

ENVIRONMENTAL-PRODUCT DECLARATION

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

Owner of the Declaration	voestalpine AG
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-VOE-20210206-IBA1-EN
Issue date	27.10.2021
Valid to	31.12.2026

Hot-rolled steel strip
voestalpine Stahl GmbH

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1. General Information

voestalpine Stahl GmbH

Programme holder

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

Declaration number

EPD-VOE-20210206-IBA1-EN

This declaration is based on the product category rules:

Structural steels, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

27.10.2021

Valid to

31.12.2026



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



Dr. Martina Bender
(Managing Director Institut Bauen und Umwelt e.V.)

Hot-rolled steel strip

Owner of the declaration

voestalpine AG
voestalpine-Straße 3
4020 Linz
Austria

Declared product / declared unit

1 ton of hot-rolled steel strip

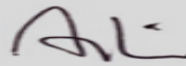
Scope:

This EPD
is based on a declared unit of 1 ton of hot-rolled steel strip produced at the
production site in Linz.
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 bezeichnet*.

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. Andreas Ciroth,
(Independent verifier)

2. Product

2.1 Product description/Product definition

Hot-rolled steel strip produced by voestalpine Stahl GmbH and further processed by voestalpine Steel & Service Center GmbH is continuously produced using the blast furnace process route and one or more additional treatment steps (pickling or annealing) as required by the customer. Low and medium alloy steels and even higher-strength grades were included in the averages set forth in this Environmental Product Declaration. For the use and application of the product the respective national provisions at the place of use apply, in Austria, for example, the building regulations of individual provinces and the technical stipulations based on these regulations.

2.2 Application

The areas of application for hot-rolled strip are found in several industrial sectors and are divided into the following segments:

- House industry
- Profile industry
- Tube industry
- Commercial vehicle industry
- Automotive supply industry
- Automotive industry
- Machinery industry
- Steel structures and plant building
- Pressure vessel production

The hot-rolled strip produced by voestalpine Stahl GmbH is supplied in various grades. Additional treatment steps (pickling, annealing) are performed to meet customer-specific product requirements. The strength and processing properties (forming, welding) of the declared product are defined by the selected chemical composition as well as the hot-rolling and annealing parameters. Different surface finishes can be applied to meet the respective application requirements, including rolled (scaled), pickled or pickled/oiled.

2.3 Technical Data

Performance values of the product according to the declaration of performance in relation to essential characteristics in accordance with the following standards:

Structural data

Name	Value	Unit
Thickness of the sheet	1,5 - 20	mm
Mass per unit area	11,8 - 157	kg/m ²

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to:
DIN EN 10111: 2008, Continuously hot rolled low carbon steel sheet and strip for cold forming,
EN10149: 2013, Hot rolled flat products made of high yield

strength steels for cold forming,
EN10025: 2011, Hot rolled products of structural steels,
EN683-1: 2018, Heat-treatable steels, alloy steels and free-cutting steels,
EN10028-1: 2010, Flat products made of steels for pressure purposes,
EN10120: 2017, Steel sheet and strip for welded gas cylinders,
EN10265 1996-01, Magnetic materials - Specification for steel sheet and strip with specified mechanical properties and magnetic permeability.

2.4 Delivery status

The hot-rolled strip is supplied in coils or sheets with a strip width of between 900 and 1750 mm. The strip thickness can range between 1.5 and 20 mm, depending on the intended application and customer specifications.

2.5 Base materials/Ancillary materials

The starting product of the material is a steel slab produced on site at voestalpine Stahl GmbH. The basic material consists of crude steel comprising roughly 75 % crude iron and 25 % scrap.

Auxiliary materials/additives

- Corrosion protection oil
- Hydrochloric acid

This product contains substances listed in the candidate list (14 July 2021) exceeding 0.1 percentage by mass: **no**.

This product contains other 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**.

2.6 Manufacture

The starting material for the production of hot strip is a steel slab produced using the primary route (blast furnace, BOF steelmaking plant). The molten crude steel is cast into slabs using a continuous casting method. The cast slabs are reheated to 900–1250 °C in a pusher-type or walking beam furnace and rolled in several rolling steps to form strips with a thickness ranging between 1.5 and 20 mm. A layer of mill scale forms on the hot strip which, depending on the customer specifications, is mechanically removed before being further processed (descaling on a stretch leveler). Depending on customer specifications, the steel strip is then pickled using hydrochloric acid or, in the case

of sheets,
is cut lengthwise or crosswise and annealed in the sheet
annealing line.

2.7 Environment and health during manufacturing

The production
site of the voestalpine Steel Division is certified pursuant to
EMAS 2009, ISO 9001 and ISO 14001.
In compliance with EMAS provisions, voestalpine continually
publishes
environment-related facts and figures pertaining to the
production site.
Investments are being made continually in the expansion of
environmental
protection measures at the Linz site in an effort to reduce air
and water
emissions to a minimum. Compliance with all statutory emission
limits is verified.
All production systems approved in accordance with applicable
environmental
impact analyses are inspected on a regular basis as part of
environmental
audits.

2.8 Product processing/Installation

Hot-rolled strip
produced by voestalpine can be further processed using
conventional sheet
treatments such as roll forming, deep drawing, edging, cold
rolling, flanging,
punching, mechanical and thermal cutting, welding and sand
blasting. Protective
measures (extraction, noise protection) prevent any emissions
or other harmful
effects from the declared product during such processing.

2.9 Packaging

The declared
product is supplied in the form of coils or sheets. Packaging
consists of paper
(coated), steel straps (circumferential and axle hole straps) or
cardboard
sleeves and varies depending on the type of delivery transport.
All packaging
can be recycled in its entirety.

2.10 Condition of use

The declared
product is a high-quality hot-rolled strip. The declaration states
a weighted
average of the pickled or unpickled/annealed product.

2.11 Environment and health during use

No adverse
effects are expected on human health or the environment
during use, nor are any
harmful emissions expected from the declared product.

2.12 Reference service life

The referenced
useful life depends on the respective application and generally
lasts between
15 and 50 years.
Description of the influences on the ageing of the product when
applied in accordance with the rules of technology.

2.13 Extraordinary effects

Fire

Not relevant.

Fire Protection

Name	Value
Building material class	A1
Burning droplets	not relevant
Smoke gas development	not relevant

Water

No negative
effects are to be expected on the environment under the
influence of water.

Mechanical destruction

Unforeseeable
mechanical effects on the declared product would have no
negative environmental
impact because of the plasticity of steel.

2.14 Re-use phase

The declared
product can be reused, recycled and reintroduced as a
secondary raw material by
recycling companies in the steel industry.

2.15 Disposal

The declared
product can be entirely recycled.

The waste code
is in accordance with European Waste Catalog (EWC): 17 04
05. The type of waste
is to be equated with waste catalog code 35103 pursuant to the
Waste Catalog
Ordinance applicable on a national level.

2.16 Further information

Please find more
information about the product on our web site at
<https://www.voestalpine.com/stahl/en/Products/Steel-strips/Hot-rolled-steel-strip>.

3. LCA: Calculation rules

3.1 Declared Unit

This
environmental product declaration refers to a declared unit of 1
ton of hot-rolled
steel strip.

Declared unit

Name	Value	Unit
Declared unit	1	t
Conversion factor to 1 kg	0,001	-

For the
calculation of the declared average, all grades produced were
included in the
form of an annual average. Input and production quantities for
the entire
calendar year 2019 were taken into account. The calculated

results can thus be considered representative for the entire product portfolio hot-rolled steel strip of voestalpine Stahl GmbH.

3.2 System boundary

The life cycle assessment of average hot-rolled steel strip refers to a cradle-to-gate analysis with modules (A1-A3 + C + D). Subsequent life cycle phases are part of the analysis:

Module A1-A3 | Production stage

The production stage includes the upstream burdens of purchased raw materials (coal, iron ore, pellets etc.), their transports and the manufacturing at the production site in Linz. Material and energy flows for the sinter plant, the coking plant, the blast furnaces, the steelworks, the hot strip mill and pickling are considered. Electricity is provided at Linz from a power station where process gases are used as fuel. Since more energy is used than is supplied by this company-owned power station, natural gas and electricity is additionally procured from Austrian networks. Scrap input in module A1-A3 is regarded as burden-free. Module A1-A3 also includes the production of the product packaging.

Module C1 | Deconstruction and demolition

It is assumed that the product is not connected with other materials and can therefore be dismantled. Associated efforts are negligible, no environmental impacts from the deconstruction of the products are declared.

Module C2 | Transport to disposal

The transport to the disposal of the material is estimated declaring a 50 km radius to the waste processing.

Module C3 | Waste processing

Product flows that reach Module D for recycling leave the product system in C3. Environmental impacts resulting from the grinding and sorting of steel scrap are not included due to the negligible expected environmental impact.

Module C4 | Landfilling

Module C4 declares the environmental impacts incurred by landfilling (5 % of the product).

Modul D | Credits and loads beyond the system boundary

The potential for substituting primary steel with a recycling scenario (95 % of the

product) is outlined in Module D.

3.3 Estimates and assumptions

All assumptions are verified through detailed documentation and correspond to the best possible representation of reality based on the available data. Regional applicability of the used background data refers to average data under European or German conditions taken from the *GaBi*-database. German data were used for the Austrian market whenever European or Austrian average data were not available.

3.4 Cut-off criteria

All inputs and outputs for which data are available are included in the LCA model. Data gaps are filled with conservative assumptions from average data (when available) or with generic data and are documented accordingly. Only data with a contribution of less than 1 % were cut off. Ignoring such data is justified based on the irrelevance of the expected effect. Processes, materials, or emissions known to make a significant contribution to the environmental effects of the products under examination have not been neglected. Data were collected from the models and recommendations developed by *worldsteel 2017* and tested using available comparable values. It is assumed that the data have been completely recorded and the overall total of ignored input flows do not amount to more than 5 % of total energy and mass flows. Environmental impacts of machines, plant and infrastructure were not included.

3.5 Background data

This study uses generic background data for the evaluation of upstream environmental impacts from *GaBi*-database 2021.1 and is modelled in *GaBi*-software version 10.

3.6 Data quality

The foreground data collected at voestalpine Stahl GmbH are based on the quantities used and volumes produced annually. All process data were collected by voestalpine in the course of reporting to official agencies. Data on material and energy use originate from material-specific throughput measurements of various processes as well as from controlling. Data were collected in compliance with *worldsteel 2017* provisions and were subjected to a supplementary plausibility check using material flow analyses of individual process steps. The technological, geographical and time-related representativeness of the data base was kept in mind when selecting background data. Whenever specific data were missing, either generic datasets or representative average data were used instead. The implemented *GaBi* background datasets are not more than ten years old.

3.7 Period under review

Foreground data were collected in the 2019 production year, and the data are based on the

volumes produced on an annual basis.

3.8 Geographic Representativeness

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

3.9 Allocation

The primary data are allocated using the partitioning approach developed by *worldsteel 2014* for calculating life cycle inventories of coproducts in steel production, which is in line with the provisions of *EN 15804*. The so-called partitioning approach provides for the allocation of environmental effects on the steelmaking process and the emerging byproducts based on physical relations. Material-inherent flow properties are thus taken into account.

The pickling byproducts iron sulphate and iron oxide were cut off as a result of their low contribution to company revenue. Economic allocation is not considered to be expedient because the byproducts and co-products are not directly tradable goods. Furthermore, long-term contracts for the sale of the byproducts exist, and the negotiated prices are therefore not subject to market dynamics.

3.10 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. Zur Berechnung der Ökobilanz wurde die *GaBi 2021.1* Hintergrunddatenbank in der *GaBi*-Software-Version 10 verwendet.

4. LCA: Scenarios and additional technical information

Characteristic product properties Information on biogenic carbon

The declared product does not contain any biogenic carbon. The following technical scenario information is required for the declared modules and optional for non-declared modules. Modules for which no information is declared can be deleted; additional information can also be listed if necessary.

The following technical information is a basis for the declared modules or can be used for developing specific scenarios in the context of a building assessment if modules are not declared (MND).

A5 is not declared including the disposal of the packaging material on the construction site, the amounts of packaging materials included in the LCA calculations must be declared as technical scenario information for Module A5.

Installation in building (A5)

The end-of-life of the packaging materials is not declared in Module A5.

Name	Value	Unit
Packaging (Paper)	0,0012	kg
Packaging (Steel strips)	0,0002	kg

The end-of-life scenario used in this LCA study is based on the following assumptions and thus complies with the specifications

published in *ökobaudat 2021*:

In case a **reference service life** according to applicable ISO standards is declared then the assumptions and in-use conditions underlying the determined RSL shall be declared. In addition, it shall be stated that the RSL applies for the reference conditions only.

The same holds for a service life declared by the manufacturer. Corresponding information related to in-use conditions needs not be provided if a service life taken from the list on service life by BNB is declared.

End-of-life (C1-C4)

Name	Value	Unit
Collected separately waste type (Steel)	1000	kg
Recycling 95 %	950	kg
Landfilling 5 %	50	kg

Re-Use, recovery and recycling potential (D), relevant scenario information

Name	Value	Unit
Net flow of steel scrap	816	kg

This scenario contains a recycling rate of 95 %. Since voestalpine externally purchases scrap for steel production, this is offset against the steel scrap for recycling (net flow).

5. LCA: Results

The following table contains the LCA results for a declared unit of 1 ton hot-rolled steel strip.

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://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml>).

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = 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	Deconstruction 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 ton hot-rolled steel strip

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential total (GWP-total)	kg CO ₂ eq	2.17E+03	0	3.02E+00	0	2.42E+00	-1.38E+03
Global Warming Potential fossil fuels (GWP-fossil)	kg CO ₂ eq	2.16E+03	0	3E+00	0	2.44E+00	-1.38E+03
Global Warming Potential biogenic (GWP-biogenic)	kg CO ₂ eq	3.91E+00	0	-3.56E-03	0	-2.5E-02	-8.97E-01
Global Warming Potential luluc (GWP-luluc)	kg CO ₂ eq	7.19E-01	0	2.44E-02	0	2.44E-03	2E-01
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	5.91E-11	0	5.9E-16	0	5.77E-15	-2.31E-12
Acidification potential of land and water (AP)	mol H ⁺ eq	4.53E+00	0	9.92E-03	0	7.78E-03	-2.48E+00
Eutrophication potential aquatic freshwater (EP-freshwater)	kg P eq	2.15E-03	0	8.88E-06	0	1.86E-06	-2.83E-04
Eutrophication potential aquatic marine (EP-marine)	kg N eq	9.44E-01	0	4.55E-03	0	1.93E-03	-3.7E-01
Eutrophication potential terrestrial (EP-terrestrial)	mol N eq	1.03E+01	0	5.08E-02	0	2.12E-02	-3.61E+00
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg NMVOC eq	3.31E+00	0	8.94E-03	0	6.08E-03	-1.9E+00
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	1.87E-03	0	2.65E-07	0	1.68E-07	-3.01E-03
Abiotic depletion potential for fossil resources (ADPF)	MJ	1.75E+04	0	3.98E+01	0	3.56E+01	-1.2E+04
Water use (WDP)	m ³ world eq deprived	6.46E+01	0	2.77E-02	0	-2.89E-02	-2.72E+02

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 ton hot-rolled steel strip

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier (PERE)	MJ	9.95E+02	0	2.29E+00	0	2.57E+00	1.11E+03
Renewable primary energy resources as material utilization (PERM)	MJ	0	0	0	0	0	0
Total use of renewable primary energy resources (PERT)	MJ	9.95E+02	0	2.29E+00	0	2.57E+00	1.11E+03
Non renewable primary energy as energy carrier (PENRE)	MJ	1.76E+04	0	4E+01	0	3.56E+01	-1.2E+04
Non renewable primary energy as material utilization (PENRM)	MJ	0	0	0	0	0	0
Total use of non renewable primary energy resources (PENRT)	MJ	1.76E+04	0	4E+01	0	3.56E+01	-1.2E+04
Use of secondary material (SM)	kg	1.34E+02	0	0	0	0	8.16E+02
Use of renewable secondary fuels (RSF)	MJ	0	0	0	0	0	0
Use of non renewable secondary fuels (NRSF)	MJ	0	0	0	0	0	0
Use of net fresh water (FW)	m ³	3.4E+00	0	2.62E-03	0	3.67E-04	-6.1E+00

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 ton hot-rolled steel strip

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	5.49E-06	0	2.11E-09	0	6.3E-09	3.36E-06
Non hazardous waste disposed (NHWD)	kg	2.47E+01	0	6.27E-03	0	5.01E+01	1.45E+02
Radioactive waste disposed (RWD)	kg	1.21E-01	0	7.25E-05	0	4.05E-04	4.36E-04
Components for re-use (CRU)	kg	0	0	0	0	0	0
Materials for recycling (MFR)	kg	0	0	0	9.5E+02	0	0
Materials for energy recovery (MER)	kg	0	0	0	0	0	0

Exported electrical energy (EEE)	MJ	0	0	0	0	0	0
Exported thermal energy (EET)	MJ	0	0	0	0	0	0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional:

1 ton hot-rolled steel strip

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Incidence of disease due to PM emissions (PM)	Disease incidence	ND	ND	ND	ND	ND	ND
Human exposure efficiency relative to U235 (IR)	kBq U235 eq	ND	ND	ND	ND	ND	ND
Comparative toxic unit for ecosystems (ETP-fw)	CTUe	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (carcinogenic) (HTP-c)	CTUh	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (noncarcinogenic) (HTP-nc)	CTUh	ND	ND	ND	ND	ND	ND
Soil quality index (SQP)	SQP	ND	ND	ND	ND	ND	ND

The additional and optional impact categories according to *EN 15804+A2* are not declared, as this is not required according to *PCR Part A*.

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 nor 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 abiotic depletion potential for non-fossil resources, abiotic depletion potential for fossil resources, water (user) deprivation potential, deprivation -weighted water consumption, eutrophication - fraction of nutrients reaching freshwater end compartment, 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 or as there is limited experience with the indicator.

6. LCA: Interpretation

The following interpretation contains a summary of the LCA results referenced to a

declared unit of 1 ton hot-rolled steel strip.

Hot-spot analysis of voestalpine hot-rolled steel strip



A comparison of the individual lifecycle phases results in a clear dominance of the production phase (Modules A1-A3). The environmental effects in the production phase are mainly dominated by the direct process emissions of steel production and the supply chain of purchased raw materials and energy carriers.

As a result of product recyclability, the material removed at the end of life can substitute primary steel. Module D shows the recycling potential of steel at the end of its product life. This results in credits from the substitution of primary steel. The environmental impact of the transport of the products to recycling (C2) as well as landfilling of the losses at the end of life (C4) represents a minor contribution to the overall environmental impact of the product.

In summary, raw material input and energy carriers required in the production phase as well as direct emissions at the site can be identified as important factors in the environmental impact of hot-rolled steel strips. The greenhouse gases directly emitted from the processes at the Linz production site, especially from the blast furnaces and the energetic treatment of the metallurgical gases in the network, contribute to a large share to potential global warming.

The hot rolled strip mill contributes a maximum of 5 % to the environmental impacts considered. The potential contribution to climate change is mainly driven by CO₂ emissions from natural gas combustion. With < 1 % of the environmental impact, the pickling plant plays a minor role in the environmental profile of the products considered. Due to the low influence of pickling, the results are representative for both pickled and unpickled products.

In the declared average of this EPD all produced grades were included in the form of a representative average. The analysis of different specifications of hot-rolled steel strips identifies a variation of the product-related carbon footprint of < 10 %. For potential acidification, eutrophication and formation potential of tropospheric ozone photochemical oxidants, this interval amounts to a maximum of 20 %. The elemental resource use and water scarcity vary greatly depending on the alloying elements used and their share in the product. Therefore, larger deviations in these indicators are to be expected depending on the respective product specification.

Due to the homogeneous structure of the products, the environmental impact of the products correlates directly with their mass.

7. Requisite evidence

Not relevant for this EPD. 7.1 Weathering performance
In the case of metallic surfaces, empirical values must be declared as regards annual weathering performance, whereby

the data source, sampling location and duration of the weathering test must be provided.

8. References

Standards

EN 683

DIN EN ISO 683-1: 2018, Heat-treatable steels, alloy steels and free-cutting steels.

EN 10025

DIN EN 10025: 2011,
Hot rolled products of structural steels.

EN 10028

DIN EN 10028-1: 2010, Flat products
made of steels for pressure purposes.

EN 10111

DIN EN 10111: 2008, Continuously hot rolled low carbon steel
sheet and strip for cold forming.

EN 10120

DIN EN 10120: 2017, Steel sheet and
strip for welded gas cylinders.

EN 10149

DIN EN 10149: 2013, Hot rolled flat products made of high yield
strength steels for cold forming.

EN 10265

DIN EN 10265: 1996, Magnetic materials - Specification for
steel sheet and strip with specified mechanical properties and
magnetic permeability.

EN 15804

EN 15804:2012-04+A2: 2019: Sustainability of
construction works — Environmental Product Declarations —
Core rules for the product
category of construction products.

ISO 9001

DIN EN

ISO 9001:2015. Quality management systems - Requirements.

ISO 14001

DIN EN

ISO 14001:2015, Environmental management systems - Requirements with guidance for use.

ISO 14025

DIN EN

/ISO 14025:2011-10: Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

ISO 14044

DIN EN

ISO 14044:2006, Environmental management – Life cycle assessment – Requirements and guidelines.

Further references

Waste

Catalog Ordinance

BMLFUW

2003. Ordinance of the Federal Minister for Agriculture and Forestry, the Environment and Water Resources (Federal Legal Gazette II No. 570/2003) regarding a waste catalog (Waste Catalogue Ordinance).

Candidate List

Candidate

List of Substances of Very High Concern (ECHA Candidate List) of 02.12.2020, published in accordance with Article 59 (10) of the REACH Regulation Helsinki: European Chemicals Agency.

EMAS 2009

Regulation

(EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a community eco-management and audit scheme (EMAS).

GaBi

GaBi

10, Software-System and Database for Life Cycle Engineering. DB v8.7 2020.2. Sphera, 1992-2020. Available at: <http://documentation.gabi-software.com>.

IBU 2021

Institut Bauen und Umwelt e.V.: General Programme Instructions for the preparation of EPDs at the Institut Bauen und Umwelt e.V., Version 2.0 Institut Bauen und Umwelt e.V., 2021, Berlin. www.ibu-epd.com.

ökobaudat 2021

ökobaudat

2021-I. EN 15804 and BNB compliant data for more than 700 building products. Federal Ministry of the Interior, Building and Community.

PCR Part A

Product

category rules for building-related products and services. Part A: Calculation rules for the life cycle assessment and requirements on the project report according to EN15804+A2:2019. Version 1.8, Berlin: Institut Bauen und Umwelt e.V. (Hrsg.), 2021.

PCR: Structural steels

Product

category rules for building-related products and services. Part B: Requirements of the EPD for Structural steels. Version 1.6, 30.11.2017.

worldsteel

2014

World

Steel Association, 2014: A methodology to determine the LCI of steel industry co-products.

worldsteel 2017

World Steel Association, 2017: Life cycle inventory methodology report.

The literature referred to in the Environmental Product Declaration must be listed in full. Standards already fully quoted in the EPD do not need to be listed here again.

The current version of PCR Part A and PCR Part B of the PCR document on which they are based must be referenced.



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