

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

EESTI TRAAAT



REINFORCEMENT

COLD AND HOT FORMED STEEL REINFORCEMENT MESH AND REBAR PRODUCTS

Owner of declaration	Eesti Traat OÜ
Program operator	Rakennustieto Oy
Declaration number	RTS_304_24
EPD type	EPD of multiple products, based on average product
1 st version publication date	29.8.2024
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EPD valid until	29.08.2029



LCA SUPPORT



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EESTI TRAAAT
REINFORCEMENT

GENERAL INFORMATION

The EPD owner has the sole ownership, liability, and responsibility for the EPD. Construction products EPDs may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

EPDs within the same product category but from different programs may not be comparable.

EPD program operator

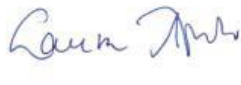
Rakennustieto EPD

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Jukka Seppänen
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Product category rules

The CEN standard EN 15804 serves as the core PCR. In addition, the RTS PCR (English version, 12 November 2024) is used.

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LCA Support

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Verification date

1st version verification date: 20.06.2024

2nd version verification date: 02.04.2026

Independent verification of this EPD and data, according to ISO 14025:2010:

Internal External

Manufacturer

Eesti Traat OÜ

Address

Lõuna tee 10, 74201, Loo alevik, Jõelähtme vald, Harjumaa, Estonia

Contact details

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Website

eestitraat.ee

Place of production

Lõuna tee 10, 74201, Loo alevik, Jõelähtme vald, Harjumaa, Estonia

Products

welded mesh, welded/bended mesh, lattice girder, cut and bent reinforcements, bi-steel, spacer and rebundled streight reinforcement steel.

Declared unit

1 tonne of cold and hot formed steel reinforcement mesh and rebar products

Mass of declared unit

1 000 kg

Data period

Calendar year 2025

PRODUCT INFORMATION

Product name	Cold and hot-formed reinforcement steel products (welded mesh, welded/bended mesh, lattice girder, cut and bend reinforcements, bi-steel, spacer, re-bundled straight reinforcement steel).
Place of production	Lõuna tee 10, Loo alevik, Jõelähtme vald, Harjumaa, Estonia

PRODUCT DESCRIPTION AND APPLICATION

Welded standard and special sized meshes, bent meshes. Cut and bent reinforcements, bespoke reinforcement according to customer drawings and specifications.

The products are used as reinforcements elements in the construction of load-bearing concrete/masonry structures.

The EPD model is calculated as the averages of several product variations.

TECHNICAL SPECIFICATIONS AND PRODUCT STANDARDS

Eesti Traat OÜ manufacturers products from B500A (cold-formed) and B500B (hot-formed) steel bars. That are cut, bent, and welded to manufacture the following products.

- Welded mesh,
- Welded and bent mesh
- Lattice girder
- Cut reinforcement
- Bent reinforcements (stirrups)
- Bi-steel
- Spacer

Depending on the product, either cold-rolled or hot-rolled raw material is used for manufacturing.

Eesti Traat's is certified ISO 9001:2015 compliant and produced products that applicable are certified according to:

- TR 392:2018
- SFS 1267:2008
- EN 10080:2005+SS212540:214
- NS 3576-1:2005+NS 3576-4:2005
- SFS 1300:2020

PRODUCT RAW MATERIAL COMPOSITION PER DECLARED UNIT

Raw material category	Amount, mass- %	Material origin	Recycled material content*, mass-%
Metals	100%	Europe	100%
Minerals	-		-
Fossil materials	-		-
Bio-based materials	-		-
Total	100%		100%

*The product contains 83% post-consumer recycled metal and 17% pre-consumer recycled metal.

The product does not contain biogenic carbon. The packaging contains wood. Biogenic carbon in packaging is balanced out in A1-A3.

Biogenic carbon content in product	0 kg
Biogenic carbon content in packaging	0.1 kg

Note. 1 kg biogenic carbon is equivalent to 44/12 kg of biogenic CO₂.

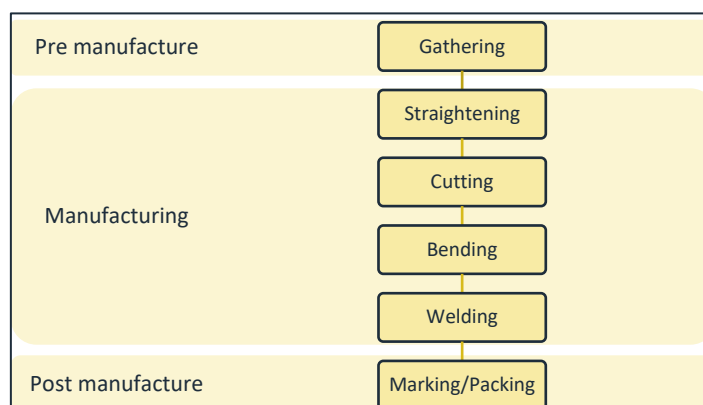
SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0.1 % (1000 ppm).

MANUFACTURING PROCESS

Eesti Traat certified production process meets the strictest requirements of the metal industry, and quality management ensures the highest possible quality for the customer. When materials arrive at the Eesti Traat factory, materials are inspected and stored indoors. We test our products daily at our in-house laboratory. Our warehouse staff are qualified, and we can provide high quality packaging and fast transport to the end user destination. We have a fully automated production line for standard and special meshes, fully automated cut and bend benches for the production of components, automated reinforcement cutting and bending line for a diameter of up to 25 mm, automated reinforcement lattice girder line for a diameter of up to 12. mm, radial bending of reinforcement for wind turbine foundations and other large-scale infrastructure projects, automated reinforcement bi-steel line, automated spacer line.

Figure 1. Manufacturing process



PRODUCT LIFE-CYCLE AND LIFE-CYCLE ASSESSMENT

Period for data	Calendar year 2025
Declared unit	1 tonne of cold and hot formed steel reinforcement mesh and rebar products
Mass per declared unit	1 000 kg
Mass of packaging	0.9 kg

The product is the averages of several product variations.

SYSTEM BOUNDARY

The scope of the EPD is cradle to gate with options (A1-A4), modules C1-C4 and module D.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
x	x	x	x	ND	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x	x	x
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = ND.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts modeled for the product stage cover the manufacturing of raw materials used in the production. Fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. All fuel and energy use was allocated based on production volume. The electricity used in the plant is grid energy and this has been modelled based on Estonian residual mix. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

Electricity data source and quality	Electricity, medium voltage, residual mix; Estonia (source: ecoinvent 3.12)
Specific emissions (GWP-fossil, CO₂e/kWh)	0.061kg CO ₂ e/kWh
Heating data source and quality	Market for heat, district or industrial, natural gas (source: ecoinvent 3.12)
Specific emissions (GWP-fossil, CO₂e/MJ)	0.0541 kg CO ₂ e/MJ

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The transportation distance is defined according to RTS PCR - from the place of manufacture to Helsinki, Finland. According to the manufacturer, transportation doesn't cause losses as products are packaged properly. The final product is transported 115 km (40 km by lorry and 75 km ferry). Vehicle capacity utilization volume factor is assumed to be 1.

Vehicle type used for transport and distance	115 km (40 km by lorry and 75 km ferry)
Specific transport emissions (GWP-fossil, CO₂e/kWh)	0.10 kg CO ₂ e per tkm (lorry) 0.137 kg CO ₂ e per tkm (ferry)
Capacity utilization (including empty returns)	100%
Volume capacity utilization factor	1

A5 has not been declared.

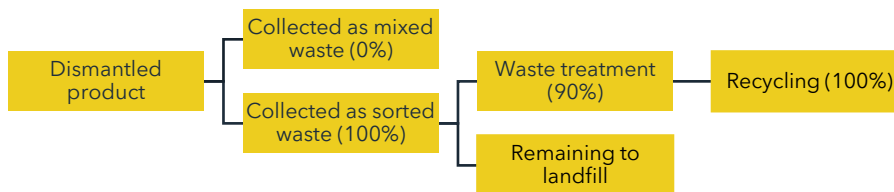
PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.

Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

Figure 2. EOL scenarios



It is assumed that 100% of products are collected at demolition site. It is assumed that the dismantled product is transported 100 km by lorry (either to recycling facilities or landfill).

Based on EuRIC data, 90% of steel is assumed to be sent to recycling and later used as input in steelmaking.

No benefits are considered in module D since the input material is 100% recycled.

EOL mass of product		1 000 kg
Collection	Collected separately	100%
	Collected with mixed waste	0
Recovery	Re-use	0
	Recycling	900 kg
	Incineration with energy recovery	
Disposal	Incineration without energy recovery	0
	Landfill	100 kg
Scenario assumptions e.g. transportation		End-of-life product is transported 100 with an average lorry

DATA QUALITY SUMMARY

The data used in this assessment are considered to be of good and very good quality and representative of the declared product, production processes, and reference year. The life cycle inventory data are based on accurate production data. Environmental data for the main raw materials are supplier-specific, covering the majority of impacts. Background data were selected to be representative of the relevant processes.

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in EN 15804:2012+A2:2019 and the applied PCR. The study does not exclude any hazardous materials or substances. Packaging material has been excluded by cut-off.

ALLOCATION

Co-product allocation was not applied. Flows measured on factory-level in module A3 were allocated by mass.

LCA SOFTWARE AND BACKGROUND DATABASES

The calculations were conducted using One Click LCA's cloud-based LCA software. The source of LCA data is supplier-specific EPDs and ecoinvent version 3.12. JRC characterization factors EF 3.1 have been used.

VERSION HISTORY

The first version of this EPD was published on 29 August 2024. In the second version, raw material suppliers were updated, and production data was revised from calendar year 2023 to calendar year 2025. Background data was also updated from ecoinvent version 3.8 to version 3.12. The scenarios in modules A4 and C1-C4 were not updated. The declared unit was changed from 1 kg to 1 tonne of product to improve the usability and comparability of the EPD.

Cold and hot formed steel reinforcement mesh and rebar products

ENVIRONMENTAL IMPACTS - CORE INDICATORS. EN 15804+A2

Impact category	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
Global warming potential - total	kg CO2e	2.33E+2	4.76E+1	1.67E+2	4.47E+2	1.43E+1	2.72E-01	1.08E+1	2.01E+1	6.26E-01	0.00E+0
Global warming potential - fossil	kg CO2e	2.28E+2	4.76E+1	1.66E+2	4.41E+2	1.43E+1	2.64E-01	1.08E+1	2.03E+1	6.26E-01	0.00E+0
Global warming potential - biogenic	kg CO2e	3.86E+0	8.50E-03	1.25E+0	5.11E+0	1.09E-03	8.04E-03	2.44E-03	-2.83E-01	1.98E-04	0.00E+0
Global warming potential - LULUC	kg CO2e	1.23E+0	2.45E-02	1.95E-02	1.27E+0	6.06E-03	7.06E-04	4.82E-03	2.23E-02	3.56E-04	0.00E+0
Ozone depletion potential	kg CFC-11e	1.59E-05	7.72E-07	2.52E-06	1.92E-05	2.45E-07	4.15E-09	1.59E-07	2.87E-07	1.83E-08	0.00E+0
Acidification potential	mol H+e	6.47E-01	1.05E+0	4.83E-01	2.18E+0	1.96E-01	1.27E-03	3.67E-02	2.40E-01	4.31E-03	0.00E+0
Eutrophication potential - freshwater	kg Pe	5.69E-03	1.98E-03	6.34E-02	7.11E-02	6.23E-04	2.42E-04	8.38E-04	1.38E-02	5.51E-05	0.00E+0
Eutrophication potential - marine	kg Ne	1.77E-01	2.80E-01	1.18E-01	5.75E-01	7.99E-02	2.31E-04	1.21E-02	5.38E-02	1.71E-03	0.00E+0
Eutrophication potential - terrestrial	mol Ne	1.60E+0	3.11E+0	1.19E+0	5.90E+0	8.82E-01	1.99E-03	1.31E-01	6.05E-01	1.86E-02	0.00E+0
Photochemical ozone formation ("smog")	kg NMVOCe	6.89E-01	8.62E-01	3.40E-01	1.89E+0	2.43E-01	6.38E-04	5.41E-02	1.79E-01	6.72E-03	0.00E+0
Abiotic depletion potential - minerals & metals	kg Sbe	4.37E-04	7.09E-05	2.12E-04	7.19E-04	2.39E-05	6.17E-07	3.00E-05	1.43E-03	9.50E-07	0.00E+0
Abiotic depletion potential - fossil resources	MJ	3.35E+3	6.11E+2	2.36E+3	6.32E+3	1.87E+2	5.56E+0	1.56E+2	2.69E+2	1.53E+1	0.00E+0
Water use	m3e depr.	1.71E+2	2.16E+0	1.88E+1	1.92E+2	6.47E-01	1.42E-01	7.72E-01	5.16E+0	6.72E-01	0.00E+0

EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

Additional indicators according to EN 15804

Impact category	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
Particulate matter	Incidence	1.80E-05	2.09E-06	4.28E-06	2.44E-05	6.40E-07	5.74E-09	1.08E-06	3.29E-06	1.01E-07	0.00E+00
Ionizing radiation	kBq U235e	2.4E+01	3.76E-01	2.71E+01	5.12E+01	1.12E-01	1.42E-01	1.36E-01	2.16E+00	8.82E-03	0.00E+00
Ecotoxicity (freshwater)	CTUe	1.6E+03	5.78E+01	2.91E+02	1.96E+03	2.24E+01	6.48E-01	2.21E+01	1.65E+02	1.91E+00	0.00E+00
Human toxicity, cancer	CTUh	1.92E-06	9.64E-09	7.63E-08	2.01E-06	2.39E-09	7.39E-11	1.78E-09	1.75E-08	1.10E-10	0.00E+00
Human tox. non-cancer	CTUh	8.70E-06	2.10E-07	7.02E-07	9.62E-06	6.56E-08	4.05E-09	1.01E-07	1.23E-06	2.65E-09	0.00E+00
SQP	-	1.4E+03	1.91E+02	3.79E+02	2.00E+03	7.12E+01	8.42E-01	1.57E+02	5.26E+02	3.02E+01	0.00E+00

EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
Renewable primary energy resources as energy	MJ	2.07E+03	5.99E+00	1.11E+02	2.19E+03	1.78E+00	1.27E+00	2.14E+00	5.06E+01	1.42E-01	0.00E+00
Renewable primary energy resources as material	MJ	0.0E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	MJ	2.1E+03	5.99E+00	1.11E+02	2.19E+03	1.78E+00	1.27E+00	2.14E+00	5.06E+01	1.42E-01	0.00E+00
Non-renewable primary energy resources as energy	MJ	2.0E+03	6.11E+02	2.33E+03	4.91E+03	1.87E+02	5.56E+00	1.56E+02	2.70E+02	1.53E+01	0.00E+00
Non-renewable primary energy resources as material	MJ	0.0E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources	MJ	2.0E+03	6.11E+02	2.33E+03	4.91E+03	1.87E+02	5.56E+00	1.56E+02	2.70E+02	1.53E+01	0.00E+00
Secondary materials	kg	1.1E+03	2.91E-01	9.98E-01	1.10E+03	7.72E-02	3.50E-03	6.65E-02	3.33E-01	3.80E-03	0.00E+00
Renewable secondary fuels	MJ	0.0E+00	1.34E-03	1.27E-03	2.62E-03	4.61E-04	3.84E-06	8.45E-04	1.55E-02	7.97E-05	0.00E+00
Non-renewable secondary fuels	MJ	0.0E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m3	3.6E+00	5.16E-02	5.51E-01	4.18E+00	1.46E-02	3.28E-03	2.31E-02	1.18E-01	1.58E-02	0.00E+00

END OF LIFE - WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
Hazardous waste	kg	4.04E-01	1.68E+00	1.88E+01	2.09E+01	8.56E-01	3.35E-02	2.65E-01	4.11E+01	4.96E-02	0.00E+00
Non-hazardous waste	kg	4.86E+01	2.39E+01	3.32E+02	4.05E+02	9.34E+00	1.21E+00	4.90E+00	7.82E+01	1.00E+02	0.00E+00
Radioactive waste	kg	1.47E-02	9.11E-05	7.18E-03	2.20E-02	2.65E-05	3.59E-05	3.33E-05	5.42E-04	2.08E-06	0.00E+00

END OF LIFE - OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
Components for re-use	kg	1.07E+02	0.00E+00	0.00E+00	1.07E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	6.69E+01	0.00E+00	1.00E+00	6.79E+01	0.00E+00	0.00E+00	0.00E+00	9.00E-01	0.00E+00	0.00E+00
Materials for energy recovery	kg	1.59E-01	0.00E+00	0.00E+00	1.59E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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