ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

Owner of the Declaration	Hilti Aktiengesellschaft
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-HIL-20240595-CBA1-DE
Issue date	19.03.2025
Valid to	18.03.2030

Hilti Pipe Shoes

Hilti AG

Institut Bauen und Umwelt e.V.

www.ibu-epd.com | https://epd-online.com

ECO PLATFORM EPD VERIFIED

General Information

Hilti AG

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-HIL-20240595-CBA1-DE

This declaration is based on the product category rules:

Connection, assembly and installation systems, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

19.03.2025

Valid to

18.03.2030

Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

Hilti Pipe Shoes

Owner of the declaration

Hilti Aktiengesellschaft
Feldkircher Strasse 100
9494 Schaan
Liechtenstein

Declared product / declared unit

MP-PS H4-2 605-615 24" OC/ 1kg

Scope:

This document relates to the MP-PS H4-2 605-615 24" OC as a representative product for the Pipe Shoes product group designed and sold by Hilti AG. The Pipe shoes product group refers to round shaped fastening clamps welded to steel midplate and mounted into T shaped steel base plate with polyamide plate attached to it to clamp and bear 3-dimensional loads of various processing and utilities pipes in onshore industrial, power generation, pharmaceutical, electronics, automotive and other manufacturing facilities. The product group includes various sizes of diameters and other supplementary accessories to complete the fastening mechanism and is produced in an outsourced location in Czech Republic. This EPD is a representative EPD with MP-PS H4-2 605-615 24" OC as declared product, because it is the heaviest product in the group.
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 simplified as *EN 15804*.

Verification

The standard EN 15804 serves as the core PCR
Independent verification of the declaration and data according to ISO 14025:2011
☐ internally ☒ externally

Mrs Kim Allbury,
(Independent verifier)

Product

Product description/Product definition

The MP-PS H4-2 605-615 24" OC is designed as an adjustable fastening clamp with base plate to fix heavy pipes of various types and sizes. It is intended to be fixed onto steel beams, concrete or modular support girders. The pipe clamp consists of two profiled steel strips with one strip welded to a steel midplate and fixed into a T plate that is adjustable for sloping and height. The clamping strips are connected on both sides by a steel bolt and nut. The clamping stripes are pressed onto the outside of the pipe to be fastened by tightening the bolt. Each pipe clamp in the product type group has a designated clamping range. The steel strips and midplate plate are hot dip galvanized, while the base plate has ZM coating and the product is suitable for indoor and outdoor use.

The individual pipe shoes and accessories items under this group and represented by MP-PS H4-2 605-615 24" OC are as listed below:

Item designation	Item designation	Item designation
Pipe shoe MP-PS L1-1 21-26 1/2" OC	Pipe shoe MP-PS L2-2 21-26 1/2" OC	Pipe shoe MP-PS L4-2 217-227 8" OC
Pipe shoe MP-PS L1-1 26-31 3/4" OC	Pipe shoe MP-PS L2-2 26-31 3/4" OC	Pipe shoe MP-PS L4-2 244-254 OC
Pipe shoe MP-PS L1-1 32-37 1" OC	Pipe shoe MP-PS L2-2 32-37 1" OC	Pipe shoe MP-PS L4-2 267-277 10" OC
Pipe shoe MP-PS L1-1 38-44 1-1/4" OC	Pipe shoe MP-PS L2-2 38-44 1-1/4" OC	Pipe shoe MP-PS L4-2 318-328 12" OC
Pipe shoe MP-PS L1-1 45-51 1-1/2" OC	Pipe shoe MP-PS L2-2 45-51 1-1/2" OC	Pipe shoe MP-PS L4-2 350-360 14" OC
Pipe shoe MP-PS L1-1 52-58 OC 8	Pipe shoe MP-PS L2-2 52-58 OC	Pipe shoe MP-PS L4-2 401-411 16" OC
Pipe shoe MP-PS L1-1 59-65 2" OC	Pipe shoe MP-PS L2-2 59-65 2" OC	Pipe shoe MP-PS L4-2 452-462 18" OC
Pipe shoe MP-PS L1-1 68-74 OC	Pipe shoe MP-PS L2-2 68-74 OC	Pipe shoe MP-PS L4-2 503-513 20" OC
Pipe shoe MP-PS L1-1 75-81 2-1/2" OC	Pipe shoe MP-PS L2-2 75-81 2-1/2" OC	Pipe shoe MP-PS L4-2 605-615 24" OC
Pipe shoe MP-PS L1-1 88-94 3" OC	Pipe shoe MP-PS L2-2 88-94 3" OC	
Pipe shoe MP-PS L1-1 100-108 3-1/2" OC	Pipe shoe MP-PS L2-2 100-108 3-1/2" OC	
Pipe shoe MP-PS L1-1 110-118 4" OC	Pipe shoe MP-PS L2-2 110-118 4" OC	
Pipe shoe MP-PS L1-1 125-133 OC	Pipe shoe MP-PS L2-2 125-133 OC	
Pipe shoe MP-PS L1-1 136-144 5" OC	Pipe shoe MP-PS L2-2 136-144 5"OC	
Pipe shoe MP-PS L1-1 152-162 OC	Pipe shoe MP-PS L2-2 152-162 OC	
Pipe shoe MP-PS L1-1 163-173 6" OC	Pipe shoe MP-PS L2-2 163-173 6" OC	
	Pipe shoe MP-PS L2-2 192-202 7" OC	
	Pipe shoe MP-PS L2-2 217-227 8" OC	
	Pipe shoe MP-PS L2-2 244-254 OC	
	Pipe shoe MP-PS L2-2 267-277 10" OC	
	Pipe shoe MP-PS L2-2 318-328 12" OC	
Pipe shoe MP-PS M1-1 21-26 1/2" OC	Pipe shoe MP-PS M2-2 21-26 1/2" OC	Pipe shoe MP-PS M4-2 217-227 8" OC
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Pipe shoe MP-PS M1-1 32-37 1" OC	Pipe shoe MP-PS M2-2 32-37 1" OC	Pipe shoe MP-PS M4-2 267-277 10" OC
Pipe shoe MP-PS M1-1 38-44 1-1/4" OC	Pipe shoe MP-PS M2-2 38-44 1-1/4" OC	Pipe shoe MP-PS M4-2 318-328 12" OC
Pipe shoe MP-PS M1-1 45-51 1-1/2" OC	Pipe shoe MP-PS M2-2 45-51 1-1/2" OC	Pipe shoe MP-PS M4-2 350-360 14" OC
Pipe shoe MP-PS M1-1 52-58 OC	Pipe shoe MP-PS M2-2 52-58 OC	Pipe shoe MP-PS M4-2 401-411 16" OC
Pipe shoe MP-PS M1-1 59-65 2" OC	Pipe shoe MP-PS M2-2 59-65 2" OC	Pipe shoe MP-PS M4-2 452-462 18" OC
Pipe shoe MP-PS M1-1 68-74 OC	Pipe shoe MP-PS M2-2 68-74 OC	Pipe shoe MP-PS M4-2 503-513 20" OC
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Pipe shoe MP-PS M1-1 110-118 4" OC	Pipe shoe MP-PS M2-2 110-118 4" OC	
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Pipe shoe MP-PS M1-1 152-162 OC	Pipe shoe MP-PS M2-2 152-162 OC	
Pipe shoe MP-PS M1-1 163-173 6" OC	Pipe shoe MP-PS M2-2 163-173 6" OC	
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	Pipe shoe MP-PS H2-2 217-227 8" OC	
	Pipe shoe MP-PS H2-2 244-254 OC	
	Pipe shoe MP-PS H2-2 267-277 10" OC	
	Pipe shoe MP-PS H2-2 318-328 12" OC	
Pipe shoe MP-PS M-BP OC baseplate	Pipe clamp MP-I-2 21-26 1/2" NC	Connector pipe shoe MT-FPS-GL1 OC
Slider plate MP-PS SP-2	Pipe clamp MP-I-2 26-34 3/4" NC	Connector pipe shoe MT-FPS-SZ1 OC
Plate MP-PS M2-WP NC weldable	Pipe clamp MP-I-2 32-37 1" NC	Connector pipe shoe MT-FPS-GL2 OC
Kit MP-PS M2-WF NC	Pipe clamp MP-I-2 52-58 NC	Connector pipe shoe MT-FPS-SZ2 OC
Kit MP-PS M2-WS NC	Pipe clamp MP-I-2 59-65 2" NC	Connector pipe shoe MT-FPS-SF OC
Beam connector MP-PS IFG 80/160 OC	Pipe clamp MP-I-2 68-74 NC	Connector pipe shoe MT-FPS-GF OC
Beam connector MP-PS IFG 160/230 OC	Pipe clamp MP-I-2 88-94 3" NC	Connector pipe shoe MT-FPS-FF OC
Beam connector MP-PS IFG 230/300 OC	Pipe clamp MP-I-2 110-118 4" NC	Connector pipe shoe MT-FPS-FZL OC
Beam connector MP-PS ISG 80/160 OC	Pipe clamp MP-I-2 125-133 NC	
Beam connector MP-PS ISG 160/230 OC	Pipe clamp MP-I-2 136-144 5" NC	
Beam connector MP-PS ISG 230/300 OC	Pipe clamp MP-I-2 152-162 NC	
	Pipe clamp MP-I-2 163-173 6" NC	
	Pipe clamp MP-I-2 192-202 7" NC	
	Pipe clamp MP-I-2 217-227 8" NC	
	Pipe clamp MP-I-2 244-254 NC	
	Pipe clamp MP-I-2 38-44 1-1/4" NC	
	Pipe clamp MP-I-2 45-51 1-1/2" NC	
	Pipe clamp MP-I-2 75-81 2-1/2" NC	
	Pipe clamp MP-I-2 267-277 10" NC	
	Pipe clamp MP-I-2 318-328 12" NC	
	Pipe clamp MP-I-2 350-360 14" NC	
	Pipe clamp MP-I-2 401-411 16" NC	
	Pipe clamp MP-I-2 452-462 18" NC	
	Pipe clamp MP-I-2 503-513 20" NC	
	Pipe clamp MP-I-2 605-615 24" NC	
	Pipe clamp MP-I-2 100-108 3-1/2" NC	

For the placing of the product on the market in the European Union European Free Trade Association EU/EFTA) (with the exception of Switzerland) Regulation (EU) No. 305/2011 (CPR) applies. For the application and use the respective national provisions apply.

Application

The MP-PS H4-2 605-615 24" OC is developed to clamp heavy industrial pipes. It is intended to be fixed onto steel beams, concrete or modular support girders. The product is intended to be used for the following applications:
- Process or utility piping in onshore industrial, power generation, pharmaceutical, electronics or automotive manufacturing facilities
- Suitable for application temperatures of up to 300 °C

Technical Data

The following data pertains to the selected product (MP-PS H4-2 605-615 24" OC) only:

Constructional data

Name	Value	Unit
Height of material	821	mm
Diameter of material	615	mm
Weight of material	21.160	kg

Performance data of the product with respect to its characteristics in accordance with the relevant technical provision (no CE-marking).

Base materials/Ancillary materials

Base materials
The raw material used to produce the declared product MP-PS H4-2 605-615 24" OC are the following:
- Steel 99%
- Glass fiber reinforced 1%

Per piece of item weighs 21.160 kg.

This product/article/at least one partial article contains substances listed in the *REACH SVHC* candidate list (date: 17.01.2023) exceeding 0.1 percentage by mass: NO.

This product/article/at least one partial article contains other carcinogenic, mutagenic, reprotoxic (CMR) substances in categories 1A or 1B which are not on the *candidate list*, exceeding 0.1 percentage by mass: NO.

Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) *Ordinance on Biocide Products No. 528/2012)*: NO.

Reference service life

This EPD does not declare the use stages (B1-B7). The lifetime of zinc coated (all galvanization types) steel will depend on the lifetime of the entire installation system with which it has been used in combination, the lifetime of the respective building, and the environmental conditions. Therefore, the service life is not declared in this declaration.

LCA: Calculation rules

Declared Unit

The product declared here is a gutter end cap from HILTI AG with the designation MP-PS H4-2 605-615 24' OC as a representative product from the pipe shoe portfolio. The declared unit refers to 1 kg of the fastening system. The following table shows the data of the declared unit.

Declared unit and mass reference

Name	Value	Unit
Declared unit (e.g. modular channel system)	1	kg
Gross density	7489	kg/m^3

System boundary

Type of EPD: Cradle to gate with options, modules C1–C4, and module D. The following information modules are defined as system boundaries in this study:

Production stage (A1- A3):
• A1, Raw material,
• A2, Transport to the manufacturer,
• A3, Production.

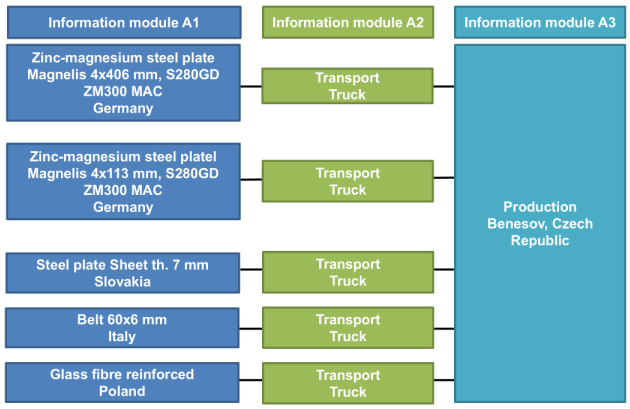
End of life (C1- C4):
C1, Dismantling/demolition,
C2, Transport,
C3, Waste treatment,
C4, Disposal.

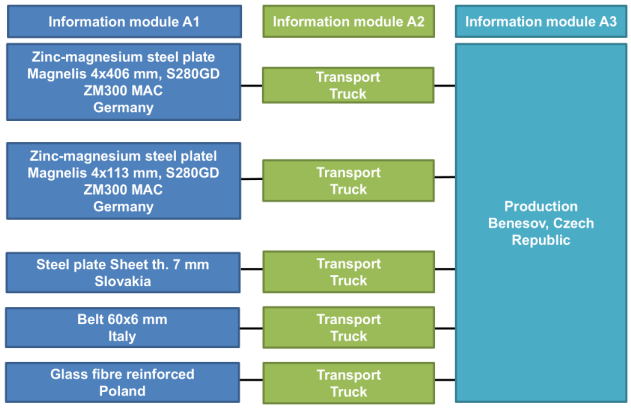
Reuse, recovery and recycling potential (D)

To accurately record the indicators and environmental impacts of the declared unit, a total of 9 information modules are considered. The information modules A1 to A3 describe the material provision, the transport to the production site, as well as the production processes of the product itself.

The intermediate products are sourced from the European Union. The transport is carried out by truck. The following flow charts illustrate the Underlying production process.

Illustration 2 Information modules A 1 to A3 of the product





Information modules C1 to C4 cover dismantling or demolition from the building, transport for waste disposal, waste treatment and disposal of the product. Furthermore, reuse, recovery and recycling potentials are identified in information module D.

Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: Czech Republic

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. The database referred to in this study is LCA for *Experts by Sphera*.

LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

No renewable raw materials are used. Therefore, biogenic carbon is indicated as zero.

Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in accompanying packaging	-	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO_2.

End of life (C1-C4)

In the C1 information module, the demolition of the mounting system from the building is calculated. Demolition is carried out by means of an electric screwdriver. The electrical energy consumption for the tool is assumed to be 0.003MJ for the declared unit. The electricity consumption is calculated with a RER electricity mix.

Name	Value	Unit
Collected as mixed construction waste	1	kg
Recycling	0.99	kg
Energy recovery	0.01	kg

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

A recycling rate of 95% is assumed in Module D and 85% in Module D1. Module D is intended to reflect a European recycling rate and D1 a global recycling rate.

Name	Value	Unit
Steel recycling (D)	0,941	kg
Steel recycling (D1)	0,842	kg

LCA: Results

LCA RESULTS - additional impact categories according to EN 15804+A2-optional are not declared as experience with the indicators is limited.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from 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	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 kg Hilti Pipe Shoes

Parameter	Unit	A1-A3	C1	C2	C3	C4	D	D/1
GWP-total	kg CO_2 eq	2.55E+00	5.41E-04	4.67E-03	4.02E-02	0	-2.07E+00	-1.85E+00
GWP-fossil	kg CO_2 eq	2.55E+00	5.41E-04	4.59E-03	4.02E-02	0	-2.07E+00	-1.85E+00
GWP-biogenic	kg CO_2 eq	1.23E-03	1.22E-07	0	0	0	-7.79E-04	-6.98E-04
GWP-luluc	kg CO_2 eq	1.97E-03	8.09E-08	7.6E-05	2.18E-05	0	-8.7E-04	-7.79E-04
ODP	kg CFC11 eq	2.93E-12	5.94E-15	4.55E-16	1.56E-10	0	-1.85E-12	-1.67E-12
AP	mol H^+ eq	5.76E-03	1.26E-06	1.77E-05	1.57E-04	0	-4.6E-03	-4.12E-03
EP-freshwater	kg P eq	2.24E-06	2.83E-10	1.93E-08	3.14E-07	0	-1.6E-06	-1.44E-06
EP-marine	kg N eq	1.48E-03	2.12E-07	8.31E-06	7.13E-05	0	-1.18E-03	-1.06E-03
EP-terrestrial	mol N eq	1.61E-02	2.27E-06	9.3E-05	7.79E-04	0	-1.28E-02	-1.14E-02
POCP	kg NMVOC eq	4.73E-03	6.31E-07	1.64E-05	2.12E-04	0	-3.9E-03	-3.49E-03
ADPE	kg Sb eq	9.61E-07	2.56E-11	3.85E-10	6.52E-09	0	-8.73E-08	-7.82E-08
ADPF	MJ	2.57E+01	1E-02	5.9E-02	2.84E-01	0	-1.88E+01	-1.69E+01
WDP	m^3 world eq deprived	3.3E-02	3.09E-05	6.73E-05	3.56E-03	0	-2.55E-02	-2.29E-02

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = 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 kg Hilti Pipe Shoes

Parameter	Unit	A1-A3	C1	C2	C3	C4	D	D/1
PERE	MJ	1.73E+00	1.43E-03	4.99E-03	2.03E-02	0	-1.19E+00	-1.07E+00
PERM	MJ	0	0	0	0	0	0	0
PERT	MJ	1.73E+00	1.43E-03	4.99E-03	2.03E-02	0	-1.19E+00	-1.07E+00
PENRE	MJ	2.54E+01	1E-02	5.9E-02	5.78E-01	0	-1.88E+01	-1.69E+01
PENRM	MJ	2.94E-01	0	0	-2.94E-01	0	0	0
PENRT	MJ	2.57E+01	1E-02	5.9E-02	2.84E-01	0	-1.88E+01	-1.69E+01
SM	kg	7.39E-05	0	0	0	0	9.41E-01	8.42E-01
RSF	MJ	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0
FW	m^3	2.32E-03	2.01E-06	5.6E-06	9.84E-05	0	-1.14E-03	-1.02E-03

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 kg Hilti Pipe Shoes

Parameter	Unit	A1-A3	C1	C2	C3	C4	D	D/1
HWD	kg	1.35E-08	1.42E-12	1.91E-12	1.65E-11	0	-2.15E-09	-1.92E-09
NHWD	kg	3.08E-02	2.48E-06	9.18E-06	1.53E-04	0	-2.56E-02	-2.29E-02
RWD	kg	6.51E-04	1.3E-06	7.63E-08	1.28E-05	0	-1.29E-04	-1.19E-04
CRU	kg	0	0	0	0	0	0	0
MFR	kg	2.89E-01	0	0	9.9E-01	0	0	0
MER	kg	0	0	0	0	0	0	0
EEE	MJ	0	0	0	7.89E-02	0	0	0
EET	MJ	0	0	0	4.43E-02	0	0	0

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 kg Hilti Pipe Shoes

Parameter	Unit	A1-A3	C1	C2	C3	C4	D	D/1
PM	Disease incidence	ND	ND	ND	ND	ND	ND	ND
IR	kBq U235 eq	ND	ND	ND	ND	ND	ND	ND
ETP-fw	CTUe	ND	ND	ND	ND	ND	ND	ND
HTP-c	CTUh	ND	ND	ND	ND	ND	ND	ND
HTP-nc	CTUh	ND	ND	ND	ND	ND	ND	ND
SQP	SQP	ND	ND	ND	ND	ND	ND	ND

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Disclaimer 1 – for the indicator “Potential Human exposure efficiency relative to U235”. 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 or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators “abiotic depletion potential for non-fossil resources”, “abiotic depletion potential for fossil resources”, “water (user) deprivation potential, deprivation-weighted water consumption”, “potential comparative toxic unit for ecosystems”, “potential comparative toxic unit for humans – cancerogenic”, “Potential comparative toxic unit for humans - not cancerogenic”, “potential soil quality index”. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

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