Environmental Product Declaration

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

Reinforced Steel Bar

EPD Program	Title	Details
International Climate Intelligence System 71-75 Shelton Street Covent Garden London, WC2H 9JQ United Kingdom info@climateintell.com	Registration #	ICIS-202401-20
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The most recent data needs to be provided through an EPD, which may be updated when circumstances change. Thereby the claimed validity is contingent upon ongoing validation at www.climateintell.com

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1.0 PROGRAM INFORMATION

Program	International Climate Intelligence System 71-75 Shelton Street Covent Garden London, WC2H 9JQ United Kingdom info@climateintell.com
Product Group Classification	UN CPC 41241
Product Category Rules (PCR)	PCR 2020:17 Construction products (EN 15804:2012+A2:2019/AC:2021) Version 1.2.5 dated 01.11.2022 EN standard EN 15804 serves as the Core Product Category Rules (PCR)
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Geographical Scope	Kingdom of Saudi Arabia

2.0 INTRODUCTION

This report contains the environmental performance of the manufacturing process of Reinforced Steel Bar by Tameer Steel Factory Company Limited. This Environmental Product Declaration (EPD) has been developed using the Life Cycle Assessment (LCA) methodology. The environmental impact values calculated are expressed to 1 ton of Reinforced Steel Bar.

The assessed life cycle includes all phases in the manufacturing process of Reinforced Steel Bar in a “cradle to gate with options” scope. This LCA covers transportation of Raw materials, production, distribution of final product to the customer and end of life stages.

This EPD has been conducted according to the program operator regulations and it has been verified in accordance with the International Climate Intelligence System. The EPD regulation is a system for the international use of Type III Environmental Declarations, according to ISO 14025:2006. Not only the system, but also its applications, is described in the Programmer’s Product Category Rules (PCR). This report has been made following the specifications given in the European standard EN 15804:2012+A2:2019/AC:2021.

3.0 COMPANY INFORMATION

Tameer Steel Factory Company Limited. was established in 2015 and is located in Jeddah, KSA. We specialize in producing reinforcement steel bars from 10 to 32 mm. Our products reach our customers after undergoing a thorough process of inspection to meet the customer's desired requirements. At all stages of the manufacturing, proper care is taken to prevent pollution and keep a healthy environment in and around the factory.

Since 2015, and within a short period of time, Tameer Steel has built a strong standing in the field of steel production, reinvigorated the national economy, and become among the top and most competitive steel companies. The secret behind our success lies in our commitment to the pillars of our company: high-quality products and strong relationships with customers.

We have never failed to deliver our operations with the highest quality and on time" this is what team members of Tameer Steel say, the company that specializes in the production of steel bars from 10 to 32 mm that was established in Jeddah in the Kingdom of Saudi Arabia. What distinguishes Tameer Steel is the attention and care given to the smallest details in the manufacture of products and the application of the highest standards possible, empowered by our professional quality control team which includes qualified experts, engineers, and administrators.

Tameer Steel has recently witnessed a large expansion in its product line, production techniques, control and quality systems, administrative plans, and much more.

Certifications

Tameer Steel has achieved the below certifications:

- ISO 9001:2015 – Quality Management System (Q-01107)
- SASO Quality Mark (1-00000403020971924642l-1437)

4.0 PRODUCT INFORMATION

4.1 Analyzed Product

The assessed system in this Environmental Product Declaration (EPD) comprises the full life cycle of Reinforced Steel Bar by Tameer Steel Factory Company Limited in its factory in Jeddah, Saudi Arabia.

Tameer Steel manufactures & supplies Reinforced Steel Bar from 10 to 40 mm, conforming to SASO ASTM A615 Gr 60&Gr 80, ASTM A706 Gr 60 & Gr 80, standard and BS 4449.

4.2 Product Sizes

Diameter (mm)	Length (m)	Tensile Strength(n/mm^2) min	Yield Strength(n/mm^2) min
10	12	550 - 690	420 - 675
12	12	550 - 690	420 - 675
14	12	550 - 690	420 - 675
16	12	550 - 690	420 - 675
18	12	550 - 690	420 - 675
20	12	550 - 690	420 - 675
22	12	550 - 690	420 - 675
25	12	550 - 690	420 - 675
32	12	550 - 690	420 - 675
36	12	550 - 690	420 - 675
40	12	550 - 690	420 - 675

4.3 Product Specifications

Standard
SASO ASTM A615 Gr 60&Gr 80, ASTM A706 Gr 60 & Gr 80, standard and BS 4449.

4.4 Product Application

Reinforcement steel is a steel bar used as a tension device in reinforced concrete and reinforced masonry structures to strengthen and aid the concrete under tension. It is used in concrete to provide additional strength, as concrete is weak in tension and steel is strong in tension and compression.

5.0 LCA INFORMATION

5.1 Declared Unit

The Declared Unit of the Life Cycle Assessments is 1 Ton of Reinforced Steel Bar. All direct and indirect environmental impacts, as well as the use of resources, are reported referred to this unit. This EPD presents the environmental impacts associated to the LCA of the analyzed product. For conversion of the results, below table can be used.

5.2 Time representativeness

Manufacturing facility specific data from Tameer Steel are based on 1 year average for process data (Reference year Oct 2022 to Sept 2023). The following rules for time scope of data were applied - < 10 years for background data and < 2 years for manufacturer's data.

5.3 LCA Software and Database

Version 3.16.0.1 of software Air.e LCA™ with Ecoinvent™ 3.8.0 database has been used for LCA modeling and impacts calculations.

5.4 System Boundaries

This EPD covers all product stages from "cradle to gate with options", i.e this LCA covers Production stage A1-A3, Transportation A4, End of life stages C1-C4 and Resource recovery stage D according to EN 15804 + A2/AC:2021.

The procedures that are not controlled by the company, but are included in this environmental study, are:

- The extraction and production of fuels.
- The production of electricity.
- The production of the machinery, buildings, and vehicles.

All related direct and indirect environmental impacts related to these elements have been calculated and were included in the LCAs in this EPD.

Upstream Processes (**A1: Raw Material Supply**): Production of the product starts with mainly raw material production and transportation from different parts of the Saudi Arabia. Raw material "Steel Billets" are manufactured from 100% scrap steel.

Core Processes (**A2: Transportation**): Transport is relevant for delivery of raw materials to the plant and the transport of materials within the plant. Billet is transported from Jeddah 17.77%, Al Kharj 9.83%, Jordan 17.47%, Dammam 4.64% and

Internal 50.29%. In our case, the modelling included each raw material's road distances (average values).

Manufacturing (module A3): The processes that are included in the manufacturing phase are the heating, rolling, shear, 2nd rolling & shear, 3rd rolling & shear, quenching, tempering, dividing shear, cooling and tying of which energy consumption, auxiliary material consumption, waste and gaseous emissions have been modeled. During the manufacturing process, there is created metal waste - 100% of metal wastes are recycled.

Transport (module A4): To create a scenario of the A4 phase, all the products sold from Oct 2022 to Sept 2023 has been analyzed as representative of the international transport. The transport means 3.5-7.5t & >32t trucks, Euro 6.

Scenario Details	Description
Vehicle used for transport	3.5-7.5t & >32t trucks, Euro 6.
Vehicle capacity	3.5 -7.5 tons and 25 tons
Fuel type and consumption	Diesel, 0.38 liters per km
Capacity utilization	50% as assumed in Ecoinvent
Bulk transportation	Mass of the transported product.

Dismantling/demolition (module C1)

92% of the reinforced steel bars used at various consumer sites are assumed to be recovered and recycled whereas the remaining 8% is taken to a landfill. The calculated diesel consumption for the demolition of 1 kg steel is 0.0013 liters.

Transportation of demolished items (module C2)

With a collection rate of 100%, 92% of the steel is transported to a nearby scrap yard and the remaining 8% is transported to a landfill site. The transports are carried out by a >32 ton truck over 50 km carrying the demolished items from the demolition site to a nearby scrap yard and landfill sites. Since the steel is poured into concrete, it is collected as mixed construction waste.

Type	Capacity utilization	Type of vehicle	Average distance
Truck	50%	Euro 3.5-7.5t	50 km

Waste processing (module C3)

Steel must be mechanically separated from the concrete or any other material surrounding them prior to recycling so that the steel can be made available to a downstream product system as secondary material. Hence, the environmental impacts of separation of steel are considered in module C3.

Disposal (module C4)

8% of the steel is assumed to be landfilled and the corresponding environmental impacts are considered in module C4.

Reuse, Recycling, and Recovering Potential (module D)

Module D represents the recycling benefits of the used steel and packaging materials.

Manufacturing and System Boundaries Diagram

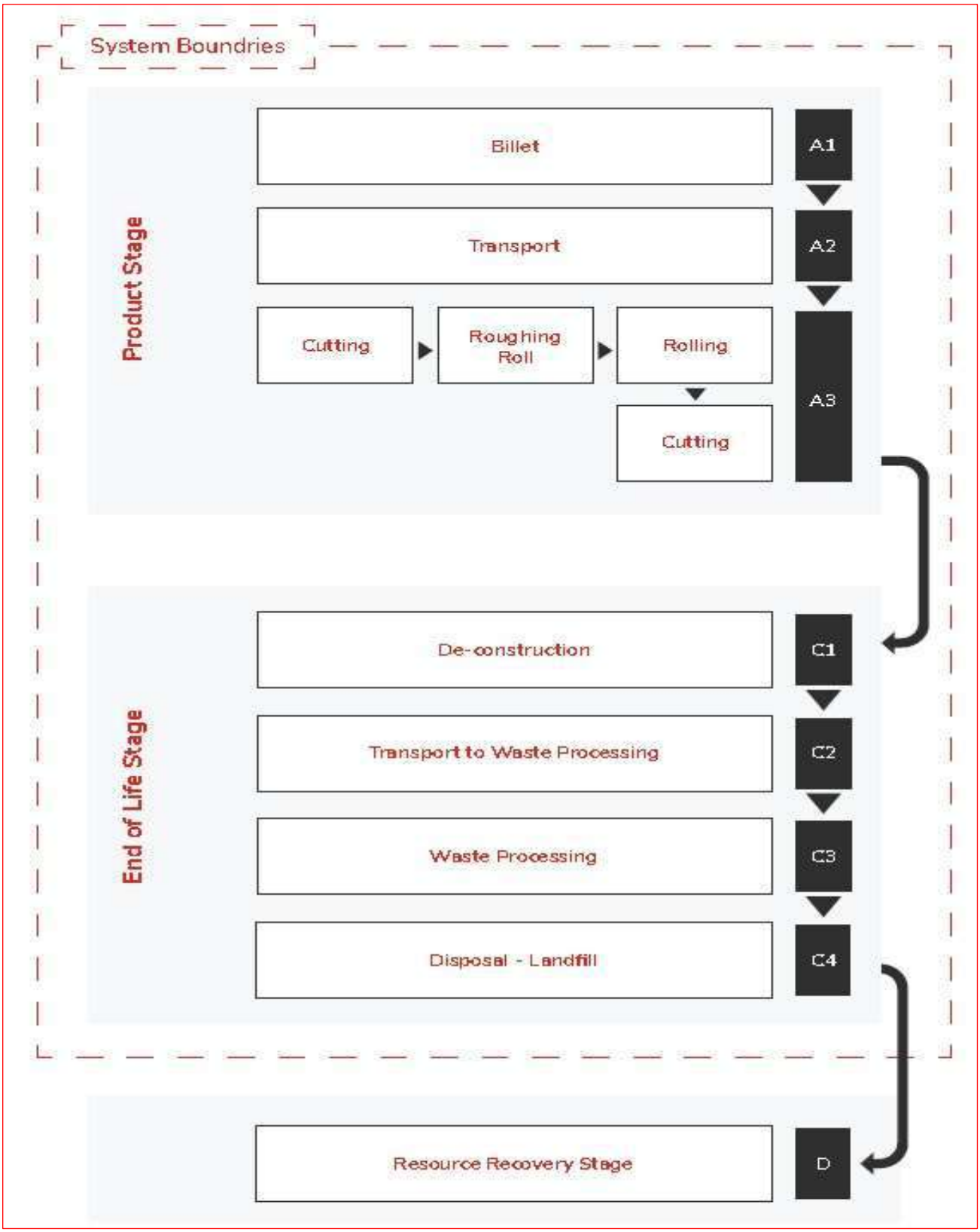
	Production Stage				Construction Process Stage	Use Stage						End of Life Stage					Resource Recovery Stage
	Raw Materials	Transport	Manufacturing	Transport	Construction Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	De-construction Demolition	Transport	Waste Processing	Disposal	Reuse Recovery Recycling 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	ND	ND	ND	ND	ND	ND	**X**	**X**	**X**	**X**	**X**
Geography	KSA	KSA	KSA	KSA	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific data	GWP > 90%				-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	One Product				-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	One manufacturing center				-	-	-	-	-	-	-	-	-	-	-	-	-

X = Included, ND=Module not declared, NR= Module not relevant

Modules from A5 to B7 are not included (X refers to considered stage; N refers to not relevant stage and ND to not declared stage).

Scope of this Life Cycle Assessment 'Cradle to Gate with Options'					
A1 Raw Materials Production	**A2 Transport raw materials**	**A3 Manufacture**	**A4 Distribution**	**End of use Stage (C1-C4)**	**Recovering and Recycling (D)**
 	 		  		
Raw Materials and Chemicals	Transport from supplier by Road & Sea	Heating, Rolling, Shearing, Quenching & packing	Transport to customers by trucks	Demolition, transport, disposal.	Reuse, recovery and recycling potential

5.5 The following diagram is a more detailed description of the modules.



5.6 Content Declaration of 1000kg of rebar

Product Components	Weight %	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Iron	99.0 - 99.9	0	0
Alliage	0.1 – 1.0	0	0
Total	**100.00**	**0**	**0**

Packaging Materials			
Packaging Materials	**Weight Kg**	**Weight % (Versus the Product)**	**Weight biogenic carbon, kg C/kg**
Steel Wire	1.075	0.011	0
*Biogenic carbon content is not presents since the packaging weights. No wooden Pallets are used.			

5.7 Substances listed in the "Candidate List of SVHC"

During the life cycle of the product, no hazardous substances listed in the "Candidate List of substances of very high concern (SVHC) for authorization" has been used in a percentage higher than 0.1% of the weight of the product.

5.8 More information

Cut-off rules: more than 99% of the materials and energy consumption have been included. The Polluter Pays Principle and the Modularity Principle have been followed.

Allocations: The allocation of common inputs and outputs is based on the general allocation rule what represents the proportion of production of every specific product in overall production expressed in ton. Generic process data for production of input materials were used.

Electricity: A specific dataset with the Life Cycle Inventory (LCI) corresponding to the electricity mix in Saudi Arabia, has been used for this LCA.

Calculation Rules: Datasets from Ecoinvent 3.8.0 with emission factors for raw materials and generic chemicals have been characterized to adjust them to the characteristics of manufacturing of suppliers or counties where suppliers are located. Specific datasets with the emissions factors corresponding to the fuel combustion of production plant and machinery have been developed for these LCAs. Indirect emissions due to diesel production and transportation are also included in the environmental impact. Minor components are not directly related to the product, with less than 1% impact, such as office supplies, has been excluded from the assessment.

All transports of components have been included in the LCA considering real distances travelled by materials used for production. It is estimated in a global scale according to Ecoinvent™ criteria. As exact port locations are not known in detail, transport distances have been calculated from a one of the ports in the country of origin to the factory. Operation in port has also been excluded. Road distances calculated using Google Maps. Maritime distances calculated using Marine Traffic Voyage Planner.

By Products Assignment: There are no by-products in this Environmental Product Declaration. Hence no allocation had to be applied.

6.0 ENVIRONMENTAL PERFORMACE

6.1 Potential Environment Impacts

In the following tables, the environmental performance of the declared units “One-Ton of Reinforced Steel Bar” is presented for the Tameer Steel Factory Company Limited. During the assessment it was not evident to distinguish the differences in the consumption of electricity, water and raw material during the manufacturing. Hence, the calculation is based on total production vs total consumption against manufacturing of the product. Environmental impacts are calculated using the EF-3.1, (ILCD).

Reinforced Steel Bar

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding thresholds values, safety margins or risks.

Core Environmental Impact Indicators

Impact Category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Climate change (GWP) – fossil	kg CO2e	2.87E+02	2.50E+01	4.43E+02	1.00E+02	ND	ND	8.57E-01	2.92E+00	2.66E+02	4.88E-01	-2.66E+02
Climate change (GWP) – biogenic	kg CO2e	2.85E-01	0.00E+00	1.55E-01	0.00E+00	ND	ND	2.84E-04	0.00E+00	2.57E-01	2.25E-04	-2.58E-01
Climate change (GWP) – LULUC	kg CO2e	2.94E-01	0.00E+00	4.74E-02	0.00E+00	ND	ND	2.45E-04	0.00E+00	2.71E-01	1.73E-04	-2.72E-01
Climate change (GWP) – total	kg CO2e	2.87E+02	2.50E+01	4.43E+02	1.00E+02	ND	ND	8.58E-01	2.92E+00	2.66E+02	4.89E-01	-2.67E+02
Ozone depletion	kg CFC11e	3.89E-06	0.00E+00	3.80E-06	0.00E+00	ND	ND	5.80E-08	0.00E+00	3.58E-06	1.41E-08	-3.60E-06
Acidification	mol H+e	1.09E+00	8.74E-03	5.72E+00	3.53E-02	ND	ND	4.76E-03	1.02E-03	1.01E+00	3.67E-03	-1.01E+00
Eutrophication, aquatic freshwater	kg PO4e	3.05E-01	0.00E+00	2.86E-02	0.00E+00	ND	ND	1.26E-04	0.00E+00	2.81E-01	1.25E-04	-2.81E-01
Eutrophication, aquatic freshwater	Kg P eq	9.94E-02	0.00E+00	9.32E-03	0.00E+00	ND	ND	4.10E-05	0.00E+00	9.15E-02	4.08E-05	-9.17E-02
Eutrophication, aquatic marine	kg Ne	2.46E-01	4.38E-03	2.61E+00	1.76E-02	ND	ND	9.23E-04	5.12E-04	2.27E-01	1.39E-03	-2.27E-01
Eutrophication, terrestrial	mol Ne	2.58E+00	4.90E-02	2.86E+01	1.98E-01	ND	ND	8.34E-03	5.73E-03	2.38E+00	1.51E-02	-2.38E+00
Photochemical ozone formation	kg NMVOCe	1.41E+00	1.30E-02	7.57E+00	5.22E-02	ND	ND	7.75E-03	1.51E-03	1.30E+00	5.25E-03	-1.31E+00
Abiotic depletion, minerals & metals	kg Sbe	5.25E-04	0.00E+00	8.58E-04	0.00E+00	ND	ND	5.78E-07	0.00E+00	3.44E-04	6.75E-07	-3.45E-04
Abiotic depletion of fossil resources	MJ	3.76E+03	0.00E+00	2.86E+03	0.00E+00	ND	ND	5.98E+01	0.00E+00	3.49E+03	1.29E+01	-3.49E+03
Water use	m3e depr.	3.61E+02	0.00E+00	3.40E+00	0.00E+00	ND	ND	1.03E-01	0.00E+00	3.36E+02	5.64E-01	-3.36E+02

EN 15804+ A2 disclaimers for Abiotic depletion and Water use indicators and all 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. "Reading example: 1.57E-03 = 1.57*10-3 = 0.00157"

Additional Environmental Impact Indicators

Impact Category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Particulate matter	Incidence	2.00E-05	4.49E-08	8.12E-06	1.87E-07	ND	ND	3.27E-08	5.25E-09	2.00E-05	7.86E-08	-2.00E-05
Ionizing radiation, human health	kBq U235e	1.36E+01	0.00E+00	1.21E+00	0.00E+00	ND	ND	1.17E-02	0.00E+00	1.26E+01	7.41E-03	-1.26E+01
Eco-toxicity (freshwater)	CTUe	5.80E+02	7.13E-02	1.12E+03	2.99E-01	ND	ND	2.84E+01	8.33E-03	5.28E+02	5.00E-01	-5.29E+02
Human toxicity, cancer effects	CTUh	4.47E-07	8.57E-10	2.63E-07	3.45E-09	ND	ND	3.11E-10	1.00E-10	4.15E-07	1.39E-10	-4.16E-07
Human toxicity, non-cancer effects	CTUh	1.49E-06	1.68E-08	5.60E-06	6.64E-08	ND	ND	6.21E-09	1.96E-09	1.36E-06	1.94E-09	-1.36E-06
Land use related impacts/soil quality	Dimensionless	6.47E+02	0.00E+00	2.18E+02	0.00E+00	ND	ND	3.02E+00	0.00E+00	5.54E+02	8.18E+00	-5.55E+02

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.

Environmental impacts – GWP-GHG

Impact Category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-GHG	kg CO2e	2.87E+02	2.50E+01	4.43E+02	1.00E+02	ND	ND	8.57E-01	2.92E+00	2.66E+02	4.89E-01	-1.13E+03

This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013) This indicator Is almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Use of Natural Resources

Impact Category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Renewable PER used as energy	MJ	2.13E+02	0.00E+00	2.67E+01	0.00E+00	ND	ND	1.11E-01	0.00E+00	1.86E+02	1.06E-01	-1.87E+02
Renewable PER used as materials	MJ	1.06E+00	0.00E+00	1.25E-01	0.00E+00	ND	ND	5.04E-04	0.00E+00	9.78E-01	4.36E-04	9.79E-01
Total use of renewable PER	MJ	2.14E+02	0.00E+00	2.68E+01	0.00E+00	ND	ND	1.12E-01	0.00E+00	1.87E+02	1.06E-01	-1.86E+02

Non-renew. PER used as energy	MJ	3.76E+03	0.00E+00	3.04E+03	0.00E+00	ND	ND	5.98E+01	0.00E+00	3.49E+03	0.00E+00	-3.49E+03
Non-renew. PER used as materials	MJ	7.90E-04	0.00E+00	1.03E-04	0.00E+00	ND	ND	2.98E-07	0.00E+00	7.29E-04	9.11E-06	-7.30E-04
Total use of non-renewable PER	MJ	3.76E+03	0.00E+00	3.04E+03	0.00E+00	ND	ND	5.98E+01	0.00E+00	3.49E+03	9.11E-06	-3.49E+03
Use of secondary materials	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renew. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m3	0.00E+00	0.00E+00	4.47E+04	0.00E+00	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

End of Life - Waste

Impact Category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Hazardous waste	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste	Kg	0.00E+00	0.00E+00	3.92E+06	0.00E+00	ND	ND	0.00E+00	0.00E+00	0.00E+00	1.75E+07	0.00E+00
Radioactive waste	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

End of Life - Outflows

Impact Category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Components for reuse	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.01E+08
Materials for recycling	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	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	ND	ND	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	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Biogenic Carbon Content

Details	Unit	A1-A3
Biogenic carbon content in product	Kg C	0
Biogenic carbon content in accompanying packaging	Kg C	0

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2. "Reading example: 1.57E-03 = 1.57*10-3 = 0.00157"

Disclaimer: "According to the EN 15804:2012+A2:2019 standard, the LCIA results are relative expressions translating impacts into environmental themes such as climate change, ozone depletion, etc. (midpoint impact categories). Thus, the LCIA results do not predict impacts on category endpoints such as impact on the extinction of species or human health. In addition, the results do not provide information about the exceeding of thresholds, safety margins or risks".

6.2 Interpretation of LCA Study Results

In general terms, as it is shown in the table of core environmental impact indicators, A1-A3 modules have the higher impact, representing above 80% of the whole impact. A4 module has a less impact. C2 and C4 module has little impact too, representing at most 0.16% and 0.01% respectively of the whole impact. Refer the below table 1 for more detailed explanations.

Concluding, the study provides fair understanding of environmental impacts during the various life cycle stages of reinforced steel bar production. It also identifies the hot spots in the value chain where improvement activities can be prioritized and accordingly investment can be planned. The scope covers the ecological information to be divided into raw material production (A1), transportation (A2), manufacturing (A3), product dismantling (C1), transport of dismantled product to site (C2), waste processing (C3), waste disposal (C4) as well as the end of life stage recycling (D) considerations.

Table 1 - Interpretation of most significant contributors to life cycle parameters (Reinforced Steel Bar)

Impact Indicator	Description	Most significant contributor
Climate Change (Global Warming Potential- GWP-GHG)	Indicator of potential global warming due to emissions of greenhouse gases to the air. Divided into 3 subcategories based on the emission source: (1) fossil resources, (2) bio-based resources, and (3) land use change.	The total cradle to gate impact is 7.55E+02 kg CO2 eq. In A1 – A3, the production (58.66%) followed by steel billet (38%) has the highest impacts. A total credit of -2.66E+02 kg CO2 eq is taken in the module D.
Depletion of abiotic resources – fossil fuels	Indicator of the depletion of natural fossil fuel resources.	The total cradle to gate impact is 6.62E+03 MJ In A1 – A3, the steel billet (56.85%) rebar rolling mill process (43.15%) has the highest impacts. A total credit of -3.49E+03 MJ is taken in module D.

7.0 MANDATORY STATEMENTS

Explanatory material can be obtained from EPD owner and/or LCA author. The verifier and The Program Operator do not make any claim or present any responsibility about the legality of the product. The EPD owner has the sole ownership, liability, and responsibility for the EPD. The LCA Author shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same 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 equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; have equivalent content declarations; and be valid at the time of comparison.

8.0 ADDITIONAL INFORMATION

8.1 Action against Erosion, Environmental Restoration, and Landscaping of the work.

Application of measures to prevent erosion, restore the environment, and landscape the job includes restoring all elements immediately connected to it. The restoration of other related items indirectly is also suggested, including auxiliary facilities, and loan and landfill lands.

To delight the customers, Tameer Steel is continuously striving to develop new product applications for this remarkably versatile product.

We recycle as many waste materials as possible. We follow a Just-in-Time manufacturing strategy to increase efficiency, reduce wastage and eliminate the need for excess storage.

Tameer Steel process line handle wider range of products and provide more flexibility in production scheduling.

8.2 Information related to Sector EPD

This is not a sector EPD.

8.3 Differences versus previous versions

This is the second version of the EPD. Revised based on the change in the raw material (ie. Steel billets are produced from the steel scrap). The EPD owner has declared on 10-03-2024

9.0 VERIFICATION

Diffusion Institution	International Climate Intelligence System 71-75 Shelton Street Covent Garden London, WC2H 9JQ United Kingdom
Registration Number	ICIS-202401-20
Date of Publication	30.01.2024 and Revised on 15.03.2024
Valid until	29.01.2029
Reference year for Data	October 2022 to September 2023
Geographical Scope	Kingdom of Saudi Arabia
Product category rules (PCR): PCR 2020:17 Construction products (EN 15804:2012+A2:2019/AC:2021) Version 1.2.5 dated 01.11.2022. EN standard EN 15804 serves as the Core Product Category Rules (PCR)	
PCR review was conducted by: International Climate Intelligence System.	

Independent verification of the declaration and data, according to ISO 14025:2006 and ISO 14040: ☐ EPD Process Certification (internal) ☒ EPD Verification (external)
Third party verifier: Constantine Stephen.S, Glasgow, beskidoc@gmail.com Accredited by: International Climate Intelligence System

10.0 CONTACT INFORMATION

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Verifier Details	Name: Constantine Stephen.S Location: Glasgow Accredited by: International Climate Intelligence System

11.0 REFERENCES

LCA Report: Life Cycle Inventory of Reinforced Steel Bar by Tameer Steel Factory Company Limited.

Software: Air.e LCA Version 3.14.0.15 www.solidforest.com

Main database: Ecoinvent 3.9 www.ecoinvent.org

Geographical scope of the EPD: Kingdom of Saudi Arabia

ISO 14040:2006 “Environmental management -- life cycle assessment -- principles and framework”;

ISO 14044:2006 “Environmental management -- life cycle assessment -- requirements and guidelines”;

ISO 14020:2000 “Environmental Labels and declarations - General Principles

ISO 14025:2006 “Environmental labels and declarations -- type III environmental declarations -- principles and procedures”.

EN 15804+A2:2019/AC:2021 European Committee for Standardization: Sustainability of construction works − Environmental product declarations − Core rules for the product category of construction products.

General Programme Instructions of the International Climate Intelligence System