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SHI PRODUCT PASSPORT

Find products. Certify buildings.

SHI Product Passport No.:

13373-10-1073

ASSY Schrauben

Product group: Fastening technology - Screws

WÜRTH

Adolf Würth GmbH & Co. KG
Reinhold-Würth-Straße 12-17
74653 Künzelsau-Gaisbach

Product qualities:

- SHI Product Assessment 2024
- QNG Qualitätssiegel Nachhaltiges Gebäude
- DGNB NEW CONSTRUCTION 2023
- DGNB NEW CONSTRUCTION 2018
- BNB-BN NEUBAU V2015
- EU taxonomy
- BREEAM DE NEUBAU 2018
- LEED v4.1 (outside US)

CERTIFIED SUSTAINABLE PRODUCT
SHI PRODUCT PASSPORT
SENTINEL HOLDING INSTITUT
www.sentinel-holding.eu

Köttner

Helmut Köttner
Scientific Director
Freiburg, 19 May 2026

Product:
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The SHI Database is the first and only database for construction products whose comprehensive processes and data accuracy are regularly verified by the independent auditing company SGS-TÜV Saar

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SHI Product Assessment 2024

Since 2008, Sentinel Holding Institut GmbH (SHI) has been establishing a unique standard for products that support healthy indoor air. Experts carry out independent product assessments based on clear and transparent criteria. In addition, the independent testing company SGS regularly audits the processes and data accuracy.

Criteria	Product category	Harmful substance limit	Assessment
SHI Product Assessment	Other products	TVOC ≤ 300 µg/m^3 Formaldehyd ≤ 24 µg/m^3	Indoor air neutral

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QNG - Qualitätssiegel Nachhaltiges Gebäude

The Qualitätssiegel Nachhaltiges Gebäude (Quality Seal for Sustainable Buildings), developed by the German Federal Ministry for Housing, Urban Development and Building (BMWSB), defines requirements for the ecological, socio-cultural, and economic quality of buildings. The Sentinel Holding Institut evaluates construction products in accordance with QNG requirements for certification and awards the QNG ready label. Compliance with the QNG standard is a prerequisite for eligibility for the KfW funding programme. For certain product groups, the QNG currently has no specific requirements defined. Although classified as not assessment-relevant, these products remain suitable for QNG-certified projects.

Criteria	Pos. / product group	Considered substances	QNG assessment
3.1.3 Schadstoffvermeidung in Baumaterialien			QNG ready - Not relevant for assessment

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DGNB New Construction 2023

The DGNB System (German Sustainable Building Council) assesses the sustainability of various types of buildings. It can be applied to both large-scale private and commercial projects as well as smaller residential buildings. The 2023 version sets high standards for ecological, economic, socio-cultural, and functional aspects throughout the entire life cycle of a building.

Criteria	No. / Relevant building components / construction materials / surfaces	Considered substances / aspects	Quality level
ENV 1.2 Local environmental impact, 03.05.2024 (3rd edition)	not applicable		Not relevant for assessment

Criteria	Assessment
ENV1.1 Climate action and energy (*)	May positively contribute to the overall building score
Verification: EPD; Rückbaubar, Gradle to grave.	

Criteria	No. / Relevant building components / construction materials / surfaces	Considered substances / aspects	Quality level
ENV 1.2 Local environmental impact, 29.05.2025 (4th edition)	not applicable		Not relevant for assessment

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DGNB New Construction 2018

The DGNB System (German Sustainable Building Council) assesses the sustainability of various types of buildings. It can be applied to both large-scale private and commercial projects as well as smaller residential buildings.

Criteria	No. / Relevant building components / construction materials / surfaces	Considered substances / aspects	Quality level
ENV 1.2 Local environmental impact	not applicable	not applicable	Not relevant for assessment

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BNB-BN Neubau V2015

The Bewertungssystem Nachhaltiges Bauen (Assessment System for Sustainable Building) is a tool for evaluating public office and administrative buildings, educational facilities, laboratory buildings, and outdoor areas in Germany. The BNB was developed by the former Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) and is now overseen by the Federal Ministry for Housing, Urban Development and Building (BMWSB).

Criteria	Pos. / product type	Considered substance group	Quality level
1.1.6 Risiken für die lokale Umwelt			Not relevant for assessment

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EU taxonomy

The EU Taxonomy classifies economic activities and products according to their environmental impact. At the product level, the EU regulation defines clear requirements for harmful substances, formaldehyde and volatile organic compounds (VOCs). The Sentinel Holding Institut GmbH labels qualified products that meet this standard.

Criteria	Product type	Considered substances	Assessment
DNSH - Pollution prevention and control			Not relevant for assessment

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BREEAM DE Neubau 2018

BREEAM (Building Research Establishment Environmental Assessment Methodology) is a UK-based building assessment system that evaluates the sustainability of new constructions, refurbishments, and conversions. Developed by the Building Research Establishment (BRE), the system aims to assess and improve the environmental, economic, and social performance of buildings.

Criteria	Product category	Considered substances	Quality level
Hea 02 Indoor Air Quality			Not relevant for assessment

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LEED v4.1

LEED (Leadership in Energy and Environmental Design) is an internationally recognised building certification system developed by the U.S. Green Building Council. It is one of the most widely used sustainability standards for buildings worldwide and is particularly applied in internationally oriented projects. LEED assesses buildings holistically across categories such as energy efficiency, resource conservation, material selection, indoor environmental quality and site sustainability. Depending on the number of points achieved, projects are awarded one of the certification levels: LEED Certified, Silver, Gold or Platinum.

Criteria	Product category	Considered substances	Assessment
EQ Credit: Low-Emitting Materials			Not relevant for assessment

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Product labels

In the construction industry, high-quality materials are crucial for a building's indoor air quality and sustainability. Product labels and certificates offer guidance to meet these requirements. However, the evaluation criteria of these labels vary, and it is important to carefully assess them to ensure products align with the specific needs of a construction project.

Products bearing the Sentinel Holding Institute QNG-ready seal are suitable for projects aiming to achieve the "Qualitätssiegel Nachhaltiges Gebäude" (Quality Seal for Sustainable Buildings). QNG-ready products meet the requirements of QNG Appendix Document 3.1.3, "Avoidance of Harmful Substances in Building Materials." The KfW loan program Climate-Friendly New Construction with QNG may allow for additional funding.

The IBU ("Institut Bauen und Umwelt e.V.") is an initiative of building product manufacturers committed to sustainability in construction. It serves as the programme operator for Environmental Product Declarations (EPDs) in accordance with the EN 15804 standard. The IBU EPD programme provides comprehensive life cycle assessments and environmental impact data for construction products, supported by independent third-party verification.

Product:
ASSY Schrauben

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Legal notices

(*) These criteria apply to the construction project as a whole. While individual products can positively contribute to the overall building score through proper planning, the evaluation is always conducted at the building level. The information was provided entirely by the manufacturer.

Find our criteria here: https://www.sentinel-holding.eu/de/Themenwelten/Pr%C3%BCfkriterien%20f%C3%BCr%20Produkte

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SGS TÜV SAAR

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ENVIRONMENTAL PRODUCT DECLARATION

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

Owner of the Declaration	Würth Group / Adolf Würth GmbH & Co. KG
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-AWU-20230569-CBA1-EN
Issue date	21.03.2024
Valid to	20.03.2029

Stainless Steel screws

Adolf Würth GmbH & Co. KG

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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



General Information

Adolf Würth GmbH & Co. KG

Programme holder

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

Declaration number

EPD-AWU-20230569-CBA1-EN

This declaration is based on the product category rules:

Screws, 01.06.2023
(PCR checked and approved by the SVR)

Issue date

21.03.2024

Valid to

20.03.2029



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



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

Stainless Steel screws

Owner of the declaration

Würth Group / Adolf Würth GmbH & Co. KG
Reinhold-Würth Str. 12-17
74653 Künzelsau
Germany

Declared product / declared unit

1 kg weighted average of dowel-type fasteners with thread.

Scope:

This EPD relates to timber screws, chipboard screws, drilling and tapping screws, screws for plastics, metric screws and dowel-type fasteners with thread made of steel or stainless steel. Depending on the type of screw, these products are generally used for fastening two or more components made of wood, steel or plastic.

The declared environmental data related to 1 kg of stainless steel are based on a weighted average stainless steel screws in a Würth manufacturing plant, SWG Schraubenwerk Gaisbach GmbH and internationalized with generic data. The holder of the declaration shall be liable for the underlying information and supporting documents; any liability of IBU (Institut Bauen und Umwelt e. V.) with regard to manufacturer information, life cycle assessment data and supporting documents is hereby excluded. The EPD (Environmental Product Declaration) was created in accordance with EN 15804 + A2: 2022-03. In the following, the standard is referred to in simplified form as EN 15804.

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



Dr.-Ing. Nikolay Minkov,
(Independent verifier)

Product

Product description/Product definition
Dowel-type fasteners with thread, e.g. screws made of stainless steel, are fasteners that can predominantly be used for fastening two or more components. The materials to be fastened or screw-in surfaces can be made of wood, wood materials, plastic, aluminium, steel, stainless steel or other metals.

Pin-shaped connectors, such as screws, are generally manufactured from a wire (stainless steel) and provided with a head on one component side to be tightened. Depending on the application, it can have different shapes, e.g. countersunk head, round head, hexagon head or washer head. For anchoring the pin-shaped connectors, a thread is formed on the opposite side. The thread shape (e.g. wood thread or metric thread) is matched to the screw-in surface and can be designed differently in terms of thread height, thread angle or thread pitch. The point design of the dowel-type fasteners with thread is matched to the application, e.g. wooden tip, drill tip or blunt shape. For protection against corrosion or e.g. for setting a sliding friction, the pin-shaped connectors can be provided with different coatings, for example, anti-skid coating.

Depending on the application, the additional use of suitable steel or stainless steel seals as well as EPDM seals (ethylene-propylene-diene rubber), washers or nuts is provided. Depending on the application, the dowel-type fasteners with thread can be subject to legal national or European requirements such as the Construction Products Regulation. For example, the following documentation possibilities may be available:

Product according to CPR with hEN:
Regulation (EU) No 305/2011 (CPR) shall apply to the placing of the product on the market in the EU/EFTA states (with the exception of Switzerland). The product requires a declaration of performance taking into account the respective EN.

The CE marking shall be applied to the product in compliance with the proof of its conformity with the following harmonized standards based on the mentioned harmonization legislation:

- *EN 14592:2008-04*; timber structures - dowel-type fasteners

The use shall be subject to the respective national provisions.

Product according to CPR with ETA:
Regulation (EU) No 305/2011 (CPR) shall apply to the placing of the product on the market in the the European Union/European/Free Trade Association (EU/EFTA) states (with the exception of Switzerland). The product needs a declaration of performance taking into account the respective *ETA* such as *ETA-10/0184, ETA-13/0210 or ETA-11/0190* and CE marking.

The use shall be subject to the respective national provisions.

Product that is not subject to EU harmonization legislation:
The national regulations of the place of use apply to the use of the product. In Germany, for example, the building codes of the respective countries and the technical building regulations based on these codes apply.

Application
Timber screws, chipboard screws, drilling and tapping screws, plastic screws and dowel-type fasteners with thread made of stainless steel are used when fastening two or more components. Depending on the type of screw, these products are generally used for fastening components made of wood, steel or plastic. Possible application examples include timber construction, steel construction, indoor/outdoor use, furniture applications or window construction. Examples of Würth product groups are ASSY, Pias and Piasta screws.

Technical Data
Structural data for the respective dowel-type fasteners with thread are provided in the corresponding approvals and technical drawings, as shown below in an excerpt from *ETA 11/0190 (ASSY)* for wood screws.

Constructional data
Data based on ASSY plus VG:

Name	Value	Unit
Screw diameter	8	mm
Usage category as per ETA	11/0190	-
Characteristic tension resistance	20	kN
Screw length (+1.0/-0.5)	450 - 480	mm
Material	carbon steel	

Product according to CPR with hEN:

- Performance values of the product in accordance with the declaration of performance in relation to its essential characteristics according to applicable hEN such as *EN 15048-1:2016 and EN 14399-1:2015*.

Product according to CPR with ETA:

- Performance values of the product according to the declaration of performance with respect to its essential characteristics in accordance with applicable ETA.

Product that is not subject to EU harmonization legislation:

- Performance values of the product in relation to its characteristics according to the applicable technical regulation (no CE marking).

All approvals can be downloaded from the Würth Online Shop homepage under the Documents tab for the respective products.

Base materials/Ancillary materials
Dowel-type fasteners with thread are made of stainless steel. As explained in the product description (2.1), depending on the type of application and material, the fasteners are provided with, for example, galvanic and/or mechanical galvanizing and, if appropriate, with anti-friction coating. Depending on the application, the fasteners are also equipped with a corresponding sealing washer made of steel, stainless steel or aluminium and EPDM sealing rubber.

Stainless steel
The designation stainless steel (according to *DIN EN 10020*) refers to alloyed or unalloyed steels with a special degree of purity, such as steels in which the sulfur and phosphorus content (also known as an iron companion) does not exceed 0.025%. Often, additional heat treatments (such as quenching and tempering) are planned.

EPDM
EPDM is an abbreviation for ethylene-propylene diene (monomer) rubber and is a terpolymer elastomer (rubber). It thus belongs to the group of synthetic rubbers. In the context of the rubber classification, seals made of this sealing material are therefore assigned to the group of non-polar saturated rubbers. This material is a high-quality rubber-elastic synthetic elastomer

of ethylene, propylene and dienes of high-molecular weight. The saturated basic molecular base structure of EPDM offers properties such as high weathering resistance, ozone resistance and high heat resistance.

Electrogalvanizing
Galvanization (also electroplating technology) is a surface and coating technology process for the electrochemical separation of metals on metallic or metallized surfaces using an electrolyte and direct current. Functional electroplating protects against corrosion and wear, catalyzes, improves conductivity, and reduces frictional forces. The ductility and formability of workpieces can also be influenced by electroplating.

Anti-friction coating
Aqueous suspensions, emulsions and dispersions are used as lubricants. Depending on the application, these include kerosenes, polymers and waxes. A lubricious coating is applied to the screw by means of an immersion bath or drum coating. It lies on the screw as a dry transparent film. Some lubricating coatings contain small amounts of alcohol. Type 6 work clothing, safety goggles, face protection and chemical-resistant gloves are worn as safety measures to protect human contact during coating. An annual safety briefing is carried out and extraction systems are used.

Reference service life
Given the wide range of applications, no specific information on the recommended useful life is provided. The actual service life of screws generally depends on their intended use, installation environment and proper installation. External influences can have a significant impact on the useful life. According to the European Technical Approval, the average useful life of screws is > 25 years. The indication of the useful life cannot be understood as a guarantee by the manufacturer. It must be ensured that the use of the dowel-type fasteners with thread complies with the applicable technical regulations.

LCA: Calculation rules

Declared Unit
1 kg average screws made of stainless steel:

Declared unit and mass reference

Name	Value	Unit
Declared unit	1	kg
Gross density	7900	kg/m^3

The exact weight of the screw is provided digitally.

System boundary
Type of the EPD: cradle-to-gate - with options, modules C1-C4 and module D (A1-A3 + C + D and additional modules: A4, A5).

Production Stage (A1-A3): The Product stage includes:
· A1 Raw material supply and processing (mainly steel),
· A2 Transport of raw materials to the manufacturer,
· A3 Production of Stainless steel screws (incl. energy provision, treatment of production waste, production of packaging materials).

Construction stage (A4-A5): The construction process stage includes:
· A4 transport to the construction site 100 km by truck,
· A5 Disposal of the packaging and installation of the Stainless steel screw.

End-of-life stage (C1-C4): The end-of-life stage includes:
· C1 machine-assisted de- construction (Hand-screwdriver; battery operated)
· C2 transport to waste processing; 50 km with truck Transport distance can be adjusted at building level if necessary (e.g., for 100 km actual transport distance: multiply LCA values by factor 2)
· C3 waste processing for recycling of Stainless steel.
· C4 no components of the product are landfilled.

Benefits and loads beyond the System Boundary (D):
Module D includes:
Material recovery potentials from metal recycling and energy recovery potentials from the
thermal recovery of Packaging.

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

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 underlying database is *LCA FE (GaBi)* 2023, version 2023.1

LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

Information on describing the biogenic carbon content at factory gate
Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO2

Name	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in accompanying packaging	0.0228	kg C

Transport from the gate to the site (A4)

Name	Value	Unit
Litres of fuel (per kg transported goods)	0.0018	l/100km
Transport distance	100	km
Capacity utilisation (including empty runs)	61	%
Mass for Transportation	1	kg

Assembly (A5)

Name	Value	Unit
Electricity consumption	0.0281	kWh
Material loss	-	kg
Output substances following waste treatment on site (Packaging)	0.051	kg

End of life (C1-C4)

Name	Value	Unit
Energy consumption for dismantling	0.0281	kWh
Collected separately waste type waste type	1	kg
Collected as mixed construction waste	-	kg
Reuse	-	kg
Recycling	1	kg
Energy recovery	-	kg

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

Name	Value	Unit
collection rate	100	%

The results of the scenario (100%) can be scaled on building level according to the applied collection rate.

LCA: Results

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	X	X	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 Stainless steel fasteners with thread

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	6.88E+00	6.69E-03	1.2E-01	4.26E-02	4.34E-03	0	0	-4.31E+00
GWP-fossil	kg CO_2 eq	6.94E+00	6.61E-03	4.5E-02	4.26E-02	4.29E-03	0	0	-4.32E+00
GWP-biogenic	kg CO_2 eq	-7.44E-02	1.95E-05	7.55E-02	2.12E-05	1.27E-05	0	0	1.98E-02
GWP-luluc	kg CO_2 eq	1.52E-02	6.13E-05	4.29E-06	3.9E-06	3.98E-05	0	0	-1.14E-02
ODP	kg CFC11 eq	6.76E-12	8.61E-16	4.28E-13	4.19E-13	5.59E-16	0	0	-1.76E-13
AP	mol H^+ eq	3.92E-02	9.86E-06	8.37E-05	6.49E-05	6.4E-06	0	0	-2.63E-02
EP-freshwater	kg P eq	1.43E-05	2.42E-08	4.48E-08	4.21E-08	1.57E-08	0	0	-6.21E-06
EP-marine	kg N eq	6.88E-03	3.6E-06	2.52E-05	1.83E-05	2.34E-06	0	0	-3.78E-03
EP-terrestrial	mol N eq	7.46E-02	4.25E-05	2.79E-04	1.93E-04	2.76E-05	0	0	-4.09E-02
POCP	kg NMVOC eq	1.99E-02	8.66E-06	6.87E-05	5.06E-05	5.62E-06	0	0	-1.15E-02
ADPE	kg Sb eq	2.34E-04	4.36E-10	2.14E-09	2.06E-09	2.83E-10	0	0	-6.3E-06
ADPF	MJ	7.45E+01	9.01E-02	9.58E-01	9.36E-01	5.85E-02	0	0	-5.27E+01
WDP	m^3 world eq deprived	2.26E+00	7.99E-05	1.21E-02	3.58E-03	5.19E-05	0	0	-1.75E+00

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 Stainless steel fasteners with thread

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.37E+01	6.56E-03	9.97E-01	1.28E-01	4.26E-03	0	0	-9.94E+00
PERM	MJ	8.64E-01	0	-8.64E-01	0	0	0	0	0
PERT	MJ	1.45E+01	6.56E-03	1.33E-01	1.28E-01	4.26E-03	0	0	-9.94E+00
PENRE	MJ	7.46E+01	9.04E-02	9.72E-01	9.36E-01	5.87E-02	0	0	-5.28E+01
PENRM	MJ	1.38E-02	0	-1.38E-02	0	0	0	0	0
PENRT	MJ	7.46E+01	9.04E-02	9.58E-01	9.36E-01	5.87E-02	0	0	-5.28E+01
SM	kg	2.49E-01	0	0	0	0	0	0	7.61E-01
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	8.19E-02	7.18E-06	4.15E-04	2.15E-04	4.66E-06	0	0	-7.17E-02

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 Stainless steel fasteners with thread

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	1.76E-06	2.8E-13	5.49E-11	5.43E-11	1.82E-13	0	0	-4.8E-04
NHWD	kg	3.65E+00	1.38E-05	2.41E-03	2.06E-04	8.95E-06	0	0	4.68E-02
RWD	kg	1.08E-03	1.69E-07	1.47E-04	1.46E-04	1.1E-07	0	0	-3.73E-04
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	1.02E-02	0	0	0	0	1E+00	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	1.04E-01	0	0	0	0	0

EET	MJ	0	0	1.89E-01	0	0	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 Stainless steel fasteners with thread

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	6.13E-07	8.16E-11	6.9E-10	5.87E-10	5.3E-11	0	0	-5.68E-07
IR	kBq U235 eq	1.1E-01	2.52E-05	2.21E-02	2.19E-02	1.64E-05	0	0	-4.19E-02
ETP-fw	CTUe	2.32E+01	6.4E-02	2.78E-01	2.68E-01	4.16E-02	0	0	-3.15E+01
HTP-c	CTUh	1.34E-06	1.31E-12	5.41E-12	4.84E-12	8.5E-13	0	0	-6.4E-08
HTP-nc	CTUh	1.46E-07	6.98E-11	2.71E-10	2.48E-10	4.53E-11	0	0	-3.26E-08
SQP	SQP	3.43E+01	3.76E-02	1.33E-01	1.27E-01	2.44E-02	0	0	-7.26E+00

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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