

Environmental Product Declaration

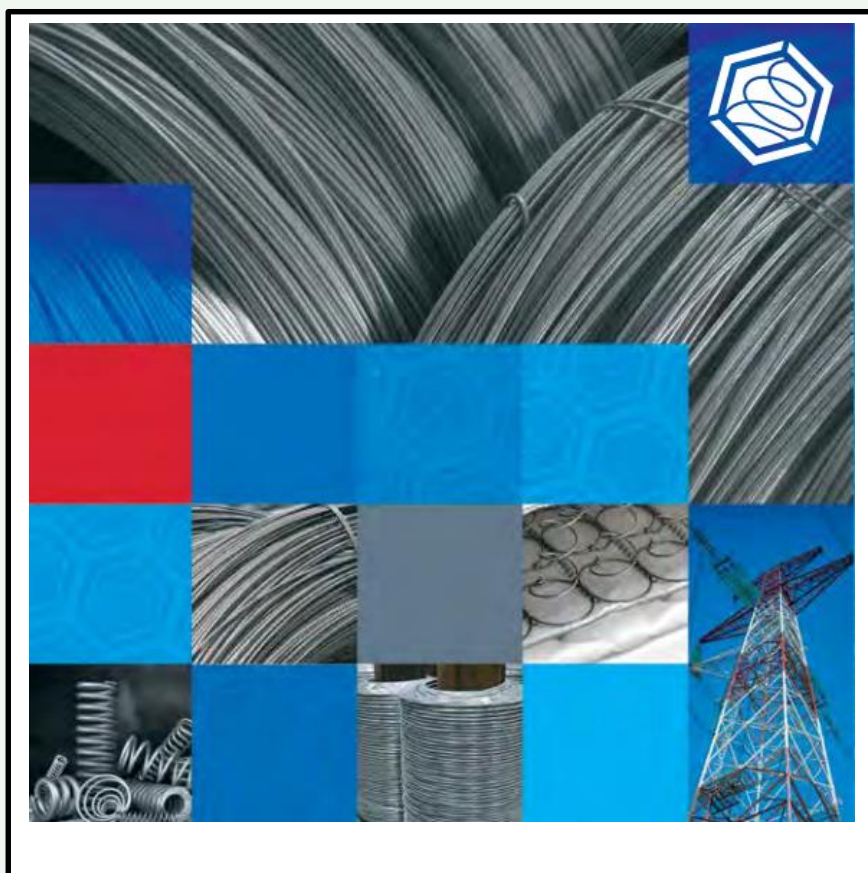


In accordance with ISO 14025 and EN 15804 for:

**For Carbon steel reinforcement bars,
Steel Galvanized Wires and Steel Wires** from
Severstal-metiz



Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
Regional hub:	EPD Russia
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Programme information

Programme:	<p>The International EPD® System</p> <p>EPD International AB Box 210 60 SE-100 31 Stockholm Sweden</p> <p>www.environdec.com info@environdec.com</p>
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PCR: PCR 2012:01. Construction products and construction services. 2.33

<p>Product category rules (PCR): PCR 2012:01. Construction products and construction services. UN CPC code: 4124</p>
<p>PCR review was conducted by:</p> <p>The Technical Committee of the International EPD® System. See www.environdec.com for a list of members. Review chair: Massimo Marino. Contact via info@environdec.com</p>
<p>Independent third-party verification of the declaration and data, according to ISO 14025:2006:</p> <p><input type="checkbox"/> EPD process certification <input checked="" type="checkbox"/> EPD verification</p>
<p>Third party verifier: <i>Dr Hudai Kara, Metsims Sustainability Consulting (www.metsims.com)</i></p> <p><i>In case of recognised individual verifiers:</i> Approved by: The International EPD® System</p>
<p>Procedure for follow-up of data during EPD validity involves third party verifier:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

Company information

Owner of the EPD:

Open Joint Stock Company "Severstal-metiz",

Address: Bld. 1/33, 50-letiya Oktyabrya street, Cherepovets, Vologda region, Russia, 162610

E-mail: info@severstalmetiz.com

Phone: + 7 8 800 350 39 14

Description of the organisation:

Severstal-metiz was founded on July 1, 2004, as a management company for three manufacturing companies, namely ChSPZ (Steel Wire Plant, Cherepovets), OSPAZ (Steel Rolling Plant, Orel), and VolgoMetiz (Steel Wire and Rope Plant, Volgograd).

Severstal-metiz is a corporate group which consolidates metalware assets of Severstal company. It is ranked in the TOP-5 of the biggest European companies in its business segment and has the development strategy aimed at the achievement of shared corporate objectives of PAO Severstal.

The Severstal-metiz corporate group is an efficient enterprise aimed at the improvement of its business-processes, operating in niche segments with a high added value (markets, fields, products) and seeking to create unique value proposition through the best "product-service" offer.

Quality management system (QMS) of the Company meets the requirements of the international standard ISO 9001-2015. The Company has also obtained the International Certification Network IQNet certificate of conformity. This certificate confirms the full compliance of the management of the Company to international standards requirements. The certification denotes a high estimation of Severstal-metiz QMS and gives the Company additional advantages on the international market.

Name and location of production site:

Severstal-metiz, Bld. 1/33, 50-letiya Oktyabrya street, Cherepovets, Vologda region, Russia, 162610

Product information

Product name:

**Carbon steel reinforcement bars,
Steel Galvanized Wires and Steel Wire**

Product description:

Carbon steel reinforcement bars of B500A class are manufactured in accordance with standards for the products such as:

SFS 1300:2020,

GOST R 52544-2006,

DIN 488.

Zinc coated steel wires are manufactured in accordance with standards for the products such as:

DIN EN 10264-2,

DIN EN 10270-1,

GOST 7372-79,

EN 10244-2,

Technical Specifications 1221-015-71915393-2006,

STO 71915393- Technical Specifications 199-2019,

STO71915393-194-2020.

STO 71915393- Technical Specifications 166-2019.

Uncoated steel wires are manufactured in accordance with standards for the products such as:

DIN EN 10264-2,

DIN EN 10270-1,

GOST 7372-79,

GOST 9389-75,

STO 71915393- Technical Specifications 165-2019.

Stabilized steel wires are manufactured in accordance with standards for the products such as:

GOST 7348,

EN10138-2,

BS5896:2012.

Boron alloyed steel billet wires are manufactured in accordance with standards for the products such as:

STO 71915393- Technical Specifications 184-2019,
 STO 71915393- Technical Specifications 186-2019,
 STO 71915393- Technical Specifications 187-2019,
 STO 71915393- Technical Specifications 194-2020,
 STO 71915393- Technical Specifications 199-2019,
 STO 71915393- Technical Specifications 201-2020.
 Boron alloy stabilized steel wires are manufactured in accordance with standards for the products such as:
 STO 71915393- Technical Specifications 196-2020.
 STO 71915393- Technical Specifications 051-2006.
 STO 71915393- Technical Specifications 154-2016.
 STO 71915393- Technical Specifications 14-178-370-99.
 STO 71915393- Technical Specifications 168-2019.
 STO 71915393- Technical Specifications 169-2019.
 STO 71915393- Technical Specifications 190-2019.
 STO 71915393- Technical Specifications 193-2019.
 STO 71915393- Technical Specifications 14-4-1128-81.
 STO 71915393- Technical Specifications 158-2019.
 ASTM A641
 STO 71915393- Technical Specifications 180-2020.
 STO 71915393- Technical Specifications 211-2020.

STO 71915393- Technical Specifications 212-2020.
 STO 71915393- Technical Specifications 213-2020.
 GOST 3282-74

Further information is available on <https://metiz.severstal.com/en/> and SSMEngALLProduct2020_web-1.pdf (<severstal.com>).

Application:

Carbon steel reinforcement bars of B500A class are used for reinforcing reinforced concrete structures.

Zinc coated steel wires are used for the manufacture of ropes and springs for various purposes, for making the trellises for vineyards and for making the harness belts.

Uncoated steel wires are used for the manufacture of ropes and springs for various purposes.

Stabilized steel wires are used for the reinforcement of prestressed reinforced concrete structures.

Boron alloyed steel billet wires are used for the manufacture of shot, for the subsequent flattening, for the manufacture of furniture springs, for the manufacture of products for various purposes, for the manufacture of ropes for various purposes.

Boron alloy stabilized steel wire are used for the reinforcement of prestressed reinforced concrete structures.

UN CPC code: 412

Geographical scope: Glo

LCA information

Declared unit:

The declared unit is one kilogram (1 kg) of of Carbon steel reinforcement bars of B500A class, Zinc coated steel wire, Uncoated steel wire, Stabilized steel wire, Boron alloyed steel billet wires, Boron alloy stabilized steel wires, Zinc coated steel wire, Zinc coated steel wire.

Time representativeness:

The primary data cover the period January 2019 - December 2019

Database(s) and LCA software used:

GaBi databases content version 2021.1; GaBi software version 10.0.1.92

System boundaries and lifecycle stages excluded

The system boundaries include the mandatory modules A1, A2, A3 provided by the Standard EN 15804 (CEN, 2012) as shown in the following table according to an application of type “from cradle-to-gate”.

It should be noted that lifecycle modules under construction, use, EoL stages and benefits beyond system boundaries are not included in the LCA. Therefore, the inclusion of these modules in the subsequent update of this EPD remains relevant.

More information:

All the relevant information regarding the product technical characteristics and other information you could find on the manufacturer official website – <https://metiz.severstal.com/en/>.

The underlying LCA report was prepared by: Coordinating Informational Center of CIS Member States on approximation of regulatory practices (CIS Center) - <https://ciscenter.org/en/>

Table 2. System boundaries and LCA modules included/excluded*

Product stage			Construction process stage		Use stage							End of life stage				Benefits beyond system boundaries
Raw materials	Transport	Manufacturing	Transport	Construction Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse/Recovery/Recycling
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
x	x	x	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*X – module included in the EPD; ND – module not declared

The EPD covers the raw material extraction and energy production stages, the raw material transport as well as the production stage. The exploitation and EoL modules have been excluded.

Assumptions:

In a product system within the system boundaries modelling some uncertainties are occurring and in particular the following:

- The electricity mix in Vologda region was modelled according to the national grid mix dataset.
- 1 (one) dataset older than 10 years was used due to lack of more recent suitable ones.

Cut-offs:

- Overall, the packaging materials have a mass share of 0.87%. Due to the low weight compared to product, no modelling was carried out. It can also be strongly assumed that the environmental impact of packaging materials will not exceed 1% each or 5% in total.
- Waste transfer service is outsourced. Due to the Severstal-metiz does not purchase fuel for transport and this is done by the contractor, no modelling was carried out.
- Due to the Severstal-metiz does not have its own sources of wastewater discharges

into water bodies, no modelling was carried out.

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Environmental performance

Carbon steel reinforcement bars of B500A class

Potential environmental impact for 1kg of declared unit.

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Global warming potential (GWP)	kg CO ₂ eq.	2,385863	0,000328	4,99E-05	2,386241
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 eq.	1,07E-15	5,86E-20	1,18E-22	1,07E-15
Acidification potential (AP)	kg SO ₂ eq.	0,006875	1,4E-06	0,000107	0,006983
Eutrophication potential (EP)	kg PO ₄ ³⁻ eq.	0,000539	2,39E-07	2,77E-05	0,000567
Formation potential of tropospheric ozone (POCP)	kg C ₂ H ₄ eq.	0,000752	-2,9E-07	7,43E-06	0,000759
Abiotic depletion potential – Elements	kg Sb eq.	-1,2E-07	1,85E-11	4,21E-14	-1,2E-07
Abiotic depletion potential – Fossil resources	MJ, net calorific value	25,51145	0,004441	1,12E-05	25,5159

Use of resources

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,061173	0,000242	3,61E-07	1,061416
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	1,061173	0,000242	3,61E-07	1,061416
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	26,24618	0,004831	1,13E-05	26,25102
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	26,24618	0,004831	1,13E-05	26,25102
Secondary material	kg	0	0	0	0	
Renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Non-renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Net use of fresh water	m ³	0,7766	0,000399	2,39E-08	0,776999	

Waste production and output flows

Waste production

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Hazardous waste disposed	kg	1,99E-08	9,15E-14	8,37E-04	1,99E-08
Non-hazardous waste disposed	kg	0,20562	9,27E-07	3,54E-02	0,205621
Radioactive waste disposed	kg	4,47E-05	1,39E-07	8,20E-12	4,48E-05

Output flows

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Components for reuse	kg	0	0	0	0
Material for recycling	kg	0	0	5,17E-02	5,17E-02
Materials for energy recovery	kg	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0



Zinc coated steel wire

Potential environmental impact for 1kg of declared unit.

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Global warming potential (GWP)	kg CO ₂ eq.	5,54893	0,011549	0,00058	5,561059
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 eq.	1E-13	1,71E-18	1,18E-22	1E-13
Acidification potential (AP)	kg SO ₂ eq.	0,013088	4,37E-05	0,00155	0,014682
Eutrophication potential (EP)	kg PO ₄ ³⁻ eq.	0,001305	9,75E-06	0,000402	0,001716
Formation potential of tropospheric ozone (POCP)	kg C ₂ H ₄ eq.	0,001216	-1,4E-05	0,000119	0,00132
Abiotic depletion potential – Elements	kg Sb eq.	2,71E-05	5,9E-10	4,21E-14	2,71E-05
Abiotic depletion potential – Fossil resources	MJ, net calorific value	60,7464	0,1521	1,12E-05	60,89851

Use of resources

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	19,99096	0,00576	3,61E-07	19,99672
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	19,99096	0,00576	3,61E-07	19,99672
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	77,5702	0,1571	1,13E-05	77,72731
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	77,5702	0,1571	1,13E-05	77,72731
Secondary material	kg	0	0	0	0	
Renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Non-renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Net use of fresh water	m ³	11,85688	0,003613	2,39E-08	11,86049	

Waste production and output flows

Waste production

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Hazardous waste disposed	kg	3,56E-08	1,64E-12	1,23E-02	3,56E-08
Non-hazardous waste disposed	kg	0,257628	2,04E-05	6,20E-03	0,257649
Radioactive waste disposed	kg	0,006286	1,26E-06	8,20E-12	0,006287

Output flows

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Components for reuse	kg	0	0	0	0
Material for recycling	kg	0	0	7,54E-01	7,54E-01
Materials for energy recovery	kg	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0



Uncoated steel wire

Potential environmental impact for 1kg of declared unit.

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Global warming potential (GWP)	kg CO ₂ eq.	2,58821	1,41E-01	1,91E-04	2,73E+00
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 eq.	1,56E-15	5,27E-17	1,18E-22	1,62E-15
Acidification potential (AP)	kg SO ₂ eq.	0,007842	8,28E-04	3,63E-03	1,23E-02
Eutrophication potential (EP)	kg PO ₄ ³⁻ eq.	0,000605	4,77E-05	9,41E-04	1,59E-03
Formation potential of tropospheric ozone (POCP)	kg C ₂ H ₄ eq.	0,000815	4,30E-05	2,52E-04	1,11E-03
Abiotic depletion potential – Elements	kg Sb eq.	1,85E-06	1,04E-08	4,21E-14	1,86E-06
Abiotic depletion potential – Fossil resources	MJ, net calorific value	28,27656	2,04E+00	1,12E-05	3,03E+01

Use of resources

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,441753	2,19E-01	3,61E-07	1,66E+00
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	1,441753	2,19E-01	3,61E-07	1,66E+00
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	29,5653	2,59E+00	1,13E-05	3,22E+01
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	29,5653	2,59E+00	1,13E-05	3,22E+01
Secondary material	kg	0	0	0	0	
Renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Non-renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Net use of fresh water	m ³	1,375948	6,03E-01	2,39E-08	1,98E+00	

Waste production and output flows

Waste production

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Hazardous waste disposed	kg	2,06E-08	1,05E-10	8,38E-02	2,07E-08
Non-hazardous waste disposed	kg	0,21316	9,03E-04	1,21E-02	2,14E-01
Radioactive waste disposed	kg	0,000527	2,11E-04	8,20E-12	7,38E-04

Output flows

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Components for reuse	kg	0	0	0	0
Material for recycling	kg	0	0	1,76E+00	1,76E+00
Materials for energy recovery	kg	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0



Stabilized steel wire

Potential environmental impact for 1kg of declared unit.

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Global warming potential (GWP)	kg CO ₂ eq.	2,64E+00	1,07E-02	2,59E-04	2,66E+00
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 eq.	1,91E-15	2,28E-19	1,18E-22	1,91E-15
Acidification potential (AP)	kg SO ₂ eq.	8,07E-03	5,26E-05	3,84E-03	1,20E-02
Eutrophication potential (EP)	kg PO ₄ ³⁻ eq.	6,26E-04	4,22E-06	9,97E-04	1,63E-03
Formation potential of tropospheric ozone (POCP)	kg C ₂ H ₄ eq.	8,34E-04	4,00E-06	2,68E-04	1,11E-03
Abiotic depletion potential – Elements	kg Sb eq.	7,24E-06	2,58E-10	4,21E-14	7,24E-06
Abiotic depletion potential – Fossil resources	MJ, net calorific value	3,02E+01	2,67E-01	1,12E-05	3,05E+01

Use of resources

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,54E+00	8,98E-03	3,61E-07	1,55E+00
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	1,54E+00	8,98E-03	3,61E-07	1,55E+00
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	3,16E+01	2,90E-01	1,13E-05	3,19E+01
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	3,16E+01	2,90E-01	1,13E-05	3,19E+01
Secondary material	kg	0	0	0	0	
Renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Non-renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Net use of fresh water	m ³	1,53E+00	3,05E-03	2,39E-08	1,53E+00	

Waste production and output flows

Waste production

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Hazardous waste disposed	kg	2,09E-08	4,47E-13	8,87E-02	2,09E-08
Non-hazardous waste disposed	kg	2,17E-01	4,20E-06	1,21E-02	2,17E-01
Radioactive waste disposed	kg	3,06E-04	7,91E-07	8,20E-12	3,06E-04

Output flows

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Components for reuse	kg	0	0	0	0
Material for recycling	kg	0	0	3,41E+00	3,41E+00
Materials for energy recovery	kg	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0



Boron alloyed steel billet wires

Potential environmental impact for 1kg of declared unit.

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Global warming potential (GWP)	kg CO ₂ eq.	2,80E+00	1,16E-02	5,02E-04	2,81E+01
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 eq.	1,68E-14	3,81E-19	1,18E-22	1,68E-14
Acidification potential (AP)	kg SO ₂ eq.	5,25E-02	5,63E-05	5,33E-05	5,26E-02
Eutrophication potential (EP)	kg PO ₄ ³⁻ eq.	7,95E-03	4,90E-06	1,38E-05	7,97E-03
Formation potential of tropospheric ozone (POCP)	kg C ₂ H ₄ eq.	9,39E-03	3,13E-06	3,72E-06	9,40E-03
Abiotic depletion potential – Elements	kg Sb eq.	1,13E-05	3,07E-10	4,21E-14	1,13E-05
Abiotic depletion potential – Fossil resources	MJ, net calorific value	3,18E+03	2,79E-01	1,12E-05	3,18E+03

Use of resources

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,15E+01	9,59E-03	3,61E-07	1,16E+01
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	1,15E+01	9,59E-03	3,61E-07	1,16E+01
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	3,20E+03	3,03E-01	1,13E-05	3,20E+03
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	3,20E+03	3,03E-01	1,13E-05	3,20E+03
Secondary material	kg	0	0	0	0	
Renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Non-renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Net use of fresh water	m ³	1,35E+01	3,93E-03	2,39E-08	1,35E+01	

Waste production and output flows

Waste production

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Hazardous waste disposed	kg	6,08E-07	6,65E-13	1,23E-03	6,08E-07
Non-hazardous waste disposed	kg	6,12E-01	6,48E-06	2,13E-04	6,12E-01
Radioactive waste disposed	kg	1,70E-03	1,10E-06	8,20E-12	1,70E-03

Output flows

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Components for reuse	kg	0	0	0	0
Material for recycling	kg	0	0	2,59E-02	2,59E-02
Materials for energy recovery	kg	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0



Boron alloy stabilized steel wires

Potential environmental impact for 1kg of declared unit.

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Global warming potential (GWP)	kg CO ₂ eq.	2,67E+00	1,13E-02	2,67E-04	2,68E+00
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 eq.	3,85E-15	2,80E-18	4,73E-17	3,90E-15
Acidification potential (AP)	kg SO ₂ eq.	7,99E-03	5,49E-05	8,11E-04	8,86E-03
Eutrophication potential (EP)	kg PO ₄ ³⁻ eq.	6,31E-04	4,78E-06	2,10E-04	8,46E-04
Formation potential of tropospheric ozone (POCP)	kg C ₂ H ₄ eq.	8,32E-04	3,15E-06	5,65E-05	8,91E-04
Abiotic depletion potential – Elements	kg Sb eq.	2,33E-08	2,89E-10	4,21E-14	2,35E-08
Abiotic depletion potential – Fossil resources	MJ, net calorific value	3,07E+01	2,76E-01	1,12E-05	3,09E+01

Use of resources

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,56E+00	9,25E-03	3,61E-07	1,57E+00
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	1,56E+00	9,25E-03	3,61E-07	1,57E+00
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	3,21E+01	2,99E-01	1,13E-05	3,24E+01
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	3,21E+01	2,99E-01	1,13E-05	3,24E+01
Secondary material	kg	0	0	0	0	
Renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Non-renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Net use of fresh water	m ³	1,55E+00	3,06E-03	2,39E-08	1,55E+00	

Waste production and output flows

Waste production

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Hazardous waste disposed	kg	2,11E-08	5,09E-13	1,88E-02	2,11E-08
Non-hazardous waste disposed	kg	2,16E-01	5,10E-06	3,24E-03	2,16E-01
Radioactive waste disposed	kg	3,13E-04	7,97E-07	8,20E-12	3,14E-04

Output flows

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Components for reuse	kg	0	0	0	0
Material for recycling	kg	0	0	4,54E-02	4,54E-02
Materials for energy recovery	kg	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0



Zinc coated steel wire

Potential environmental impact for 1kg of declared unit.

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Global warming potential (GWP)	kg CO ₂ eq.	4,92E+00	1,99E-01	5,92E-04	5,12E+00
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 eq.	1,17E-13	7,38E-14	1,18E-22	1,91E-13
Acidification potential (AP)	kg SO ₂ eq.	1,20E-02	9,68E-04	2,70E-04	1,32E-02
Eutrophication potential (EP)	kg PO ₄ ³⁻ eq.	1,18E-03	1,74E-04	7,00E-05	1,42E-03
Formation potential of tropospheric ozone (POCP)	kg C ₂ H ₄ eq.	1,12E-03	2,83E-05	1,88E-05	1,17E-03
Abiotic depletion potential – Elements	kg Sb eq.	4,12E-05	3,88E-05	4,21E-14	8,00E-05
Abiotic depletion potential – Fossil resources	MJ, net calorific value	5,59E+01	1,36E+00	1,12E-05	5,73E+01

Use of resources

0		0	A1	A2	A3	TOTAL A1-A3
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,67E+01	8,36E-01	3,61E-07	1,75E+01
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	1,67E+01	8,36E-01	3,61E-07	1,75E+01
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	6,99E+01	1,92E+00	1,13E-05	7,18E+01
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	6,99E+01	1,92E+00	1,13E-05	7,18E+01
Secondary material		kg	0	0	0	0
Renewable secondary fuels		MJ, net calorific value	0			0
Non-renewable secondary fuels		MJ, net calorific value	0	0	0	0
Net use of fresh water		m ³	9,87E+00	5,91E-01	2,39E-08	1,05E+01

Waste production and output flows

Waste production

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Hazardous waste disposed	kg	3,55E-08	6,45E-09	6,24E-03	4,19E-08
Non-hazardous waste disposed	kg	2,45E-01	2,17E-02	1,08E-03	2,67E-01
Radioactive waste disposed	kg	5,18E-03	1,60E-04	8,20E-12	5,34E-03

Output flows

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Components for reuse	kg	0	0	0	0
Material for recycling	kg	0	0	1,31E-01	1,31E-01
Materials for energy recovery	kg	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0



Zinc coated steel wire

Potential environmental impact for 1kg of declared unit.

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Global warming potential (GWP)	kg CO ₂ eq.	2,53E+00	1,94E-02	2,23E-04	2,55E+00
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 eq.	1,77E-15	6,81E-15	1,18E-22	8,58E-15
Acidification potential (AP)	kg SO ₂ eq.	7,35E-03	9,52E-05	2,56E-04	7,70E-03
Eutrophication potential (EP)	kg PO ₄ ³⁻ eq.	5,83E-04	1,66E-05	6,64E-05	6,66E-04
Formation potential of tropospheric ozone (POCP)	kg C ₂ H ₄ eq.	7,87E-04	2,54E-06	1,78E-05	8,07E-04
Abiotic depletion potential – Elements	kg Sb eq.	1,86E-06	3,58E-06	4,21E-14	5,44E-06
Abiotic depletion potential – Fossil resources	MJ, net calorific value	2,94E+01	1,40E-01	1,12E-05	2,96E+01

Use of resources

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3	
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,35E+00	7,85E-02	3,61E-07	1,42E+00
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	1,35E+00	7,85E-02	3,61E-07	1,42E+00
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	3,05E+01	1,96E-01	1,13E-05	3,07E+01
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	3,05E+01	1,96E-01	1,13E-05	3,07E+01
Secondary material	kg	0	0	0	0	
Renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Non-renewable secondary fuels	MJ, net calorific value	0	0	0	0	
Net use of fresh water	m ³	1,14E+00	5,82E-02	2,39E-08	1,19E+00	

Waste production and output flows

Waste production

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Hazardous waste disposed	kg	2,06E-08	5,97E-10	5,92E-03	5,92E-03
Non-hazardous waste disposed	kg	2,09E-01	2,01E-03	1,02E-03	2,12E-01
Radioactive waste disposed	kg	1,72E-04	1,60E-05	8,20E-12	1,88E-04

Output flows

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Components for reuse	kg	0	0	0	0
Material for recycling	kg	0	0	1,24E-01	1,24E-01
Materials for energy recovery	kg	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0



Life cycle interpretation

The results refer to the potential environmental impacts over an analysis period of 100 years. Long-term emissions (> 100 years) are not considered in the impact assessment. The impact categories and characterisation factors described in EN 15804+A1 Annex C were applied.

Note: Impact assessment results are only relative statements that make no statements about endpoints of the impact categories, exceedances of threshold values, safety margins or risks.

The largest impact is on the GWP calculation categories. In this case, the largest contribution to GWP is observed in module A1. Module A2 does not significantly contribute to the cumulative impact when considering modules A1-A3.

Considering the results of calculations on the use of resources, one can draw attention to the fact that the greatest value is concentrated when calculating the Nonrenewable primary energy as energy carrier. Also, as in the case of impact assessment, the most significant contribution comes from module A1.

The largest amount of generated waste belongs to the category of the Non-hazardous waste disposed.

The most significant values of indicators are also observed in module A1.



Differences between the versions

The revised EPD has been corrected for the number of Technical Specifications (p.4).

References

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ISO 14025:2006, Environmental labels and declarations – Type III Environmental declarations – Principles and procedures, International Organization for Standardization (ISO)

ISO 14040:2006 Environmental management – Life cycle assessment – Principles and framework, International Organization for Standardization (ISO)

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EN 15804:2012+A1:2013, Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

Official website of the company, <https://metiz.severstal.com/en/>

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