ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	dormakaba International Holding GmbH
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-DOR-20210232-CBC1-EN
Issue date	01.10.2021
Valid to	30.09.2026

Reversible Single Cylinder ace JP, ace APAC dormakaba



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General Information

dormakaba ace APAC **Programme holder** Owner of the declaration IBU - Institut Bauen und Umwelt e.V. Panoramastr. 1 **DORMA Platz 1** 10178 Berlin 58256 Ennepetal Germany Germany **Declaration number** EPD-DOR-20210232-CBC1-EN consisting of the following items: - one (1) ace JP single cylinder - three (3) ace reversible key - one (1) user manual - packaging This declaration is based on the product Scope: category rules: Building Hardware products, 11.2017 (PCR checked and approved by the SVR) **Issue date** 01.10.2021 Valid to Wah Yuet in Hong Kong (China). 30.09.2026 simplified as EN 15804. Verification Man liten Dipl. Ing. Hans Peters internally (chairman of Institut Bauen und Umwelt e.V.) Hank Voil

Dr. Alexander Röder (Managing Director Institut Bauen und Umwelt e.V.))

Product

Product description/Product definition Information about the enterprise

dormakaba stands for a broad offering of products, solutions and services for smart and secure access to buildings and rooms from a single source.

Product description/ Product definition

ace JP is patented, reversible master key system representing the premium segment. The patent offers legal protection against commercial imitation. Duplicate keys are only made by dormakaba itself or by authorized partners and requires identification by means of a security card.

Reversible Single Cylinder - ace JP,

dormakaba International Holding GmbH

Declared product / declared unit

1 piece of the product: ace JP mechanical key system,

This declaration is a specific product declaration for the ace JP single cylinder including three keys. This Environmental Product Declaration is also representative for the system ace APAC. The underlying life cycle assessment is based on the entire life cycle of this specific mechanical key system. Data represents the year 2021. The products are manufactured at the dormakaba production facilities

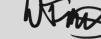
The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be

The standard EN 15804 serves as the core PCR

Independent verification of the declaration and data according to ISO 14025:2010

externally



Dr.-Ing. Wolfram Trinius (Independent verifier)

While ace JP is an in-house system that is exclusively manufactured in our factories, ace APAC is a partner system that can also be assembled by authorized dealers.

For placing the mechanical key systems on the market in the European Union/European Free Trade Association (EU/EFTA, with the exception of Switzerland) the following legal provisions apply: All systems are classified according to the European locking cylinder standards EN1303 and DIN18252.

dormakaba mechanical cylinder comply with the EU regulatory RoHS 2011/65/EU. In addition, cylinders are

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fire protection tested according to *EN 1634-1* and *EN 1634-2*.

Application

The dormakaba reversible cylinder ace JP and ace APAC can be used in both residential as well as in the commercial segment in small and simple as well as in large and complex applications, thanks to its versatility. Nearly limitless application options are possible.

Technical Data

ace JP is a high-performance locking system, which fulfils even the most challenging requirements. The system offers exceptional security thanks to:

- Three rows of pins with up to 16 simultaneously usable pin positions.
- Pins that make contact with the key are manufactured from wear-resistant hardened steel.

Delivery status:

The declared ace JP, mechanical master key system including cylinder, key, packaging and service instruction will be supplied with a weight of 0,279 kg.

Base materials/Ancillary materials

For the main product components, the ace JP single cylinder and three reversible keys the composition of the product is the following. Same product composition applies for ace APAC:

LCA: Calculation rules

Declared Unit

The declared unit is 1 piece of the product: ace JP

Declared unit

Name	Value	Unit
Declared unit	1	piece/prod uct
Conversion factor to 1 kg	3.58	-
conversion factor [Mass/Declared Unit]	-	-
Mass of declared product including packaging	0.279	kg

System boundary

The type of EPD is according to EN 15804: "cradle to gate with options, modules C1–C4, and module D". The following modules are declared: A1-A3, C1-C4, D and additional modules: A4 + A5

Production - Module A1-A3

The product stage includes:

 A1, raw material extraction, processing and mechanical treatments, processing of secondary material input (e.g. recycling processes),
 A2, transport to the manufacturer,

— A3, manufacturing and assembly

including provision of all materials, products and energy, as well as waste processing up to the end-of waste state.

Name	Value	Unit
Zinc	62	%
Brass	17	%
Nickel Silver	12	%
Steel	7	%
Plastic	2	%

The cylinders and keys contain partial articles which contain substances listed in the Candidate List of *REACH Regulation 1907/2006/EC* (date: 19.01.2021) exceeding 0.1 percentage by mass: yes

Lead (Pb): 7439-92-1 (CAS-No.) is included in some of the alloys used. The concentration of lead in each individual alloy does not exceed 4.0% (by mass).

The candidate list can be found on the */ECHA*/ website address: https://echa.europa.eu/de/home

Reference service life

The life cycle (security and function) of a lock cylinder is about 10-15 years, depending on the application and frequency of use. The cylinders are tested to 100,000 locking cycles minimum *(EN1303)*. This corresponds to approximately 18 locking cycles per day for 15 years.

Construction stage - Modules A4-A5

The construction process stage includes:

- A4, transport to the building site;

A5, installation into the building;

including provision of all materials, products and energy, as well as waste processing up to the endofwaste

state or disposal of final residues during the construction process stage.

End-of-life stage– Modules C1-C4 and D The end-of-life stage includes:

- C1, de-construction, demolition:
- C2, transport to waste processing;

- C3, waste processing for reuse, recovery and/or recycling;

— C4, disposal;

including provision and all transport, provision of all materials, products and related energy and water use. Module D (Benefits and loads beyond the system boundary) includes:

 D, recycling potentials, expressed as net impacts and benefits.

Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the 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.



LCA: Scenarios and additional technical information

Characteristic product properties Information on biogenic Carbon

Information on describing the biogenic Carbon Content at factory gate

Name	Value	Unit
Biogenic Carbon Content in	0.01	ka C
accompanying packaging	0.01	Ky C

The following technical scenario information is required for the declared modules.

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel (per piece)	0.0015	l/100km
Transport distance (truck)	900	km
Transport distance (ship)	3822	km
Capacity utilisation (including empty runs) average	51	%

Numbers reflect the average transport distances per cylinder.

Installation into the building (A5)

Name	Value	Unit
Waste packaging (paper)	0,02057	kg
Waste packaging (plastic)	0,00494	kg

End of life (C1-C4)

C1: The product dismantling from the building is done manually without environmental burden.

Name	Value	Unit
Collected separately	0.254	kg
Recycling	0.249	kg
Energy recovery	0.00441	kg
The summary strength is also as a small band in		

The product is disassembled in a recycling process. Material recycling is then assumed for the metals. The plastic components are assumed to be incinerated with energy recovery.

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Collection rate is 100%.

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LCA: Results

Disclaimer EP-freshwater: This indicator has been calculated as "kg P eq" as required in the characterization model (EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe; http://epica.jrc.ec.europa.eu/LCDN/developerEF.xhtml).

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PROE	PRODUCT STAGE		TAGE CONSTI			USE STAGE						EN	ID OF LI	FE STA	ιge	BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse- Recovery- Recycling- potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	В5	B6	B7	C1	C2	C3	C4	D
X	Х	X	X	Х	ND	ND	MNR	MNR	MNR	ND	ND	Х	X	X	X	Х
			IE LCA ace JI				AL IM	PACT	accoi	ding t	o EN 1	5804+	A2: 1	piece	, Reve	rsible
Core Ir	ndicator	r I	Jnit	A1	-A3	A4		A5		C1	с	2	C3		C4	D
	P-total		O_2 -Eq.]		iE+0	6.00E		4.20E-2		00E+0	1.00		1.10E-		0.00E+0	-6.71E-1
	P-fossil biogenic		CO ₂ -Eq.] CO ₂ -Eq.]		E+0 5E-2	5.70E		1.30E-2 2.80E-2		00E+0 00E+0	1.00		1.10E- 2.61E-		0.00E+0 0.00E+0	-6.69E-1 -8.19E-4
GWF	P-luluc	[kg C	CO ₂ -Eq.]	1.10)E-3	1.35E	-6	1.19E-6	0.	00E+0	2.52	E-8	6.34E-	7	0.00E+0	-6.43E-4
	DP		C11-Eq.]	2.37		6.01E-		1.16E-17		00E+0	1.12		5.65E-1		0.00E+0	-3.17E-15
	AP shwater		<u>H⁺-Eq.]</u> ⁄O₄-Eq.]	6.25	7E-6	1.79E		1.04E-5 2.04E-9		00E+0 00E+0	1.06		2.00E- 9.02E-1		0.00E+0 0.00E+0	-5.00E-3 -1.65E-6
	narine		<u>0₄-∟q.j</u> N-Eq.])E-3	4.94E		3.45E-6	-	00E+0	3.38	-	4.50E-		0.00E+0	-4.59E-4
	rrestrial	[mo	N-Eq.]	1.36	6E-2	5.45E	-4	4.70E-5	0.	00E+0	3.75	E-6	9.09E-	6	0.00E+0	-5.00E-3
)CP		IVOC-Eq.]		3E-3	1.40E		9.21E-6		00E+0	9.55		1.25E-	6	0.00E+0	-2.00E-3
	DPE DPF		Sb-Eq.] MJ]	7.13	3E-4	1.70E		1.70E-10 1.50E-2		00E+0 00E+0	3.18		7.75E-1 5.00E-		0.00E+0 0.00E+0	-3.09E-4 -8.19E+0
	DP	_	vorld-Eq		4E-1	1.12E		5.00E-3		00E+0	2.08		1.00E-		0.00E+0	
			orived] al warmin													-1.96E-1
RESU	JLTS	OF TH ersible	Caption Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non- fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece, Reversible Single Cylinder - ace JP, ace APAC													
				eoyi		ace J	P, ace									
Indicat		Unit	A1-A3		A4		A5		C1		C2		C3		C4	D
PERI	E	[MJ]	A1-A3 4.78E+(0	A4 3.00E-3	3	A5 2.50E-1		C1 0.00E+0		4.74E-5		.00E-3		00E+0	-1.68E+0
PER	E M	[MJ] [MJ]	A1-A3 4.78E+(2.47E-1	D	A4 3.00E-3 0.00E+0	3 D	A5 2.50E-1 -2.47E-1		C1 0.00E+0 0.00E+0	(4.74E-5).00E+0	0.	.00E-3 00E+0	0.	00E+0 00E+0	-1.68E+0 0.00E+0
PERI PERI PER	E M T	[MJ] [MJ] [MJ]	A1-A3 4.78E+(2.47E-1 5.03E+(0 I D	A4 3.00E-3 0.00E+1 3.00E-3	3 D 3	A5 2.50E-1 -2.47E-1 3.00E-3		C1 0.00E+0 0.00E+0 0.00E+0	(4.74E-5 0.00E+0 4.74E-5	0.	.00E-3 00E+0 .00E-3	0. 0.	00E+0 00E+0 00E+0	-1.68E+0 0.00E+0 -1.68E+0
PERI PERI PER PENR	E M T RE RM	[MJ] [MJ] [MJ] [MJ] [MJ]	A1-A3 4.78E+(2.47E-1 5.03E+(1.66E+ 4.02E-1	D I D I I	A4 3.00E-3 0.00E+1 3.00E-3 8.06E-7 0.00E+1	3 0 3 1 0	A5 2.50E-1 -2.47E-1 3.00E-3 2.27E-1 -2.12E-1		C1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0		4.74E-5 0.00E+0 4.74E-5 1.50E-2 0.00E+0	0. 1 1 -1	.00E-3 00E+0 .00E-3 .95E-1 .90E-1	0. 0. 0. 0.	00E+0 00E+0 00E+0 00E+0 00E+0	-1.68E+0 0.00E+0 -1.68E+0 -8.20E+0 0.00E+0
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PERI PERI PERI PENR PENR PENR SM RSF	E M T RE RM RT F	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [kg] [MJ]	A1-A3 4.78E+(2.47E-1 5.03E+(1.66E+ 4.02E-1 1.70E+ 5.40E-2 0.00E+(D 1 D 1 D 1 1 2 D 1 D 1 D 1 D 1 D 1 D 1 D 1 D 1 D 1 D 1 D 1	A4 3.00E-: 3.00E-: 3.00E-: 8.06E- 0.00E+: 0.00E+: 0.00E+:	3 3 3 1 1 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2	A5 2.50E-1 -2.47E-1 3.00E-3 2.27E-1 -2.12E-1 1.50E-2 0.00E+0 0.00E+0		C1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0		4.74E-5 0.00E+0 4.74E-5 1.50E-2 0.00E+0 1.50E-2 0.00E+0 0.00E+0	0. 1 1 -1 5 0. 0. 0. 0.	00E-3 00E+0 .00E-3 .95E-1 .90E-1 .00E-3 00E+0 00E+0	0. 0. 0. 0. 0. 0. 0. 0. 0.	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0	-1.68E+0 0.00E+0 -1.68E+0 -8.20E+0 0.00E+0 -8.20E+0 0.00E+0 0.00E+0
PERI PERI PENR PENR PENR SM RSF NRSI FW	E M T RE RT F F renee n rene of se	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	A1-A3 4.78E+(2.47E-1 5.03E+(1.66E+' 4.02E-1 1.70E+' 5.40E-2 0.00E+(0.00E+(8.59E-3) Jse of rei imary en wable pri rimary en r material	D 1 1 1 1 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	A4 3.00E-3 0.00E+4 3.00E-3 0.00E+4 0.00E+4 0.00E+4 0.00E+4 0.00E+4 0.00E+4 0.00E+4 0.00E+4 0.00E+4 0.00E+4 0.00E+4 0.00E+5 Exercise Sources Sources Use of	3 0 1 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	A5 2.50E-1 -2.47E-1 3.00E-3 2.27E-1 -2.12E-1 1.50E-2 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 1.16E-4 excludin raw mat pon-rene raw ma le secor	ng renew erials; P wable p terials; P ndary fue	C1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 1.00E+0 0.0	(((((((((((((((())))))))	4.74E-5 0.00E+0 4.74E-5 1.50E-2 0.00E+0 1.50E-2 0.00E+0 0.00E+0 0.00E+0 3.50E-8 ergy ress of renew sources se of non-r	0. 1 1 -1 5 0. 0. 0. 2 Durces u vable pri used as i-renewabl	00E-3 00E+0 .00E-3 .95E-1 .90E-1 .00E-3 00E+0 00E+0 .00E+0 .74E-5 sed as ra mary ener raw mat ble prim e second	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 erials; PE sources; i PENRM = rgy resou- ils; FW =	-1.68E+0 0.00E+0 -1.68E+0 -8.20E+0 0.00E+0 -8.20E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 -5.00E-3 RM = Use of PENRE = Use of PENRE = Use of Use of non- irces; SM = Use Use of net fresh
PERI PERI PERI PENR PENR SM RSF NRSI FW Caption	E M M RE R R R F F F rene of se	MJ MJ MJ MJ MJ MJ MJ MJ MJ MJ	A1-A3 4.78E+(2.47E-1 5.03E+(1.66E++ 4.02E-1 1.70E+ 5.40E-2 0.00E+(0.00E+(8.59E-3 Jse of rei imary en wable pri rimary en	0 1 1 1 1 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	A4 3.00E-3 0.00E+1 3.00E-3 0.00E+1 8.06E-7 0.00E+1 8.06E-7 0.00E+1 4.57E-6 primary sources 9 Use of Use of Use of STE (3 3 3 1 1 2 3 1 2 3 1 2 2 3 2 2 3 2 2 2 2 2 2 2 2 2 2 2 2 2	A5 2.50E-1 -2.47E-1 3.00E-3 2.27E-1 -2.12E-1 1.50E-2 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 1.16E-4 excludin raw mat pon-rene raw mat pon-rene raw mat	ng renew erials; P ewable p terials; P ndary fue S ANE	C1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 ERT = 1 rimary e ENRT = 2 els; NRS wate	(((((((((((((((())))))))	4.74E-5 0.00E+0 4.74E-5 1.50E-2 0.00E+0 1.50E-2 0.00E+0 0.00E+0 0.00E+0 3.50E-8 ergy ress of renew sources se of non-r	0. 1 1 -1 5 0. 0. 0. 2 Durces u vable pri used as i-renewabl	00E-3 00E+0 .00E-3 .95E-1 .90E-1 .00E-3 00E+0 00E+0 .00E+0 .74E-5 sed as ra mary ener raw mat ble prim e second	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 erials; PE sources; i PENRM = rgy resou- ils; FW =	-1.68E+0 0.00E+0 -1.68E+0 -8.20E+0 0.00E+0 -8.20E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 -5.00E-3 RM = Use of PENRE = Use of PENRE = Use of Use of non- irces; SM = Use
PERI PERR PERR PENR PENR SM RSF NRSS FW Caption	E M M T M RE M RE M R R F M F F F F F F F F F F F F F F F F F F	MJ MJ MJ MJ MJ MJ MJ MJ MJ maj maj PERE = 1 wable pr on-rene ewable pr on-rene ewable pr on-rene wable pr on-rene Mable pr on	A1-A3 4.78E+(2.47E-1 5.03E+(1.66E+ 4.02E-1 1.70E+ 5.40E-2 0.00E+(0 1 1 1 2 1 1 2 1 1 2 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 1 2 1 1 1 1 2 1 1 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1	A4 3.00E-2 0.00E+1 3.00E-2 8.06E-7 0.00E+1 4.57E-6 primary sources bergy ex sources 1.58 of A.57E-6 ylinde A4	3 3 3 1 2 3 1 2 2 1 2 2 2 2 2 3 3 1 2 2 2 2 2 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2	A5 2.50E-1 -2.47E-1 3.00E-3 2.27E-1 1.50E-2 0.00E+0 0.00E+0 0.00E+0 0.00E+0 1.16E-4 excludiir raw mathematical and a second raw mathematical and a second a second	ng renew erials; P wable p terials; P ndary fue S ANE ce AP	C1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.00E+0 0.0	() ((((((()) ()) ()) ()) ()) () ()) ()) ()) ()) ()) ()) ()) ()) ()) ()) ()) () ()) ()) ()) ()) ()) ()) ()) ()) ()) ()) ()) ()) () () ()) () () ()) ()) () () () () ()) ()) () () ()) ()) () () () () () () () () () ()) ()) () ()	4.74E-5 1.00E+0 1.74E-5 1.50E-2 1.50E-2 1.50E-2 1.50E-2 1.50E-2 1.50E-2 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.50E-2 1.5	0. 1 1 5 0. 0. 0. 0. 2 burces u vable pri used as h-renewa enewable	00E-3 00E+0 .00E-3 .95E-1 .90E-1 .00E-3 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E-3 .00E-3 .00E-3 .00E-3 .00E-3 .00E-3 .00E-3 .00E-3 .00E-10 .00E-3 .00E+0 .0	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 erials; PE sources; 2ENRM = rgy resou ils; FW = 15804-	-1.68E+0 0.00E+0 -1.68E+0 -8.20E+0 0.00E+0 -8.20E+0 0.00E+0 0.00E+0 0.00E+0 -5.00E-3 RM = Use of PENRE = Use of PENRE = Use of Use of non- urces; SM = Use Use of net fresh FA2: D
PERI PERI PERI PENI PENI SM RSF NRSI FW Caption	E M M T D RE M RT M RT M F F M rene of se ULTS ce, Rc tor M	MJ MJ MJ MJ MJ MJ MJ (MJ (MJ) (MJ	A1-A3 4.78E+(2.47E-1 5.03E+(1.66E++ 4.02E-1 1.70E++ 5.40E-2 0.00E+(0.00E	0 1 1 1 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	A4 3.00E-3 0.00E+1 3.00E-3 8.06E-7 0.00E+1 4.57E-6 primary sources 5 Use of ASTE 0 ylinde A4 7.82E-1	3 0 3 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	A5 2.50E-1 -2.47E-1 3.00E-3 2.27E-1 2.27E-1 1.50E-2 0.00E+0 0.00E+0 0.00E+0 1.16E-4 excludin ton-rene raw main ton-rene raw main ton-rene raw main ton-rene raw main ton-rene raw main ton-rene raw main ton-rene raw main ton-rene raw main ton-rene raw main ton-rene raw main ton-rene t	ng renew erials; P ewable p terials; P mdary fue S ANE ce AP/	C1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 C1 0.00E+0 0.00	() ()	4.74E-5 0.00E+0 4.74E-5 1.50E-2 0.00E+0 1.50E-2 0.00E+0 0.0	0. 1 1 5 0. 0. 0. 0. 0. 2 Durces u vable pri used as h-renewal accor	00E-3 00E+0 .00E-3 .95E-1 .90E-1 .00E-3 .00E+0 00E+0 00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E-3 .00E-3 .00E-3 .00E-3 .00E-3 .00E-3 .00E-3 .00E-1 .00E-1 .00E-3 .00E-1	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 15804- C4 00E+0	-1.68E+0 0.00E+0 -1.68E+0 -8.20E+0 0.00E+0 -8.20E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 -5.00E-3 RM = Use of PENRE = Use of PENRE = Use of Use of non- urces; SM = Use Use of net fresh CA2: D -2.26E-7
PERI PERI PERI PENR PENR SM RSF NRSI FW Caption	E M M T M RE M RM RT M RT M RT M RT M RT M RT M RT M	[MJ] [M]	A1-A3 4.78E+(2.47E-1 5.03E+(1.66E++ 4.02E-1 1.70E++ 5.40E-2 0.00E+(0.00E	0 1 1 1 1 1 2 0 0 3 1 1 1 2 0 0 3 1 1 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	A4 3.00E-3 0.00E+1 3.00E-3 8.06E-7 0.00E+1	3 3 3 1 2 3 1 2 2 2 2 3 3 1 2 2 2 3 3 4 2 2 2 3 4 2 2 3 4 2 2 2 3 4 2 2 2 2 3 4 2 2 2 2 2 2 2 2 2 2 2 2 2	A5 2.50E-1 -2.47E-1 3.00E-3 2.27E-1 1.50E-2 0.00E+0 0.00E+0 0.00E+0 1.16E-4 excludin raw mat on-rene raw mat ole secor JP, at 3.58E-11 2.00E-3	ng renew erials; P ewable p terials; P dary fue S ANE ce AP/	C1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 C1 0.00E+0 0.00	C (C	4.74E-5 1.00E+0 1.74E-5 1.50E-2 1.00E+0 1.50E-2 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 0.00E+0 1.00E+0 0.0	0. 1 1 5 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	00E-3 00E-40 .00E-3 .95E-1 .90E-1 .00E-3 00E+0 00E+0 .00E+0 .74E-5 sed as ra mary en raw mat ble prim e second rding t .00E-3	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 15804-1 C4 00E+0 00E+0 00E+0 00E+0	-1.68E+0 0.00E+0 -1.68E+0 -8.20E+0 0.00E+0 -8.20E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 -5.00E-3 RM = Use of PENRE = Use of PENRE = Use of PENRE = Use of Use of non- urces; SM = Use Use of net fresh -2.26E-7 -2.90E-2
PERI PERR PERR PENR PENR SM RSF NRSI FW Caption	E J M J T J RE J RT J RT J F J F F F F F F F F F F F F F S Ce, Re C tor I D	MJ MJ MJ MJ MJ MJ MJ (MJ (MJ) (MJ	A1-A3 4.78E+(2.47E-1 5.03E+(1.66E++ 4.02E-1 1.70E++ 5.40E-2 0.00E+(0.00E	0 1 1 1 1 1 2 0 1 1 1 1 2 0 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0	A4 3.00E-3 0.00E+1 3.00E-3 8.06E-7 0.00E+1 4.57E-6 primary sources 5 Use of ASTE 0 ylinde A4 7.82E-1	3 3 3 1 2 3 1 2 2 2 3 3 1 2 2 2 3 3 4 5 7 1 1 2 2 3 4 5 7 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1	A5 2.50E-1 -2.47E-1 3.00E-3 2.27E-1 2.27E-1 1.50E-2 0.00E+0 0.00E+0 0.00E+0 1.16E-4 excludin ton-rene raw main ton-rene raw main ton-rene raw main ton-rene raw main ton-rene raw main ton-rene raw main ton-rene raw main ton-rene raw main ton-rene raw main ton-rene raw main ton-rene t	ng renew erials; P ewable p terials; P ndary fue S ANE ce AP	C1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 C1 0.00E+0 0.00	C (C	4.74E-5 0.00E+0 4.74E-5 1.50E-2 0.00E+0 1.50E-2 0.00E+0 0.0	0. 1 1 5 0. 0. 0. 0. 2 Durces u vable pri used as p-renewable accord 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.	00E-3 00E+0 .00E-3 .95E-1 .90E-1 .00E-3 .00E+0 00E+0 00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E+0 .00E-3 .00E-3 .00E-3 .00E-3 .00E-3 .00E-3 .00E-3 .00E-1 .00E-1 .00E-3 .00E-1	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 15804- C4 00E+0	-1.68E+0 0.00E+0 -1.68E+0 -8.20E+0 0.00E+0 -8.20E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 -5.00E-3 RM = Use of PENRE = Use of PENRE = Use of Use of non- urces; SM = Use Use of net fresh CA2: D -2.26E-7
PERI PERN PENR PENR PENR SM RSF VRSI FW Caption RESU 1 piec Indicat HWE NHW RWE CRU	E	MJ Wable pronon-rene	A1-A3 4.78E+(2.47E-1 5.03E+(4.02E-1 1.70E+ 5.40E-2 0.00E+(0.00E+(0.00E+(0.00E+(0.00E+(A1-A3 2.73E-6 1.29E-1 1.00E-5 0.00E+(0 1 1 1 2 1 1 2 1 1 2 1 1 2 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2	A4 3.00E-2 0.00E+1 3.00E-2 0.00E+1 8.06E-2 0.00E+1 0.00E+1 0.00E+1 0.00E+1 4.57E-6 primary sources bergy ex sources Use of XSTE (ylinde A4 7.82E-1 8.24E-2 8.67E-7 0.00E+1 0.00E+	3	A5 2.50E-1 -2.47E-1 3.00E-3 3.00E-3 2.27E-1 -2.12E-1 1.50E-2 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 3.58E-11 2.00E-3 7.00E-7 0.00E+0 0.00E	ng renew erials; P wable p terials; P mdary fue S ANE ce AP/	C1 0.00E+0	(((((((((())))))))	4.74E-5 1.00E+0 1.74E-5 1.50E-2 0.00E+0 1.50E-2 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 C2 C2 46E-12 1.54E-6 1.62E-8 1.62E-8 0.00E+0 0.00E+0 0.00E+0	0. 1 1 5 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	00E-3 00E+0 .00E-3 .95E-1 .90E-1 .00E-3 .00E+0 .00E+0 .00E+0 .00E+0 .74E-5 sed as ra mary en- raw mat ble prim e second c3 .00E-11 .00E-3 .93E-7 .00E+0 .49E-1	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 15804- 15804- 00E+0	-1.68E+0 0.00E+0 -1.68E+0 -8.20E+0 0.00E+0 -8.20E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 -5.00E-3 RM = Use of PENRE = Use of PENRE = Use of PENRE = Use of Use of non- irces; SM = Use Use of net fresh -2.26E-7 -2.90E-2 -3.60E-4 0.00E+0 0.00E+0
PERI PERR PERR PENR PENR SM RSF NRSS FW Caption Indicat HWD NHW RWD CAPTON NHW RWD CAPTON CAPTON	E M M T J RE J RE J RT J F J F F J F F F F F F F F F F F F F F	MJ Wable proon-rene execondary OF Mit M	A1-A3 4.78E+(2.47E-1 5.03E+(1.66E+ 4.02E-1 1.70E+ 5.40E-2 0.00E+(0.00E+(8.59E-5 Jse of rei imary en vable pri rimary en vable pri imary en vable pri 0.00E+(0.00E+	0 1 1 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 1 2 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1	A4 3.00E-3 0.00E+1 3.00E-3 0.00E+1 3.00E-3 0.00E+1 8.06E-7 0.00E+1 0.00E+1 4.57E-6 2 primary sources bergy ex sources tuse of STE (ylinde A4 7.82E-1 8.24E-5 8.67E-7 0.00E+1	3	A5 2.50E-1 -2.47E-1 3.00E-3 2.27E-1 1.50E-2 0.00E+0 0.00E+0 0.00E+0 0.00E+0 1.16E-4 excludii raw mathematic raw m	ng renew erials; P wable p terials; P ndary fue S ANE Ce AP	C1 0.00E+0	() ()	4.74E-5 1.00E+0 1.74E-5 1.50E-2 1.00E+0 1.50E-2 1.50E-2 1.50E-2 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.54E-6 1.62E-8 1.00E+0 1.0	0. 1 1 5 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	00E-3 00E+0 00E-1 .90E-1 .90E-1 .90E-1 .00E-3 00E+0 00E+0 00E+0 .74E-5 sed as ra mary eneration raw mat ble prim e second cas 98E-11 .00E-3 .93E-7 00E+0 00E+0	0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 15804-1 15804-1 15804-1 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0	-1.68E+0 0.00E+0 -1.68E+0 -8.20E+0 0.00E+0 -8.20E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 -5.00E-3 RM = Use of PENRE = Use of PENRE = Use of Use of non- urces; SM = Use Use of net fresh -2.26E-7 -2.90E-2 -3.60E-4 0.00E+0 0.00E+0 0.00E+0 0.00E+0
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dormakaba 🚧

1 piece,	iece, Reversible Single Cylinder - ace JP, ace APAC								
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease Incidence]	5.52E-8	2.47E-9	7.38E-11	0.00E+0	5.58E-12	2.55E-11	0.00E+0	-5.10E-8
IR	[kBq U235- Eq.]	1.06E-1	1.24E-4	9.44E-5	0.00E+0	2.31E-6	1.74E-5	0.00E+0	-4.10E-2
ETP-fw	[CTUe]	1.04E+1	5.71E-1	7.00E-3	0.00E+0	1.10E-2	2.00E-3	0.00E+0	-4.32E+0
HTP-c	[CTUh]	8.94E-9	1.07E-11	4.20E-13	0.00E+0	2.00E-13	1.69E-13	0.00E+0	1.95E-9
HTP-nc	[CTUh]	8.70E-8	4.61E-10	2.92E-11	0.00E+0	8.57E-12	1.71E-11	0.00E+0	2.34E-7
SQP	[-]	8.71E+0	2.00E-3	4.00E-3	0.00E+0	3.86E-5	2.00E-3	0.00E+0	-1.67E+0
Caption		ive Toxic Unit fo	or ecosystems; l	PM emissions; II HTP-c = Potenti Init for humans	al comparative	Toxic Unit for h	umans (cancero	ogenic); HTP-nc	P-fw = Potential : = Potential

Disclaimer 1 – for the indicator IRP

This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

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RoHS 2011/65/EU

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European Chemicals Agency (ECHA) https://echa.europa.eu/de/

Further References

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LCA-tool dormakaba

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