CFC11 eq	7,17E-07	0,00E+00	3,83E-09	0,00E+00	3,19E-09	7,24E-07	4,22E-09
AP	mol H^+ eq	7,46E-03	0,00E+00	8,32E-05	0,00E+00	8,85E-05	7,63E-03	3,32E-04
EP-fw	kg P eq	3,05E-04	0,00E+00	1,07E-06	0,00E+00	3,04E-06	3,10E-04	2,36E-05
EP-m	kg N eq	1,55E-03	0,00E+00	2,86E-05	0,00E+00	3,05E-05	1,60E-03	1,32E-04
EP-t	mol N eq	1,52E-02	0,00E+00	3,13E-04	0,00E+00	3,32E-04	1,59E-02	1,15E-03
POCP	kg NMVOC eq	5,47E-03	0,00E+00	8,93E-05	0,00E+00	9,61E-05	5,65E-03	1,97E-04
ADP-f*	MJ	3,78E+01	0,00E+00	2,50E-01	0,00E+00	2,46E-01	3,83E+01	5,32E-01
ADP-m*	kg Sb eq	1,58E-05	0,00E+00	5,76E-08	0,00E+00	3,43E-08	1,59E-05	2,86E-07
WDP*	m^3 depriv.	6,48E-01	0,00E+00	7,50E-04	0,00E+00	1,07E-02	6,59E-01	6,03E-02

Note: GWP: Global Warming Potential total; GWP-f: Global Warming Potential fossil; GWP-b: Global Warming Potential biogenic; GWP-L: Global Warming Potential land use and land use change; ODP: Depletion potential of the stratospheric ozone layer; AP: Acidification potential; EP-fw: Eutrophication potential-freshwater compartment; EP-m: Eutrophication potential-marine compartment; EP-t: Eutrophication potential-terrestrial compartment; POCP: Formation potential of tropospheric ozone; ADP-f: Abiotic Depletion for non-fossil resources potential; ADP-m: Abiotic Depletion for non-fossil resources potential; WDP: Water deprivation potential. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited.]

ADDITIONAL ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PM	Disease inc.	1,06E-07	0,00E+00	1,46E-09	0,00E+00	1,77E-09	1,10E-07	4,60E-09
IRP**	kBq U235 eq.	8,84E-02	0,00E+00	1,29E-03	0,00E+00	1,16E-03	9,09E-02	8,18E-03
ETP-fw*	CTUe	3,14E+01	0,00E+00	1,95E-01	0,00E+00	1,76E-01	3,18E+01	1,67E+00
HTP-nc*	CTUh	2,88E-08	0,00E+00	2,05E-10	0,00E+00	1,18E-10	2,91E-08	1,07E-09
HTP-c*	CTUh	1,35E-09	0,00E+00	6,32E-12	0,00E+00	7,55E-12	1,37E-09	5,06E-11
SQP*	Pt	5,97E+00	0,00E+00	1,72E-01	0,00E+00	5,90E-01	6,74E+00	2,07E+00

Note: PM: Potential incidence of disease due to PM emission; IRP = Potential Human exposure efficiency relative to U235; ETP-fw: Potential Comparative Toxic Unit for ecosystems; HTP-nc: Potential Comparative Toxic Unit for humans; HTP-c: Potential Comparative Toxic Unit for humans; SQP: Potential Soil quality index. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited. ****Disclaimer:** This impact category mainly concerns the possible impact of low-dose ionising radiation from the nuclear fuel cycle on human health. It does not consider the effects caused by possible nuclear accidents, occupational exposure, or disposal of radioactive waste in underground facilities. Potential ionising radiation from soil, radon and some building materials are not measured by this indicator.]

USE OF RESOURCES

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PENRE	MJ	1,05E+01	0,00E+00	2,50E-01	0,00E+00	2,46E-01	1,10E+01	5,33E-01
PERE	MJ	8,28E-01	0,00E+00	3,53E-03	0,00E+00	4,21E-03	8,35E-01	4,56E-01
PENRM	MJ	2,74E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,74E+01	0,00E+00
PERM	MJ	7,77E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,77E-01	0,00E+00
PENRT	MJ	3,78E+01	0,00E+00	2,50E-01	0,00E+00	2,46E-01	3,83E+01	5,33E-01
PERT	MJ	1,60E+00	0,00E+00	3,53E-03	0,00E+00	4,21E-03	1,61E+00	4,56E-01
FW	m^3	1,69E-02	0,00E+00	2,79E-05	0,00E+00	2,61E-04	1,72E-02	2,11E-03
MS	kg	1,02E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,02E-01	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: PENRE: Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw material; PERE: Use of renewable primary energy excluding renewable primary energy resources used as raw material; PENRM: Use of non-renewable primary energy resources used as raw material; PERM: Use of renewable primary energy resources used as raw material; PENRT: Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials); PERT: Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials); FW: Net use of fresh water; MS: Use of secondary materials; RFS: Use of renewable secondary fuels, NRSF: Use of non-renewable secondary fuels.

WASTE PRODUCTION AND OUTPUT FLOWS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
HWD	kg	4,78E-04	0,00E+00	6,53E-07	0,00E+00	3,81E-07	4,79E-04	1,50E-06
NHWD	kg	2,02E-01	0,00E+00	1,29E-02	0,00E+00	9,99E-01	1,21E+00	6,33E-03
RWD	kg	4,31E-05	0,00E+00	1,69E-06	0,00E+00	1,47E-06	4,63E-05	3,28E-06
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	2,04E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,04E-03	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: HWD: hazardous landfill waste; NHWD: non-hazardous waste disposed; RWD: radioactive waste disposed; MER: materials for energy recovery; MFR: material for recycling; CRU: components for reuse; ETE: exported thermal energy; EEE: exported electricity energy.

5.8 Bu-tylene Alu Brico FR (1 mm)

ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
GWP	kg CO_2 eq	2,55E+00	0,00E+00	2,58E-02	0,00E+00	1,66E-02	2,59E+00	2,40E-02
GWP-f	kg CO_2 eq	2,55E+00	0,00E+00	2,57E-02	0,00E+00	1,64E-02	2,59E+00	3,49E-02
GWP-b	kg CO_2 eq	1,59E-02	0,00E+00	2,33E-05	0,00E+00	1,32E-04	1,61E-02	-1,19E-02
GWP-L	kg CO_2 eq	2,01E-03	0,00E+00	1,02E-05	0,00E+00	1,66E-05	2,04E-03	1,06E-03
ODP	kg CFC11 eq	7,70E-07	0,00E+00	6,00E-09	0,00E+00	5,00E-09	7,81E-07	4,22E-09
AP	mol H^+ eq	1,03E-02	0,00E+00	1,30E-04	0,00E+00	1,39E-04	1,05E-02	3,32E-04
EP-fw	kg P eq	3,84E-04	0,00E+00	1,67E-06	0,00E+00	4,77E-06	3,90E-04	2,36E-05
EP-m	kg N eq	2,08E-03	0,00E+00	4,49E-05	0,00E+00	4,78E-05	2,17E-03	1,32E-04
EP-t	mol N eq	2,10E-02	0,00E+00	4,91E-04	0,00E+00	5,20E-04	2,20E-02	1,15E-03
POCP	kg NMVOC eq	7,58E-03	0,00E+00	1,40E-04	0,00E+00	1,51E-04	7,87E-03	1,97E-04
ADP-f*	MJ	5,52E+01	0,00E+00	3,92E-01	0,00E+00	3,86E-01	5,60E+01	5,32E-01
ADP-m*	kg Sb eq	2,26E-05	0,00E+00	9,02E-08	0,00E+00	5,37E-08	2,27E-05	2,86E-07
WDP*	m^3 depriv.	8,73E-01	0,00E+00	1,17E-03	0,00E+00	1,68E-02	8,91E-01	6,03E-02

Note: GWP: Global Warming Potential total; GWP-f: Global Warming Potential fossil; GWP-b: Global Warming Potential biogenic; GWP-L: Global Warming Potential land use and land use change; ODP: Depletion potential of the stratospheric ozone layer; AP: Acidification potential; EP-fw: Eutrophication potential-freshwater compartment; EP-m: Eutrophication potential-marine compartment; EP-t: Eutrophication potential-terrestrial compartment; POCP: Formation potential of tropospheric ozone; ADP-f: Abiotic Depletion for non-fossil resources potential; ADP-m: Abiotic Depletion for non-fossil resources potential; WDP: Water deprivation potential. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited.]

ADDITIONAL ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PM	Disease inc.	1,53E-07	0,00E+00	2,29E-09	0,00E+00	2,78E-09	1,58E-07	4,60E-09
IRP**	kBq U235 eq.	1,15E-01	0,00E+00	2,02E-03	0,00E+00	1,82E-03	1,19E-01	8,18E-03
ETP-fw*	CTUe	4,45E+01	0,00E+00	3,06E-01	0,00E+00	2,75E-01	4,51E+01	1,67E+00
HTP-nc*	CTUh	4,14E-08	0,00E+00	3,21E-10	0,00E+00	1,84E-10	4,19E-08	1,07E-09
HTP-c*	CTUh	1,92E-09	0,00E+00	9,91E-12	0,00E+00	1,18E-11	1,94E-09	5,06E-11
SQP*	Pt	7,90E+00	0,00E+00	2,69E-01	0,00E+00	9,25E-01	9,09E+00	2,07E+00

Note: PM: Potential incidence of disease due to PM emission; IRP = Potential Human exposure efficiency relative to U235; ETP-fw: Potential Comparative Toxic Unit for ecosystems; HTP-nc: Potential Comparative Toxic Unit for humans; HTP-c: Potential Comparative Toxic Unit for humans; SQP: Potential Soil quality index. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited. ****Disclaimer:** This impact category mainly concerns the possible impact of low-dose ionising radiation from the nuclear fuel cycle on human health. It does not consider the effects caused by possible nuclear accidents, occupational exposure, or disposal of radioactive waste in underground facilities. Potential ionising radiation from soil, radon and some building materials are not measured by this indicator.]

USE OF RESOURCES

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PENRE	MJ	1,37E+01	0,00E+00	3,92E-01	0,00E+00	3,86E-01	1,45E+01	5,33E-01
PERE	MJ	9,95E-01	0,00E+00	5,53E-03	0,00E+00	6,60E-03	1,01E+00	4,56E-01
PENRM	MJ	4,15E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,15E+01	0,00E+00
PERM	MJ	1,05E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,05E+00	0,00E+00
PENRT	MJ	5,52E+01	0,00E+00	3,92E-01	0,00E+00	3,86E-01	5,60E+01	5,33E-01
PERT	MJ	2,04E+00	0,00E+00	5,53E-03	0,00E+00	6,60E-03	2,06E+00	4,56E-01
FW	m^3	2,27E-02	0,00E+00	4,37E-05	0,00E+00	4,08E-04	2,31E-02	2,11E-03
MS	kg	8,83E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,83E-02	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: PENRE: Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw material; PERE: Use of renewable primary energy excluding renewable primary energy resources used as raw material; PENRM: Use of non-renewable primary energy resources used as raw material; PERM: Use of renewable primary energy resources used as raw material; PENRT: Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials); PERT: Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials); FW: Net use of fresh water; MS: Use of secondary materials; RFS: Use of renewable secondary fuels, NRSF: Use of non-renewable secondary fuels.

WASTE PRODUCTION AND OUTPUT FLOWS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
HWD	kg	4,88E-04	0,00E+00	1,02E-06	0,00E+00	5,98E-07	4,90E-04	1,50E-06
NHWD	kg	2,76E-01	0,00E+00	2,02E-02	0,00E+00	1,56E+00	1,86E+00	6,33E-03
RWD	kg	5,87E-05	0,00E+00	2,65E-06	0,00E+00	2,31E-06	6,37E-05	3,28E-06
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	3,12E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,12E-03	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: HWD: hazardous landfill waste; NHWD: non-hazardous waste disposed; RWD: radioactive waste disposed; MER: materials for energy recovery; MFR: material for recycling; CRU: components for reuse; ETE: exported thermal energy; EEE: exported electricity energy.

5.9 Bu-tylene Alu Sound (1,6 mm)

ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
GWP	kg CO_2 eq	4,93E+00	0,00E+00	4,56E-02	0,00E+00	2,94E-02	5,00E+00	2,49E-02
GWP-f	kg CO_2 eq	4,91E+00	0,00E+00	4,56E-02	0,00E+00	2,91E-02	4,99E+00	3,62E-02
GWP-b	kg CO_2 eq	9,09E-03	0,00E+00	4,13E-05	0,00E+00	2,34E-04	9,37E-03	-1,24E-02
GWP-L	kg CO_2 eq	6,12E-03	0,00E+00	1,80E-05	0,00E+00	2,95E-05	6,17E-03	1,10E-03
ODP	kg CFC11 eq	3,36E-07	0,00E+00	1,06E-08	0,00E+00	8,86E-09	3,55E-07	4,38E-09
AP	mol H^+ eq	2,34E-02	0,00E+00	2,31E-04	0,00E+00	2,46E-04	2,39E-02	3,44E-04
EP-fw	kg P eq	9,65E-04	0,00E+00	2,96E-06	0,00E+00	8,45E-06	9,76E-04	2,44E-05
EP-m	kg N eq	4,33E-03	0,00E+00	7,95E-05	0,00E+00	8,46E-05	4,49E-03	1,37E-04
EP-t	mol N eq	4,49E-02	0,00E+00	8,69E-04	0,00E+00	9,21E-04	4,67E-02	1,19E-03
POCP	kg NMVOC eq	1,51E-02	0,00E+00	2,48E-04	0,00E+00	2,67E-04	1,57E-02	2,04E-04
ADP-f*	MJ	9,61E+01	0,00E+00	6,95E-01	0,00E+00	6,84E-01	9,75E+01	5,52E-01
ADP-m*	kg Sb eq	5,45E-05	0,00E+00	1,60E-07	0,00E+00	9,52E-08	5,48E-05	2,97E-07
WDP*	m^3 depriv.	1,50E+00	0,00E+00	2,08E-03	0,00E+00	2,98E-02	1,53E+00	6,26E-02

Note: GWP: Global Warming Potential total; GWP-f: Global Warming Potential fossil; GWP-b: Global Warming Potential biogenic; GWP-L: Global Warming Potential land use and land use change; ODP: Depletion potential of the stratospheric ozone layer; AP: Acidification potential; EP-fw: Eutrophication potential-freshwater compartment; EP-m: Eutrophication potential-marine compartment; EP-t: Eutrophication potential-terrestrial compartment; POCP: Formation potential of tropospheric ozone; ADP-f: Abiotic Depletion for non-fossil resources potential; ADP-m: Abiotic Depletion for non-fossil resources potential; WDP: Water deprivation potential. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited.]

ADDITIONAL ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PM	Disease inc.	2,58E-07	0,00E+00	4,06E-09	0,00E+00	4,93E-09	2,67E-07	4,77E-09
IRP**	kBq U235 eq.	2,08E-01	0,00E+00	3,57E-03	0,00E+00	3,22E-03	2,14E-01	8,49E-03
ETP-fw*	CTUe	9,88E+01	0,00E+00	5,42E-01	0,00E+00	4,87E-01	9,98E+01	1,73E+00
HTP-nc*	CTUh	7,83E-08	0,00E+00	5,68E-10	0,00E+00	3,27E-10	7,92E-08	1,11E-09
HTP-c*	CTUh	3,46E-09	0,00E+00	1,76E-11	0,00E+00	2,10E-11	3,50E-09	5,25E-11
SQP*	Pt	1,41E+01	0,00E+00	4,77E-01	0,00E+00	1,64E+00	1,62E+01	2,14E+00

Note: PM: Potential incidence of disease due to PM emission; IRP = Potential Human exposure efficiency relative to U235; ETP-fw: Potential Comparative Toxic Unit for ecosystems; HTP-nc: Potential Comparative Toxic Unit for humans; HTP-c: Potential Comparative Toxic Unit for humans; SQP: Potential Soil quality index. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited. ****Disclaimer:** This impact category mainly concerns the possible impact of low-dose ionising radiation from the nuclear fuel cycle on human health. It does not consider the effects caused by possible nuclear accidents, occupational exposure, or disposal of radioactive waste in underground facilities. Potential ionising radiation from soil, radon and some building materials are not measured by this indicator.]

USE OF RESOURCES

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PENRE	MJ	2,45E+01	0,00E+00	6,95E-01	0,00E+00	6,84E-01	2,59E+01	5,53E-01
PERE	MJ	2,76E+00	0,00E+00	9,79E-03	0,00E+00	1,17E-02	2,78E+00	4,73E-01
PENRM	MJ	7,17E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,17E+01	0,00E+00
PERM	MJ	1,37E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,37E+00	0,00E+00
PENRT	MJ	9,61E+01	0,00E+00	6,95E-01	0,00E+00	6,84E-01	9,75E+01	5,53E-01
PERT	MJ	4,13E+00	0,00E+00	9,79E-03	0,00E+00	1,17E-02	4,15E+00	4,73E-01
FW	m^3	4,22E-02	0,00E+00	7,75E-05	0,00E+00	7,23E-04	4,30E-02	2,19E-03
MS	kg	1,55E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,55E-01	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: PENRE: Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw material; PERE: Use of renewable primary energy excluding renewable primary energy resources used as raw material; PENRM: Use of non-renewable primary energy resources used as raw material; PERM: Use of renewable primary energy resources used as raw material; PENRT: Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials); PERT: Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials); FW: Net use of fresh water; MS: Use of secondary materials; RFS: Use of renewable secondary fuels, NRSF: Use of non-renewable secondary fuels.

WASTE PRODUCTION AND OUTPUT FLOWS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
HWD	kg	2,04E-03	0,00E+00	1,81E-06	0,00E+00	1,06E-06	2,04E-03	1,56E-06
NHWD	kg	6,87E-01	0,00E+00	3,57E-02	0,00E+00	2,77E+00	3,50E+00	6,56E-03
RWD	kg	1,12E-04	0,00E+00	4,70E-06	0,00E+00	4,09E-06	1,21E-04	3,40E-06
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	5,38E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,38E-03	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: HWD: hazardous landfill waste; NHWD: non-hazardous waste disposed; RWD: radioactive waste disposed; MER: materials for energy recovery; MFR: material for recycling; CRU: components for reuse; ETE: exported thermal energy; EEE: exported electricity energy.

5.10 Bu-tylene Alu Sound (1,8 mm)

ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
GWP	kg CO_2 eq	6,12E+00	0,00E+00	5,19E-02	0,00E+00	3,34E-02	6,21E+00	2,40E-02
GWP-f	kg CO_2 eq	6,11E+00	0,00E+00	5,19E-02	0,00E+00	3,31E-02	6,20E+00	3,49E-02
GWP-b	kg CO_2 eq	3,46E-03	0,00E+00	4,70E-05	0,00E+00	2,66E-04	3,77E-03	-1,19E-02
GWP-L	kg CO_2 eq	8,66E-03	0,00E+00	2,05E-05	0,00E+00	3,36E-05	8,72E-03	1,06E-03
ODP	kg CFC11 eq	4,03E-07	0,00E+00	1,21E-08	0,00E+00	1,01E-08	4,26E-07	4,22E-09
AP	mol H^+ eq	3,02E-02	0,00E+00	2,63E-04	0,00E+00	2,80E-04	3,08E-02	3,32E-04
EP-fw	kg P eq	1,30E-03	0,00E+00	3,37E-06	0,00E+00	9,62E-06	1,31E-03	2,36E-05
EP-m	kg N eq	5,55E-03	0,00E+00	9,04E-05	0,00E+00	9,63E-05	5,73E-03	1,32E-04
EP-t	mol N eq	5,74E-02	0,00E+00	9,89E-04	0,00E+00	1,05E-03	5,95E-02	1,15E-03
POCP	kg NMVOC eq	1,90E-02	0,00E+00	2,82E-04	0,00E+00	3,03E-04	1,96E-02	1,97E-04
ADP-f*	MJ	1,13E+02	0,00E+00	7,90E-01	0,00E+00	7,78E-01	1,14E+02	5,32E-01
ADP-m*	kg Sb eq	6,84E-05	0,00E+00	1,82E-07	0,00E+00	1,08E-07	6,87E-05	2,86E-07
WDP*	m^3 depriv.	1,81E+00	0,00E+00	2,37E-03	0,00E+00	3,39E-02	1,84E+00	6,03E-02

Note: GWP: Global Warming Potential total; GWP-f: Global Warming Potential fossil; GWP-b: Global Warming Potential biogenic; GWP-L: Global Warming Potential land use and land use change; ODP: Depletion potential of the stratospheric ozone layer; AP: Acidification potential; EP-fw: Eutrophication potential-freshwater compartment; EP-m: Eutrophication potential-marine compartment; EP-t: Eutrophication potential-terrestrial compartment; POCP: Formation potential of tropospheric ozone; ADP-f: Abiotic Depletion for non-fossil resources potential; ADP-m: Abiotic Depletion for non-fossil resources potential; WDP: Water deprivation potential. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited.]

ADDITIONAL ENVIRONMENTAL INDICATORS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PM	Disease inc.	3,38E-07	0,00E+00	4,62E-09	0,00E+00	5,60E-09	3,48E-07	4,60E-09
IRP**	kBq U235 eq.	2,63E-01	0,00E+00	4,06E-03	0,00E+00	3,67E-03	2,70E-01	8,18E-03
ETP-fw*	CTUe	1,28E+02	0,00E+00	6,17E-01	0,00E+00	5,55E-01	1,29E+02	1,67E+00
HTP-nc*	CTUh	1,03E-07	0,00E+00	6,46E-10	0,00E+00	3,72E-10	1,04E-07	1,07E-09
HTP-c*	CTUh	4,69E-09	0,00E+00	2,00E-11	0,00E+00	2,39E-11	4,73E-09	5,06E-11
SQP*	Pt	1,81E+01	0,00E+00	5,43E-01	0,00E+00	1,86E+00	2,05E+01	2,07E+00

Note: PM: Potential incidence of disease due to PM emission; IRP = Potential Human exposure efficiency relative to U235; ETP-fw: Potential Comparative Toxic Unit for ecosystems; HTP-nc: Potential Comparative Toxic Unit for humans; HTP-c: Potential Comparative Toxic Unit for humans; SQP: Potential Soil quality index. [***Disclaimer:** The results of this environmental impact indicator should be used with caution, as uncertainties about the results are high or experience with the indicator is limited. ****Disclaimer:** This impact category mainly concerns the possible impact of low-dose ionising radiation from the nuclear fuel cycle on human health. It does not consider the effects caused by possible nuclear accidents, occupational exposure, or disposal of radioactive waste in underground facilities. Potential ionising radiation from soil, radon and some building materials are not measured by this indicator.]

USE OF RESOURCES

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
PENRE	MJ	3,08E+01	0,00E+00	7,90E-01	0,00E+00	7,79E-01	3,23E+01	5,33E-01
PERE	MJ	3,70E+00	0,00E+00	1,11E-02	0,00E+00	1,33E-02	3,72E+00	4,56E-01
PENRM	MJ	8,20E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,20E+01	0,00E+00
PERM	MJ	1,79E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,79E+00	0,00E+00
PENRT	MJ	1,13E+02	0,00E+00	7,90E-01	0,00E+00	7,79E-01	1,14E+02	5,33E-01
PERT	MJ	5,49E+00	0,00E+00	1,11E-02	0,00E+00	1,33E-02	5,51E+00	4,56E-01
FW	m^3	5,24E-02	0,00E+00	8,81E-05	0,00E+00	8,23E-04	5,33E-02	2,11E-03
MS	kg	1,12E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,12E-01	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: PENRE: Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw material; PERE: Use of renewable primary energy excluding renewable primary energy resources used as raw material; PENRM: Use of non-renewable primary energy resources used as raw material; PERM: Use of renewable primary energy resources used as raw material; PENRT: Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials); PERT: Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials); FW: Net use of fresh water; MS: Use of secondary materials; RFS: Use of renewable secondary fuels, NRSF: Use of non-renewable secondary fuels.

WASTE PRODUCTION AND OUTPUT FLOWS

INDICATOR	UM	A1-A3	C1	C2	C3	C4	TOTAL	D
HWD	kg	3,05E-03	0,00E+00	2,06E-06	0,00E+00	1,20E-06	3,05E-03	1,50E-06
NHWD	kg	8,91E-01	0,00E+00	4,07E-02	0,00E+00	3,15E+00	4,09E+00	6,33E-03
RWD	kg	1,39E-04	0,00E+00	5,34E-06	0,00E+00	4,65E-06	1,49E-04	3,28E-06
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	6,15E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,15E-03	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: HWD: hazardous landfill waste; NHWD: non-hazardous waste disposed; RWD: radioactive waste disposed; MER: materials for energy recovery; MFR: material for recycling; CRU: components for reuse; ETE: exported thermal energy; EEE: exported electricity energy.

6. ADDITIONAL TECHNICAL INFORMATION

BIOGENIC CARBON CONTENT

PRODUCTS	UM	IN PRODUCT	IN PACKAGING
Bu-tylene Alu Brico (0,6mm)	*Kg C / m²*	0,00E+00	7,23E-02
Bu-tylene Alu Brico (0,8 mm)	*Kg C / m²*	0,00E+00	7,43E-02
Bu-tylene Alu Brico (1 mm)	*Kg C / m²*	0,00E+00	8,01E-02
Bu-tylene Alu Brico (1,5 mm)	*Kg C / m²*	0,00E+00	9,94E-02
Bu-tylene Alu Brico (BK) (0,8 mm)	*Kg C / m²*	0,00E+00	7,23E-02
Bu-tylene Alu Brico (BK) (1 mm)	*Kg C / m²*	0,00E+00	2,25E-01
Bu-tylene Alu Brico FR (0,6 mm)	*Kg C / m²*	0,00E+00	7,40E-02
Bu-tylene Alu Brico FR (1 mm)	*Kg C / m²*	0,00E+00	7,59E-02
Bu-tylene Alu Sound (1,6 mm)	*Kg C / m²*	0,00E+00	1,18E-01
Bu-tylene Alu Sound (1,8 mm)	*Kg C / m²*	0,00E+00	1,10E-01

7. REFERENCES

- ISO 14040:2006/Amd 1:2020. Environmental management – Life Cycle Assessment – Principles and framework
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- PCR ICMQ 3.0 – "Prodotti e servizi per le costruzioni" – rev. 3 – 02/12/2019, EPD Italy
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