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# ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025:2006 and  
EN 15804:2012+A2:2019/AC:2021 for:

Steel Rebar  
from  
GPH Ispat Limited



Programme	The International EPD System, <a href="http://www.environdec.com">www.environdec.com</a>
Programme operator	EPD International AB
Licensee	EPD India
Type of EPD	EPD of a single product
EPD registration number	EPD-IES-0028878
Version date	2026-03-10
Validity date	2031-03-09

An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see [www.environdec.com](http://www.environdec.com)



## GENERAL INFORMATION

Programme Information		
<b>Programme:</b>	The International EPD® System	EPD India
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden	EPD India, a licensee of the International EPD® System 422, Midas, Sahar Plaza Mumbai, India- 400059
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Product Category Rules (PCR)
<b>CEN standard EN 15804 serves as the Core Product Category Rules (PCR)</b>
<b>Product Category Rules (PCR):</b> PCR 2019:14 Construction products, version 2.0.1 Published on 2025.06.05. Based on CEN standard EN 15804. CEN standard EN 15804 serve as the core PCR.
<b>PCR review was conducted by:</b> The Technical Committee of the International EPD System. See <a href="http://www.environdec.com">www.environdec.com</a> for a list of members. Review Chair: Rob Rouwette (chair), Noa Meron (co-chair). The review panel may be contacted via the Secretariat <a href="http://www.environdec.com/contact">www.environdec.com/contact</a>

Third-party Verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
<input checked="" type="checkbox"/> <b>Individual EPD verification without a pre-verified LCA/EPD tool</b> Third-party verifier: Prabodha Acharya, Independent verifier, Mumbai, India. <a href="mailto:prabodha.acharya@gmail.com">prabodha.acharya@gmail.com</a>
Approved by: International EPD System
Procedure for follow-up of data during EPD validity involves third party verifier:
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison.

For further information about comparability, see EN 15804 and ISO 14025.

## INFORMATION ABOUT EPD OWNER

Owner of the EPD: GPH Ispat Limited

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Address and contact information of the LCA practitioner commissioned by the EPD owner:

Dr. Rajesh Kumar Singh, VP Consulting, Sphera Solutions  
707 Meadows, Sahar Plaza, Chakala (J.B. Nagar), Mumbai, Maharashtra, India - 400059

Description of the organisation:

GPH Ispat Limited is one of the leading integrated steel manufacturing companies in Bangladesh engaged in manufacturing and trading of M. S. Billet and M. S. Rod. The Company was incorporated in Bangladesh on May 17, 2006, as a Private Limited Company limited by shares under the Companies Act, 1994. The Company converted into a Public Limited Company along with the subdivision of face value of shares from Tk. 100 to Tk. 10 each and enhanced Authorized Capital from Tk. 1,000 million to Tk. 2,500 million on December 18, 2009. GPH Ispat Limited is a listed company with Dhaka Stock Exchange Limited (February 2012) and Chattogram Stock Exchange Limited (April 2012). The company enhanced its Authorized Capital from Tk. 2,500 million to Tk. 10,000 million in September 2015. GPH ispat Limited also issued 03[R]:02 Right Shares in June 2016.

GPH stands for God Fearing, Plain Living and High Thinking. Holding this philosophy in mind the company started its journey back in 2006 and the commercial production of the factory commenced on August 21, 2008 with an annual production capacity of M. S. Billet 84,000 metric ton and M. S. Rod 120,000 metric ton of different diameter ranges from 8 mm to 40 mm. GPH ispat has embarked on a new journey with cutting-edge innovation in the history of steel manufacturing, and has proudly introduced Asia's first Quantum Electric Arc Furnace and Winlink Technology, which annual capacity reached at 1 million plus in steelmaking as well as production of re-bar and medium section from billet to rolled finished products and the level-2 automation system ensure desired quality & quantity of production. On 21 June 2021, the company declared the commercial production of the new expansion plant and marketed the new products. GPH can produce long steel product from 300 MPA to 900 MPA that's ensures up to class-4 grade steel in its production facility.

Product-related or management system-related certifications: Steel rebar product manufacturing location is certified by ISO 9001:2015: Quality management systems – Requirements, ISO 14001: 2015: Environmental management systems – Requirements, ISO 45001:2018:Occupational health and safety management systems – Requirements with guidance for use and ISO 50001:2018: Energy management systems – Requirements with guidance for use.

## PRODUCT INFORMATION

Product name: Steel Rebar

Product identification: Steel rebar



UN CPC code: 4124 (Bars and rods, hot-rolled, of iron or steel)

Product description:

The steel rebar exhibits high yield strength, excellent ductility, and reliable weldability, meeting stringent national and international reinforcement standards. Comprehensive process monitoring, advanced secondary metallurgy, and rigorous quality assurance protocols ensure consistent product performance for demanding structural, seismic, and infrastructure applications. Steel rebar is used for the reinforcement of concrete. Steel rebar is complied with the Bangladeshi standard (BDS ISO 6935-2:2021).

Product application:

Steel rebars are used as tensile reinforcement in reinforced concrete structures to improve load-bearing capacity, control cracking, and enhance structural ductility. They are embedded in beams, columns, slabs, foundations, and infrastructure components to resist tensile, shear, and cyclic stresses, ensuring long-term durability and stability. Steel rebars are widely utilized in high-rise and low-rise buildings, bridges, box and pipe culverts, roadways and pavements, tunnels and underground structures, marine and coastal facilities, and other concrete reinforcement applications.

Technical Specifications:

Property	Description
Product	Steel Rebar
Size (mm)	8 – 32
Brand Name	GPH & GPH QUANTUM
Grade (MPa)	420 MPa, 500 MPa, 600 MPa
Conforming Standards	ISO 6935-2, ASTM A615, ASTM A706, BS 4449, IS:1786

Name and location of production site: Steel rebar product is manufactured at Chattogram, Bangladesh.



## CONTENT DECLARATION

The mass of one unit of a product, as per declared unit: 1 tonne of steel rebar

Content of the product in the form of a list of materials and substances, and their mass:

Product content	Mass, %	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material, kg C/product or declared unit
Iron	98.0%	100%	0	0
C	Max 0.32%	0	0	0
Mn	Max 1.8%	0	0	0
Si	Max 0.6%	0	0	0
N	Max 0.012%	0	0	0
S	Max 0.04%	0	0	0
P	Max 0.035%	0	0	0
Cr	Max 0.30%	0	0	0
Steel Rebar	100	100%	0	0

Note: The steel rebar is transported directly through truck without packaging the product.

Steel Rebar product does not contain hazardous substances. It doesn't contain any substances that can be included in "Candidate List of Substances of Very High Concern for Authorization" and raw materials used are not part of the EU REACH regulation.

## LCA INFORMATION

Declared unit: 1 tonne of steel rebar

Reference service life: NA

Time representativeness: The collection of foreground data is from July 2022 to June 2023.

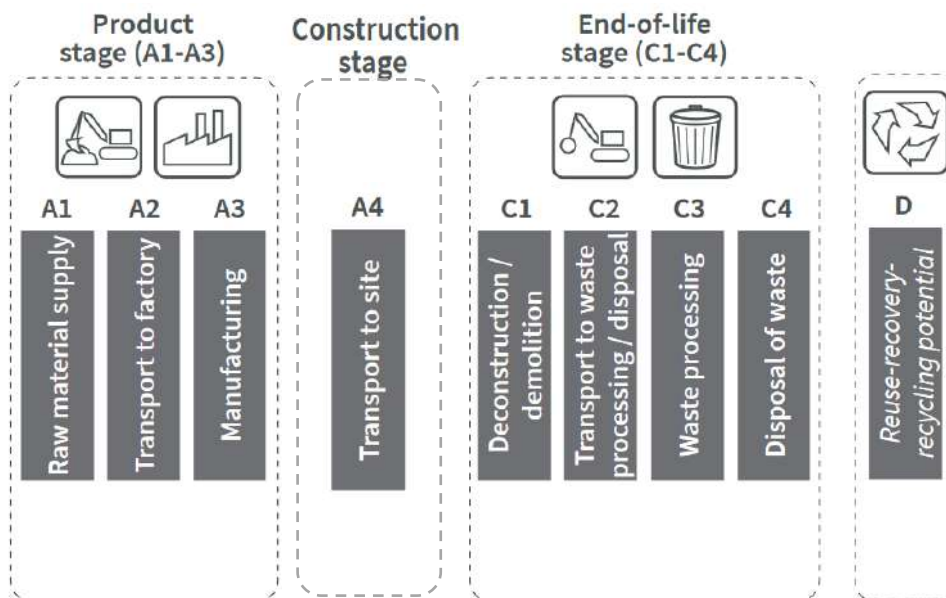
Geographical scope: The product is manufacturing, used and end of life is considered in India while the raw material procurement is global.

Database(s) and LCA software used: The background data has been taken from the latest available Sphera Managed LCA Content 2025.2 using Sphera's LCA for Experts (LCA FE) software, version 10.9.

Reference package used: EN 15804 reference package based on EF 3.1.

### Description of system boundaries:

The scope of the study is cradle to gate with options referred as Type B EPD covering modules A1-A3, A4, A5, C1-C4 & D. The system boundary of steel rebar product includes raw material extraction, transportation to production site, manufacturing, product transportation to site, demolition, EoL transport, waste processing, landfill and benefits associated with product recycling.



**System Boundary of steel rebar product**

### -Module A1 to A3

The major raw materials utilized for steel rebar production are steel scrap, electrode, anthracite, calcined pet coke, calcined dolomite, quick lime and ferroalloys (ferrosilicon, ferromanganese, ferro silicomanganese). The A1 module includes the impacts associated with the raw materials extraction and production. Steel scrap input in module A1-A3 is treated as 'burden free'. The A2 module involves the transportation impact of raw materials from the supplier to the manufacturing site. The A3 module accounts the environmental impacts during product manufacturing at site. The electricity for the manufacturing process has been sourced from electricity grid (86.20%) and CPP (13.80%). The emission factor of electricity mix for GWP-GHG indicator is 0.761 kg CO<sub>2</sub> eq./kWh.

**-Module A4**

Module A4 accounts for impacts associated with transportation of product to its use site. Steel rebar product is sold in Bangladesh domestic market.

**-Module C1 to C4**

C1-C4 modules are accounted in the present study. The C1(Deconstruction/demolition) module considers the environmental impact during disassembly of product from installation site. The C2 (Transport) module includes the impact associated with transportation of dismantled product to disposal site.

The impacts associated with waste product loading and unloading at site, mechanical sorting and 88% steel recycling are considered in C3 module. Net scrap approach has been applied for metal recycling credit. The C4 (Disposal) module is associated with 12% landfill impact of the steel product. The EoL scenario results for 100 % recycling and 100% landfill are declared additionally in results section.

The following considerations were accounted in the end-of-life stage based on the PCR (2019:14 v 2.0.1) Construction products.

Module	Process	Quantity	Energy Carrier
C1	Demolition/deconstruction of product	1.1 kWh/tonne	Diesel
C2	Transport	80 km	16-32 tonne lorry (Euro 5)
C3	Loading and unloading at sorting facility	1.8 kWh/tonne	Diesel
	Mechanical sorting	2.2 kWh/tonne	Electricity

**-Module D**

Module D includes all the declared benefits and loads from net flows leaving the product system that has not been allocated as co-products and that has passed the end-of-waste state in the form of reuse, recovery and/or recycling potentials. Net scrap approach has been applied and the benefit from steel rebar recycling has been accounted in the module D.

In the EoL net scrap approach (Amount of steel recycled at EoL – Scrap input from previous product life cycles) has been used.

**Cut-off criteria:**

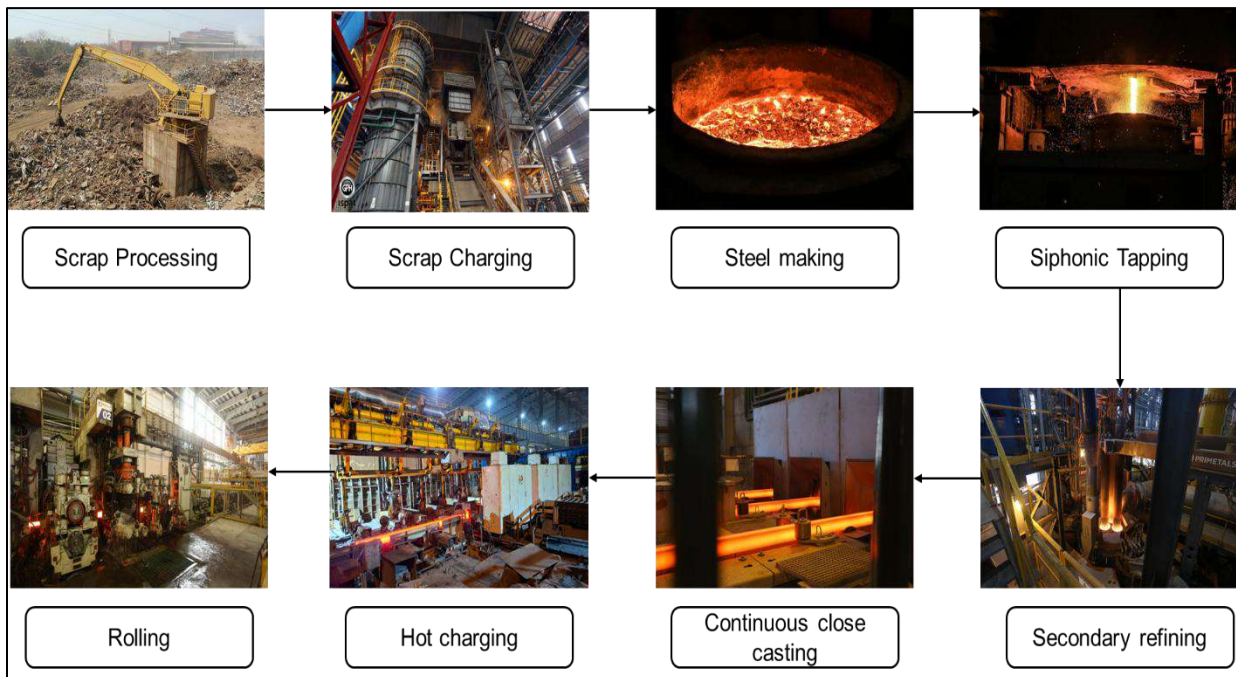
The cut-off criteria established by the PCR is 1% of all material and energy flows to a single unit process and 5% of total inflows (mass and energy) per module. No cut-offs exceeding this limit have been made. The production of capital equipment, facilities, and infrastructure required for manufacture has not been considered. The product is transported in bulk, therefore contribution of packaging to the total impacts were found negligible (contributing less than 5% to the cumulative impact assessment categories) and hence excluded from the study.

**Allocation:**

No co-product or multi-input allocation occurs in the product foreground system. Allocation of background data (energy and material) taken from Sphera Managed LCA Content (MLC 2025.2) databases is documented online at <https://lcadatabase.sphera.com/>.

Process flow diagram:

Steel production is carried out through the Quantum Electric Arc Furnace (EAF) route. The major raw materials for steel rebar production are imported steel scrap, electrode, anthracite, calcined pet coke, calcined dolomite, quick lime, ferroalloys (ferrosilicon, ferromanganese, ferro silicomanganese), and other auxiliary materials as charge inputs. The EAF melts the scrap and performs primary refining with lime, dolomite, injected carbon, and oxygen, generating slag from scrap impurities and refractory erosion. EAF process offers significantly lower power consumption and reduced emissions as compared to induction melting. The partially refined steel is processed in the Ladle Refining Furnace (LRF) for secondary metallurgical treatment, where fluxes and argon purging enable precise control of chemical composition and temperature. Refined steel is cast in an enclosed continuous billet caster and subsequently hot-rolled into rebar of various dimensions, followed by finishing, inspection, and dispatch. The high-quality EAF slag waste generated is further utilized as aggregate in road construction.



**Process flow diagram**

## SYSTEM BOUNDARY

Modules declared, geographical scope, share of primary data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage					Distributi on/ installatio n stage		Use stage					End-of-life stage				Beyon d produc t life cycle	
	Raw material supply	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- potential	
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
Modules declared	X	X	X	X	ND	ND						X	X	X	X	X		
Geograp hy	GLO	GLO	BD	BD	-	-						BD				GLO		
Share of primary data	77.49%			-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Variation – products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-	

*\*The share of specific/primary data and product variation refers to GWP-GHG results only*

## DATA QUALITY ASSESSMENT

In the data quality assessment No fair, poor or very poor data was found during the assessment of relevant data using EN15804:2012 +A2:2019, Annex E.

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Manufacturing of product	Collected data	GPH Ispat Limited	2024	Primary	23.04%
Generation of electricity used in manufacturing of product	Collected data & Database	Sphera MLC 2025.2 and GPH Ispat Limited	2024	Primary	52.85%
Transport of raw materials to manufacturing site	Collected Data	Sphera MLC 2025.2	2024	Primary	1.61%
Production of silicomanganese	Database	Sphera MLC 2025.2	2024	Secondary	0%
Total share of primary data, of GWP-GHG results for A1-A3					77.49%
<i>The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.</i>					

## ENVIRONMENTAL PERFORMANCE

### LCA results of the product - main environmental performance results

The environmental performance of the declared unit of 1 tonne of steel rebar is reported below using the parameters and units as specified in PCR 2019:14 v2.0.1.

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. The scenarios included are currently in use and are representative of one of the most probable alternatives.

#### Mandatory impact category indicators according to EN 15804+A2:2019

Results per 1 tonne of steel rebar								
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	6.89E+02	2.78E+01	6.70E-02	9.08E+00	1.95E+00	1.84E+00	7.99E+02
GWP-fossil	kg CO <sub>2</sub> eq.	6.89E+02	2.78E+01	6.70E-02	9.08E+00	1.95E+00	1.83E+00	7.99E+02
GWP-biogenic	kg CO <sub>2</sub> eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP-luluc	kg CO <sub>2</sub> eq.	4.22E-01	6.45E-04	7.69E-06	2.17E-04	8.11E-04	7.52E-03	1.06E-01
ODP	kg CFC 11 eq.	8.49E-10	1.65E-12	1.96E-14	5.56E-13	1.96E-12	5.10E-12	-1.07E-09
AP	mol H <sup>+</sup> eq.	3.28E+00	3.17E-02	2.06E-04	1.95E-02	1.29E-02	1.30E-02	1.95E+00
EP-freshwater	kg P eq.	1.12E-04	4.42E-06	5.27E-08	1.50E-06	2.92E-07	2.73E-06	1.86E-04
EP-marine	kg N eq.	5.83E-01	1.07E-02	4.32E-05	7.37E-03	2.10E-03	3.39E-03	3.14E-01
EP-terrestrial	mol N eq.	6.37E+00	1.21E-01	4.75E-04	8.20E-02	2.30E-02	3.70E-02	2.81E+00
POCP	kg NMVOC eq.	1.75E+00	3.24E-02	2.22E-04	2.12E-02	6.51E-03	1.01E-02	1.28E+00
ADP-minerals&metals*	kg Sb eq.	7.52E-05	6.15E-07	7.32E-09	2.02E-07	5.26E-08	1.13E-07	4.52E-03
ADP-fossil*	MJ	8.24E+03	3.76E+02	4.48E+00	1.22E+02	3.30E+01	2.41E+01	7.94E+03
WDP*	m <sup>3</sup>	9.71E+01	3.78E-02	4.50E-04	1.26E-02	1.45E-01	1.98E-01	5.39E+01
Acronyms	<p><i>GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&amp;metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption</i></p>							

\* Disclaimer: 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 experienced with the indicator.

The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

## Additional mandatory and voluntary impact category indicators

Results per 1 tonne of steel rebar								
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP-GHG <sup>1</sup>	kg CO <sub>2</sub> eq.	6.90E+02	2.78E+01	6.71E-02	9.09E+00	1.96E+00	1.84E+00	7.99E+02
<i>Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017</i>								

## Resource use indicators

Results per 1 tonne of steel rebar								
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
PERE	MJ	4.21E+02	6.55E-01	7.80E-03	2.15E-01	8.53E-01	4.64E+00	-3.14E+02
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	4.21E+02	6.55E-01	7.80E-03	2.15E-01	8.53E-01	4.64E+00	-3.14E+02
PENRE	MJ	8.24E+03	3.76E+02	4.48E+00	1.22E+02	3.30E+01	2.41E+01	7.94E+03
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	8.24E+03	3.76E+02	4.48E+00	1.22E+02	3.30E+01	2.41E+01	7.94E+03
SM	kg	1.34E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m <sup>3</sup>	3.04E+00	1.11E-03	1.32E-05	3.79E-04	4.91E-03	5.81E-03	8.08E+01
Acronyms	<i>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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water</i>							

## Waste indicators

Results per 1 tonne of steel rebar								
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
HWD	kg	8.46E-07	8.56E-09	1.02E-10	2.85E-09	1.41E-09	5.26E-09	5.94E-05
NHWD	kg	7.30E+00	6.05E-03	7.21E-05	2.36E-03	3.78E-03	1.20E+02	-9.61E+01
RWD	kg	2.55E-02	8.25E-05	9.83E-07	3.27E-05	3.11E-05	2.55E-04	-8.70E-04
Acronyms	<i>HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed</i>							

<sup>1</sup> This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO<sub>2</sub> is set to zero.

## Output flow indicators

Results per 1 tonne of steel rebar								
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.80E+02	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<i>Acronyms</i>	<i>CRU = Components for Re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy</i>							

## Additional environmental performance indicators

Results per 1 tonne of steel rebar								
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
PM	Disease incidences	9.05E-05	3.26E-07	2.81E-09	3.57E-07	1.50E-07	1.61E-07	1.83E-05
IR, human health	kBq U235 eq.	1.94E+00	7.19E-03	8.56E-05	3.21E-03	2.97E-03	2.82E-02	-1.79E+01
Ecotoxicity, FW	CTUe	1.48E+03	1.63E+02	1.94E+00	5.47E+01	7.80E+00	2.07E+01	4.17E+02
HT cancer	CTUh	1.12E-07	2.50E-09	2.97E-11	8.38E-10	4.36E-10	3.20E-10	-3.26E-07
HT non-cancer	CTUh	1.62E-06	4.22E-08	5.02E-10	1.41E-08	4.90E-09	1.20E-08	-1.56E-06
Land Use	Pt	5.90E+02	3.93E-01	4.68E-03	1.39E-01	3.97E-01	5.94E+00	1.03E+02
<i>Acronyms</i>	<i>PM= Particulate matter; IR=Ionizing radiation; FW=Freshwater; HT= Human toxicity</i>							

## Additional LCA results – 100% recycling scenario

### Mandatory impact category indicators according to EN 15804+A2:2019

Results per 1 tonne of steel rebar								
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	6.89E+02	2.78E+01	6.70E-02	9.08E+00	1.95E+00	0.00E+00	5.91E+02
GWP-fossil	kg CO <sub>2</sub> eq.	6.89E+02	2.78E+01	6.70E-02	9.08E+00	1.95E+00	0.00E+00	5.91E+02
GWP-biogenic	kg CO <sub>2</sub> eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP-luluc	kg CO <sub>2</sub> eq.	4.22E-01	6.45E-04	7.69E-06	2.17E-04	8.11E-04	0.00E+00	7.86E-02
ODP	kg CFC 11 eq.	8.49E-10	1.65E-12	1.96E-14	5.56E-13	1.96E-12	0.00E+00	-7.93E-10
AP	mol H <sup>+</sup> eq.	3.28E+00	3.17E-02	2.06E-04	1.95E-02	1.29E-02	0.00E+00	1.44E+00
EP-freshwater	kg P eq.	1.12E-04	4.42E-06	5.27E-08	1.50E-06	2.92E-07	0.00E+00	1.38E-04
EP-marine	kg N eq.	5.83E-01	1.07E-02	4.32E-05	7.37E-03	2.10E-03	0.00E+00	2.32E-01
EP-terrestrial	mol N eq.	6.37E+00	1.21E-01	4.75E-04	8.20E-02	2.30E-02	0.00E+00	2.08E+00
POCP	kg NMVOC eq.	1.75E+00	3.24E-02	2.22E-04	2.12E-02	6.51E-03	0.00E+00	9.43E-01
ADP-minerals & metals	kg Sb eq.	7.52E-05	6.15E-07	7.32E-09	2.02E-07	5.26E-08	0.00E+00	3.34E-03
ADP-fossil	MJ	8.24E+03	3.76E+02	4.48E+00	1.22E+02	3.30E+01	0.00E+00	5.87E+03
WDP	m <sup>3</sup>	9.71E+01	3.78E-02	4.50E-04	1.26E-02	1.45E-01	0.00E+00	3.98E+01
Acronyms	<p><i>GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP- minerals &amp; metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption</i></p>							

## Additional LCA results – 100% landfill scenario

### Mandatory impact category indicators according to EN 15804+A2:2019

Results per 1 tonne of steel rebar								
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	6.89E+02	2.78E+01	6.70E-02	9.08E+00	0.00E+00	1.53E+01	0.00E+00
GWP-fossil	kg CO <sub>2</sub> eq.	6.89E+02	2.78E+01	6.70E-02	9.08E+00	0.00E+00	1.53E+01	0.00E+00
GWP-biogenic	kg CO <sub>2</sub> eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP-luluc	kg CO <sub>2</sub> eq.	4.22E-01	6.45E-04	7.69E-06	2.17E-04	0.00E+00	6.27E-02	0.00E+00
ODP	kg CFC 11 eq.	8.49E-10	1.65E-12	1.96E-14	5.56E-13	0.00E+00	4.25E-11	0.00E+00
AP	mol H <sup>+</sup> eq.	3.28E+00	3.17E-02	2.06E-04	1.95E-02	0.00E+00	1.08E-01	0.00E+00
EP-freshwater	kg P eq.	1.12E-04	4.42E-06	5.27E-08	1.50E-06	0.00E+00	2.27E-05	0.00E+00
EP-marine	kg N eq.	5.83E-01	1.07E-02	4.32E-05	7.37E-03	0.00E+00	2.83E-02	0.00E+00
EP-terrestrial	mol N eq.	6.37E+00	1.21E-01	4.75E-04	8.20E-02	0.00E+00	3.08E-01	0.00E+00
POCP	kg NMVOC eq.	1.75E+00	3.24E-02	2.22E-04	2.12E-02	0.00E+00	8.46E-02	0.00E+00
ADP-minerals&metals	kg Sb eq.	7.52E-05	6.15E-07	7.32E-09	2.02E-07	0.00E+00	9.46E-07	0.00E+00
ADP-fossil	MJ	8.24E+03	3.76E+02	4.48E+00	1.22E+02	0.00E+00	2.00E+02	0.00E+00
WDP	m <sup>3</sup>	9.71E+01	3.78E-02	4.50E-04	1.26E-02	0.00E+00	1.65E+00	0.00E+00
Acronyms	<p>GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP- minerals &amp; metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption</p>							

## ABBREVIATIONS

Abbreviation	Definition
<b>General Abbreviations</b>	
EN	European Norm (Standard)
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
CEN	European Committee for Standardization
CLC	Co-location centre
CPC	Central product classification
GHS	Globally harmonized system of classification and labelling of chemicals
GRI	Global Reporting Initiative
SVHC	Substances of Very High Concern
ND	Not Declared
X	Declared

## REFERENCES

- General Programme Instructions of the International EPD® System. Version 5.0.
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- Sustainability of construction works - Environmental product declarations - Methodology for selection and use of generic data; CEN/TR 15941:2010
- EN 15804:2012+A2:2019: Sustainability of construction works -Environmental Product Declarations - Core rules for the product category of construction products.
- EN ISO 14025:2011-10 Environmental labels and declarations - Type III environmental declarations - Principles and procedures
- EN ISO 14040:2009-11 Environmental management - Life cycle assessment - Principles and framework
- EN ISO 14044:2006-10 Environmental management - Life cycle assessment - Requirements and guidelines.
- LCA FE: LCA FE Software System and Database for Life Cycle Engineering, Sphera Solution GmbH, Leinfelden-Echterdingen, 2025 (<https://sphera.com/solutions/product-stewardship/life-cycle-assessment-software-and-data/managed-lca-content/>)

## VERSION HISTORY

**Original Version of the EPD, 2026-03-10**

