

ENVIRONMENTAL PRODUCT DECLARATION

Fabricated steel reinforcing bars manufactured by DIACO

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

Products included in the EPD:

Fabricated steel reinforcing bars manufactured by DIACO

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

EPD of multiple products based on the average results of the product group

EPD Owner
DIACO

Programme
International EPD System
www.environdec.com

Programme operator
EPD International AB

Registration number
EPD-IES-0027652:002

Approval date
2026-03-18

Validity date
2031-03-18



GENERAL INFORMATION

Programme information

Programme	International EPD System
Address	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website	www.environdec.com
E-mail	support@environdec.com

Product category rules

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)	
Product Category Rules (PCR)	2019:14 Construction products (EN 15804+A2) (version 2.0.1) 2.0.1
PCR review was conducted by	The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair: Rob Rouwette (chair), Noa Meron (co-chair). The review panel may be contacted via the Secretariat www.environdec.com/support .

Verification

LCA accountability	Dulce Alejandra Zaragoza Ayala, dzaragoza@cadis.earth, DIACO
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via	<input checked="" type="checkbox"/> EPD verification through an individual EPD verification <input type="checkbox"/> EPD verification through EPD Process Certification* <input type="checkbox"/> EPD verification through a fully pre-verified tool
Third-party verifier	Rubén Carnerero Acosta Carnerero Acosta (IK Ingeniería S.L.)
Approved by	International EPD System
Procedure for follow-up of data during EPD validity involves third party verifier	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

*EPD Process Certification involves an accredited certification body certifying and periodically auditing the EPD process and conducting external and independent verification of EPDs that are regularly published. More information can be found in the General Programme Instructions on www.environdec.com.

Ownership and limitations on use of EPD

Limitations

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.

Ownership

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

INFORMATION ABOUT EPD OWNER

EPD Owner	DIACO
Contact person name	Flor Marina Eusse Gonzalez
Contact person e-mail	flor.eusse@diaco.com.co
Organisation address	Colombia Boyacá 150520 Planta Tuta, Tunja-Paipa, Bosiga Sur, Tuta, Boyacá.

Description of the organisation of the EPD Owner

DIACO S.A.

With operations across 17 departments, DIACO S.A. manages an integrated ecosystem of production plants, cutting and bending centers, retail outlets, scrap collection facilities, and optimized logistics ensuring nationwide coverage. Over more than six decades, DIACO has established itself as the steel manufacturer with the broadest national presence. Its practices include partnerships with recyclers, steel production through electric arc furnaces, the use of renewable energy, water optimization, carbon footprint reduction, and ISO 9001/14001 certifications.

In 2023, Grupo INICIA and Atria Advisors acquired Gerdau's shareholding, reinforcing DIACO's strategy to accelerate investments, expand its portfolio, and strengthen its leadership in recycled steel. Guided by technical excellence and corporate responsibility, DIACO aims to keep advancing sustainable construction in Colombia.



PRODUCT INFORMATION

Product name	Fabricated steel reinforcing bars manufactured by DIACO
Product identification	UN CPC 412
Product description	<p>Figured rebar</p> <p>Figured rebar is part of the Fabricated steel reinforcing bars resulting from a cold-forming process. This process involves cutting and bending the steel to the required dimensions, shapes, and angles specified by the client's structural design. Figured rebars are transverse reinforcement elements made from deformed, smooth, or grooved bars, bent into shapes such as S, C, U, rectangles, and circles. It is used as transverse reinforcement in beams and columns, absorbing shear and torsional stress, and providing confinement to the main reinforcement.</p> <p>Heavy rebar shapes</p> <p>Heavy Rebar Shapes are part of the Fabricated steel reinforcing bars, resulting from a cold-forming process. This process involves cutting and bending the steel to the required dimensions, shapes, and angles specified by the client's structural design. Heavy Rebar Shapes rods are straight or bent bars shaped like L, U, or C, used as longitudinal reinforcement. This is designed to absorb tensile and compressive stress in concrete structures.</p>
Technical purpose of product	DIACO produces steel reinforcement products for concrete at its Cota, Sabaneta, Pereira, Cali, Cartagena, Bucaramanga, Neiva and Santa Marta Plants in Colombia, in accordance with national and international standards. The portfolio includes Fabricated steel reinforcing bars, all designed to provide transverse and longitudinal reinforcement, absorbing shear, torsional, tensile, and compressive stresses in concrete structures.
Manufacturing or service provision description	<p>Figured rebar: The process begins with the arrival of raw materials (Wire rod wire, ribbed) at the plant, where they are stored according to their specifications and then transferred to the stirrup machines. In these machines, the coil is threaded, straightened, and bent into the shape requested by the customer. The final product is packaged according to its size and shape in big bags or tied with smooth wire or annealed wire and finally labeled for dispatch to the customer.</p> <p>Heavy rebar shapes: This process starts with the reception of raw materials (ribbed or smooth bars). Once received, the bars are placed in the raw material storage area and, depending on production needs, are transferred to the production lines. These lines consist of continuous roller paths that guide the bars through shearing for cutting and then to bending machines that shape the cut bars according to the dimensions and forms requested by the customer. The shaped product is bundled and moved to the storage area to be loaded and dispatched by the logistics department to the final customer.</p>
Material properties	Volumetric mass density: 7800 kg/m ³
Manufacturing site	<p>DIACO</p> <p>Cota plant</p> <p>Colombia</p> <p>Cota, Cundinamarca</p> <p>250017</p> <p>Km 3 vía Siberia–Cota</p>

Manufacturing site 2	DIACO Sabaneta plant Colombia Sabaneta, Antioquia 055450 Calle 80 Sur No. 47F-36
Manufacturing site 3	DIACO Pereira plant Colombia Dosquebradas, Risaralda 661008 Calle 32 No. 16-71, Av. Los Molinos
Manufacturing site 4	DIACO Cali plant Colombia Yumbo, Valle del Cauca 760501 Calle 12 No. 32-507, Parque Logístico La Carbonera, Bodega 3, Acopi
Manufacturing site 5	DIACO Bucaramanga plant Colombia Bucaramanga, Santander 680011 Km 3 Vía Café Madrid, Parque Industrial II
Manufacturing site 6	DIACO Neiva plant Colombia Neiva, Huila 410010 Carrera 7 No. 25-42 Sur, Zona Industrial Neiva
Manufacturing site 7	DIACO Cartagena plant Colombia Cartagena, Bolívar 130015 Diagonal 22 No. 56-249, Barrio El Bosque (Coremar Shore Base)
Manufacturing site 8	DIACO Santa Marta plant Colombia Santa Marta, Magdalena 470001 Km 4 Vía Alternativa al Puerto, Vereda Puente El Limón
UN CPC code	412. Products of iron or steel
Geographical scope(s)	Global

Geographical scope description	The raw materials are produced in several continents.
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PRODUCT IMAGES







TECHNICAL CHARACTERISTICS AND PERFORMANCE

Technical performance

Product name	Reinforcement Type	Designation number	Nominal Diameter (")	Inner bending diameter,Rod nominal diameter
Figured rebar	Transversal	2	1/4"	4db
Figured rebar	Transversal	3	3/8"	4db
Figured rebar	Transversal	4	1/2"	4db
Figured rebar	Transversal	5	5/8"	4db
Figured rebar	Transversal	6	3/4"	6db
Figured rebar	Transversal	7	7/8"	6db
Figured rebar	Transversal	8	1"	6db
Figured rebar	Transversal	10	1-1/4"	6db
Heavy rebar shapes	Lengthwise	2	1/4"	6db
Heavy rebar shapes	Lengthwise	3	3/8"	6db
Heavy rebar shapes	Lengthwise	4	1/2"	6db
Heavy rebar shapes	Lengthwise	5	5/8"	6db
Heavy rebar shapes	Lengthwise	6	3/4"	8db
Heavy rebar shapes	Lengthwise	7	7/8"	8db
Heavy rebar shapes	Lengthwise	8	1"	8db
Heavy rebar shapes	Lengthwise	10	1-1/4"	8db

CONTENT DECLARATION

Content declaration of multiple products	This EPD covers multiple products. The content declaration corresponds to a representative average, calculated based on production-volume-weighted contributions of each included product and manufacturing plant.
Hazardous and toxic substances	The product does not contain any substances from the SVHC candidate list in concentrations exceeding 0.1% of its weight.

PRODUCT CONTENT				
Content name	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material ¹ , kg C/declared unit
Scrap	928.05	91.9	0	0
Calcite Lime	27.11	0	0	0
Anthracite	12.52	0	0	0
Iron Ore	23.52	0	0	0
Others	8.8	0	0	0
Total	1000	91.9	0	0
Note 1	1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂			

PACKAGING MATERIALS			
Material name	Mass, kg	Mass-% (versus the product)	Biogenic material ¹ , kg C/declared unit
Steel wire	1.11	0.11	0
Big Bag	1.24	0.12	0
Sacks	1.4	0.14	0
Label	0.003	0.0003	0
Total	3.753	0.3703	0
Note 1	1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂		

LCA INFORMATION

EPD based on declared or functional unit	Declared unit
Declared unit and reference flow	Fabricated steel reinforcing bars manufactured by DIACO Mass: 1000 kg
Conversion factor to mass	1
Are infrastructure or capital goods included in any upstream, core or downstream processes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Data sources used for this EPD	ecoinvent database (general) ecoinvent 3.10 database
LCA Software	SimaPro 9.6
Version of the EN 15804 reference package	EF Reference Package 3.1
Characterisation methods	Global Warming Potential,GWP100 , EN 15804. Version: EF 3.1, February 2023. Acidification potential, AP, accumulated exceedence, EN 15804.Version: February 2023. Eutrophication potential (EP) Version 2.0 of the default list of indicators (valid from 2022-03-29). Photochemical ozone creation potential (POCP), POCP, LOTOSEUROS applied in ReCiPe, EN 15804. Version: February 2023. Ozone depletion potential (ODP), EN 15804. Version: February 2023. Abiotic depletion potential (ADP) for minerals and metals (non-fossil resources), ADP minerals & metals, EN 15804. Version: February 2023. Abiotic depletion potential (ADP) for fossil resources, ADP fossil resources, EN 15804. Version: August 2021. Water deprivation potential (WDP), (Available water remaining (AWARE) method), EN 15804.
Technology description including background system	The declared products are fabricated steel reinforcing bars, including figured rebar and heavy rebar shapes, manufactured through cold-forming processes at DIACO facilities. These products are used as transverse or longitudinal reinforcement in concrete structures to resist tensile, compressive, shear, and torsional stresses. The products are mainly composed of steel scrap (approximately 91.9% by mass), with minor inputs of calcitic lime, anthracite, iron ore, and auxiliary materials used in steelmaking. No biogenic materials are present.
Scrap (recycled material) inputs contribution level	Less than 10% of the GWP-GHG results in modules A1-A3 come from scrap inputs

SCRAP (RECYCLED MATERIAL) INPUTS DATA

Material scrap name	Material scrap value
Scrap steel	28.8, kg CO ₂ eq./tonne
The share of the total scrap input that was assumed to come with an environmental burden	100 %

Data quality assessment

Description of data quality assessment and reference years	<p>Direct data obtained from DIACO is representative for 2024.</p> <p>According to ISO 14044, data validity verified during the collection process to provide evidence that the quality criteria required for the intended application are met. The data quality level and criteria used were based on the Product Category Rules (GPI 5.0.1, section A.5.4), the EN 15804:2012+A2:2019/AC:2021 standard (Annex E), and the PCR Construction Products v2.0.1, section 4.6.5. Data quality assessment was carried out using the following quality levels: very good, good, fair, poor, and very poor.</p>
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DATA QUALITY ASSESSMENT					
Process name	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Extraction and processing of raw materials required for the manufacturing of DIACO's products	Collected data	EPD owner	2024	Primary data	93.02%
Transportation of raw materials, auxiliary materials, and packaging.	Collected data	EPD owner	2024	Primary data	5.65%
Consumption and generation of electricity	Collected data	EPD owner	2024	Primary data	0.64%
Total share of primary data, of GWP-GHG results for A1-A3					99.31%
Note	<p>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.</p>				

ELECTRICITY USED IN THE MANUFACTURING PROCESS IN A3 (A5 FOR SERVICES)		
Type of electricity mix	Specific electricity mix as generated, or purchased from an electricity supplier, demonstrated by a contractual instrument	
Energy sources	Hydro	92.7%
	Wind	1.02%
	Solar	6.28%
	Biomass	0%
	Geothermal	0%
	Waste	0%
	Nuclear	0%

	Natural gas	0%
	Coal	0%
	Oil	0%
	Peat	0%
	Other	0%
Climate impact (GWP-GHG):	0.06 kg CO ₂ eq./kWh	

ELECTRICITY USED IN ELECTRICITY USED IN THE MANUFACTURING PROCESS IN A3

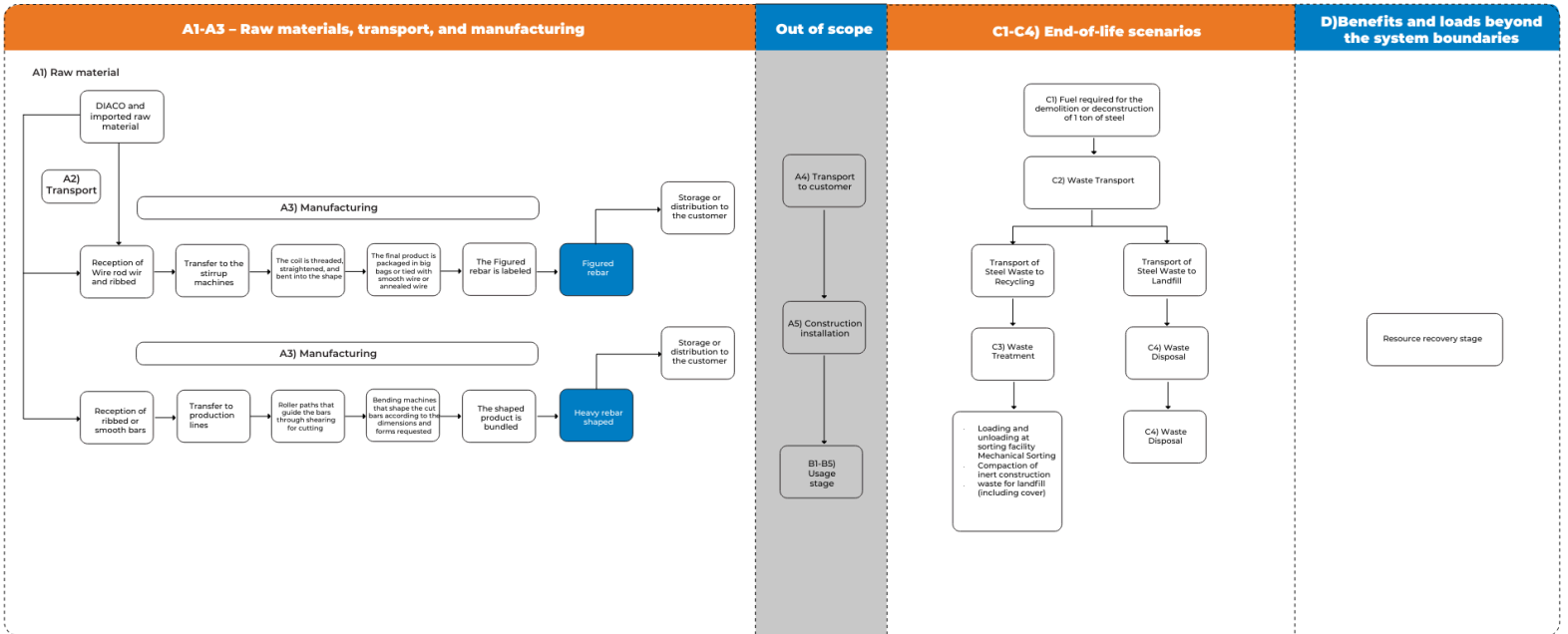
Type of electricity mix	Specific electricity mix as generated, or purchased from an electricity supplier, demonstrated by a contractual instrument	
Energy sources	Hydro	58.1%
	Wind	0%
	Solar	3.67%
	Biomass	2.59%
	Geothermal	0%
	Waste	0%
	Nuclear	0%
	Natural gas	19.02%
	Coal	13.29%
	Oil	3.34%
	Peat	0%
Other	0%	
Climate impact (GWP-GHG):	0.39 kg CO ₂ eq./kWh	

SYSTEM BOUNDARY

Description of the System boundary	a) Cradle to gate with modules C1-C4 and module D (A1-A3 + C + D).
Excluded modules	Yes, there is an excluded module, or there are excluded modules
Justification for omission of modules	A4, A5 and B module: Optional

	Product stage			Construction process stage		Use stage							End of life stage				Beyond product life cycle
	Raw material supply	Transport	Manufacturing	Transport to site	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	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	Global	Global	Colombia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Colombia	Colombia	Colombia	Colombia	Colombia
Share of specific data	99.31%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	29.5%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	54.19%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Disclaimer	The share of specific/primary data and both variations (products and sites) refer to GWP-GHG results only.																

Process flow diagram(s) related images



DEFAULT SCENARIO

Name of the default scenario	End of life default scenario
Description of the default scenario	In this study, the end-of-life treatment was modelled based on a scenario in which 80% of the steel is recovered and recycled, while the remaining 20% is sent to landfill.

Module C: End-of-life

Explanatory name of the default scenario in module C	Recycling and landfill
Brief description of the default scenario in module C	Demolition of 1 tonne of steel, 80% steel recycled and 20% landfill disposed

Module C information	Value	Unit
C1)Demolition/deconstruction of steel	1.1	kWh
C2)Transport (for products/materials not to be incinerated)	80	km
C3)Loading and unloading at sorting facility	1.8	kWh
C3)Mechanical sorting	2.2	kWh
C3)Fragging of steel	7.4	kWh
C4)Compacting of inert construction waste for landfills (including backfilling)	1.6	kWh

Module D: Beyond product life cycle

Explanatory name of the default scenario in module D	Resource recovery stage
Brief description of the default scenario in module D	Benefits from substituting virgin steel with recycled scrap, avoiding related impacts

Module D information	Value	Unit
Amount of scrap content existing the system	80	%
Amount of recycled material contained in the product beyond the system boundary	93	%

ADDITIONAL SCENARIO 1

Name of the additional scenario	End-of-life scenario: 100% recycling
Description of the additional scenario	In this alternative scenario, end-of-life treatment was modelled based on a scenario in which 100% of the steel is recovered and recycled.

Module C: End-of-life

Description of the additional scenario in module C	In this alternative scenario, end-of-life treatment was modelled based on a scenario in which 100% of the steel is recovered and recycled.
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Module D: Beyond product life cycle

Description of the additional scenario in module D	Module D does not present an alternative scenario.
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ADDITIONAL SCENARIO 2

Name of the additional scenario	End-of-life scenario: 100% landfill.
Description of the additional scenario	In this alternative scenario, end-of-life treatment was modelled based on a scenario in which 100% of the steel is disposed of in a landfill.

Module C: End-of-life

Description of the additional scenario in module C	In this scenario, end-of-life treatment was modelled based on a scenario in which 100% of the steel is disposed of in a landfill.
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Module D: Beyond product life cycle

Description of the additional scenario in module D	Module D does not present an alternative scenario.
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ENVIRONMENTAL PERFORMANCE

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.

Mandatory environmental performance indicators according to EN 15804

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	Variation ²
Climate change - total	GWP-total	kg CO ₂ eq.	6.27E+2	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.72E-1	6.34E+0	3.19E+0	1.08E-1	-2.33E+2	17.00%
Climate change - fossil	GWP-fossil	kg CO ₂ eq.	5.91E+2	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.72E-1	6.34E+0	3.11E+0	1.08E-1	-2.33E+2	25.00%
Climate change - biogenic	GWP-biogenic	kg CO ₂ eq.	2.10E+1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.60E-5	2.98E-4	4.86E-2	4.66E-6	-1.41E-2	4.00%
Climate change - land use and land-use change	GWP-luluc	kg CO ₂ eq.	1.46E+1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.28E-5	2.04E-4	3.30E-2	3.72E-6	-2.43E-2	4.00%
Ozone depletion	ODP	kg CFC-11 eq.	1.23E-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.85E-9	9.11E-8	4.69E-8	1.70E-9	-5.10E-7	66.00%
Acidification	AP	mol H ⁺ eq.	3.38E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.48E-3	2.30E-2	2.71E-2	1.01E-3	-7.33E-1	11.00%
Eutrophication aquatic freshwater	EP-freshwater	kg P eq.	3.95E-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.51E-7	1.52E-5	1.79E-5	1.02E-7	-7.70E-3	3.00%
Eutrophication aquatic marine	EP-marine	kg N eq.	1.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.63E-3	9.36E-3	1.15E-2	4.75E-4	-1.48E-1	8.00%
Eutrophication terrestrial	EP-terrestrial	mol N eq.	1.05E+1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.79E-2	1.03E-1	1.26E-1	5.21E-3	-1.73E+0	9.00%
Photochemical ozone formation	POCP	kg NMVOC eq.	3.27E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.33E-3	3.35E-2	3.78E-2	1.55E-3	-5.96E-1	11.00%
Depletion of abiotic resources - minerals and metals	ADP-minerals&metals ¹	kg Sb eq.	4.71E-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.55E-8	3.71E-7	1.14E-7	4.52E-9	-3.38E-5	3.00%
Depletion of abiotic resources - fossil fuels	ADP-fossil ¹	MJ, net calorific value	8.01E+3	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.90E+0	8.41E+1	4.06E+1	1.42E+0	-1.87E+3	21.00%
Water use	WDP ¹	m ³ world eq. deprived	7.52E+2	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.86E-3	7.62E-2	1.46E+0	1.12E-3	-1.42E+1	5.00%
Acronyms	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&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																	
General disclaimer	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/A1-A5 for services).																	
Disclaimer 1	The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator																	
Disclaimer 2	The maximum variation in results between the included products for modules A-C.																	

Additional mandatory environmental performance indicators

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change - GWP-GHG	GWP-GHG ¹	kg CO ₂ eq.	6.25E+2	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.72E-1	6.34E+0	3.18E+0	1.08E-1	-2.33E+2
Acronyms	GWP-GHG = Global warming potential greenhouse gas.																
General disclaimer	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/A1-A5 for services).																
Disclaimer 1	The GWP-GHG indicator is termed GWP-IOBC/GHG in the ILCD+EPD+ data format. The 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 ₂ is set to zero.																

Additional voluntary environmental performance indicators according to EN 15804

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter emissions	PM	Disease incidence	4.95E-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.98E-8	5.39E-7	6.76E-7	2.90E-8	-2.05E-5
Ionizing radiation - human health	IRP ¹	kBq U235 eq.	7.04E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.38E-4	5.74E-3	3.36E-3	1.27E-4	-4.99E-1
Eco-toxicity - freshwater	ETP-fw ²	CTUe	5.73E+3	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.69E-1	5.83E+0	1.85E+0	4.93E-2	-8.39E+3
Human toxicity - cancer effects	HTP-c ²	CTUh	9.36E-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.69E-10	5.25E-8	4.28E-9	1.07E-10	-5.02E-7
Human toxicity - non-cancer effects	HTP-nc ²	CTUh	1.88E-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.59E-11	5.40E-10	2.48E-10	7.54E-12	-2.39E-5
Land-use related impacts/soil quality	SQP ²	Dimensionless	5.99E+2	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.04E-2	3.36E-1	3.36E-1	3.02E-3	-2.42E+2
Acronyms	PM = Potential incidence of disease due to particulate matter emissions; IRP = Potential human exposure efficiency relative to U235; ETP-fw = Potential comparative toxic unit for ecosystems; HTP-c = Potential comparative toxic unit for humans; HTP-nc = Potential comparative toxic unit for humans; SQP = Potential soil quality index.																
General disclaimer	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/A1-A5 for services).																
Disclaimer 1	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.																
Disclaimer 2	The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.																

Resource use indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ, net calorific value	2.16E+3	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.10E-2	1.37E-1	7.82E+1	1.84E+1	-2.20E+1
PERM	MJ, net calorific value	9.22E+1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	-7.37E+1	-1.84E+1	0.00E+0
PERT	MJ, net calorific value	2.25E+3	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.10E-2	1.37E-1	4.46E+0	3.19E-3	-2.20E+1
PENRE	MJ, net calorific value	8.25E+3	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.20E+0	8.94E+1	3.26E+2	7.21E+1	-1.96E+3
PENRM	MJ, net calorific value	3.53E+2	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	-2.82E+2	-7.06E+1	0.00E+0
PENRT	MJ, net calorific value	8.61E+3	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.20E+0	8.94E+1	4.33E+1	1.51E+0	-1.96E+3
SM	kg	9.28E+2	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	MJ, net calorific value	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	MJ, net calorific value	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	m ³	1.99E+1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.54E-4	3.15E-3	3.57E-2	4.47E-5	-3.73E-1
Acronyms	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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water.															
General disclaimer	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/A1-A5 for services).															

Waste indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	3.97E-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.36E-5	5.79E-4	2.49E-4	9.77E-6	-2.49E-2
NHWD	kg	3.22E+1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.43E-4	3.54E-3	3.04E-3	4.16E-5	-1.44E+0
RWD	kg	4.33E-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.50E-7	2.97E-6	1.85E-6	7.28E-8	-3.17E-4
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed.															
General disclaimer	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/A1-A5 for services).															

Output flow indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
CRU	kg	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	kg	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	8.00E+2	0.00E+0	0.00E+0
MER	kg	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	MJ, net calorific value	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EET	MJ, net calorific value	0.00E+0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Acronyms	CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy.															
General disclaimer	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/A1-A5 for services).															

Results for additional scenarios for modules A4-C4

Additional scenario	End-of-life scenario: 100% recycling
Description of the scenario/method	In this alternative scenario, end-of-life treatment was modelled based on a scenario in which 100% of the steel is recovered and recycled, which is reported in C3.

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change - total	GWP-total	kg CO2 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.72E-1	6.34E+0	3.98E+0	0.00E+0	ND
Climate change - fossil	GWP-fossil	kg CO2 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.72E-1	6.34E+0	3.88E+0	0.00E+0	ND
Climate change - biogenic	GWP-biogenic	kg CO2 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.60E-5	2.98E-4	6.08E-2	0.00E+0	ND
Climate change - land use and land-use change	GWP-luluc	kg CO2 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.28E-5	2.04E-4	4.13E-2	0.00E+0	ND
Ozone depletion	ODP	kg CFC-11 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.85E-9	9.11E-8	5.86E-8	0.00E+0	ND
Acidification	AP	mol H+ eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.48E-3	2.30E-2	3.39E-2	0.00E+0	ND
Eutrophication aquatic freshwater	EP-freshwater	kg P eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.51E-7	1.52E-5	2.24E-5	0.00E+0	ND
Eutrophication aquatic marine	EP-marine	kg N eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.63E-3	9.36E-3	1.43E-2	0.00E+0	ND
Eutrophication terrestrial	EP-terrestrial	mol N eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.79E-2	1.03E-1	1.57E-1	0.00E+0	ND
Photochemical ozone formation	POCP	kg NMVOC eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.33E-3	3.35E-2	4.72E-2	0.00E+0	ND
Depletion of abiotic resources - minerals and metals	ADP-minerals&metals1	kg Sb eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.55E-8	3.71E-7	1.42E-7	0.00E+0	ND
Depletion of abiotic resources - fossil fuels	ADP-fossil1	MJ, net calorific value	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.90E+0	8.41E+1	5.07E+1	0.00E+0	ND
Water use	WDP1	m3 world eq. deprived	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.86E-3	7.62E-2	1.82E+0	0.00E+0	ND
Acronyms																	
Disclaimers																	
General disclaimer	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/A1-A5 for services).																

Results for additional scenarios for modules A4-C4

Additional scenario	End-of-life scenario: 100% landfill.
Description of the scenario/method	In this alternative scenario, end-of-life treatment was modelled based on a scenario in which 100% of the steel is disposed of in a landfill, which is reported in C4.

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change - total	GWP-total	kg CO2 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.72E-1	6.34E+0	0.00E+0	5.41E-1	ND
Climate change - fossil	GWP-fossil	kg CO2 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.72E-1	6.34E+0	0.00E+0	5.41E-1	ND
Climate change - biogenic	GWP-biogenic	kg CO2 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.60E-5	2.98E-4	0.00E+0	2.33E-5	ND
Climate change - land use and land-use change	GWP-luluc	kg CO2 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.28E-5	2.04E-4	0.00E+0	1.86E-5	ND
Ozone depletion	ODP	kg CFC-11 eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.85E-9	9.11E-8	0.00E+0	8.51E-9	ND
Acidification	AP	mol H+ eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.48E-3	2.30E-2	0.00E+0	5.06E-3	ND
Eutrophication aquatic freshwater	EP-freshwater	kg P eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.51E-7	1.52E-5	0.00E+0	5.11E-7	ND
Eutrophication aquatic marine	EP-marine	kg N eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.63E-3	9.36E-3	0.00E+0	2.38E-3	ND
Eutrophication terrestrial	EP-terrestrial	mol N eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.79E-2	1.03E-1	0.00E+0	2.61E-2	ND
Photochemical ozone formation	POCP	kg NMVOC eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.33E-3	3.35E-2	0.00E+0	7.75E-3	ND
Depletion of abiotic resources - minerals and metals	ADP-minerals&metals1	kg Sb eq.	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.55E-8	3.71E-7	0.00E+0	2.26E-8	ND
Depletion of abiotic resources - fossil fuels	ADP-fossil1	MJ, net calorific value	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.90E+0	8.41E+1	0.00E+0	7.12E+0	ND
Water use	WDP1	m3 world eq. deprived	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.86E-3	7.62E-2	0.00E+0	5.62E-3	ND
Acronyms																	
Disclaimers																	
General disclaimer	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/A1-A5 for services).																

ADDITIONAL ENVIRONMENTAL INFORMATION

DIACO is certified under ISO 14001:2015 and ISO 9001:2015.

Product variation information

This EPD covers multiple products included within the same product family. The table below presents the variation in environmental results among products for each impact category, considering total results from modules A1 through C4. Declared results in this EPD correspond to representative average values.

Basic impact categories (variation versus representative value)

<i>Impact category</i>	<i>Min / Max</i>
Global Warming Potential – Total (GWP-total):	+17% / -13%
Global Warming Potential – Fossil (GWP-fossil):	+8% / -25%
Global Warming Potential – Biogenic (GWP-biogenic):	+1% / -4%
Global Warming Potential – Land use and land use change (GWP-luluc):	+1% / -4%
Ozone Depletion Potential (ODP):	+22% / -66%
Acidification Potential (AP):	+4% / -11%
Eutrophication Potential – Freshwater (EP-freshwater):	+1% / -3%
Eutrophication Potential – Marine (EP-marine):	+3% / -8%
Eutrophication Potential – Terrestrial (EP-terrestrial):	+3% / -9%
Photochemical Ozone Creation Potential (POCP):	+4% / -11%
Abiotic Depletion Potential for Minerals and Metals (ADPE):	+3% / -1%
Abiotic Depletion Potential for Fossil Resources (ADPF):	+7% / -21%
Water Deprivation Potential (WDP):	+2% / -5%

INFORMATION RELATED TO EPDS OF MULTIPLE PRODUCTS

Description of how the averages have been determined	The average value was determined by considering the included products and applying a weighting based on their respective production volumes.
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ABBREVIATIONS

CADIS. Centre for Life Cycle Assessment and Sustainable Design

CO₂. Carbon dioxide

EPD. Environmental Product Declaration

GPI. General Programme Instructions

GWP. Global Warming Potential

LCA. Life Cycle Assessment

PCR. Product Category Rules

REFERENCES

- Erlandsson M, P. D. (2015). Klimatpåverkan för byggnader med olika energiprestanda. Underlagsrapport till kontrollstation. IVL Swedish Environmental Research Institute report number U5176.
- European Committee for Standardization. (2019). Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction products (EN 15804:2012+A2:2019). CEN.
- Frischknecht Rolf. (2007). Implementation of Life Cycle Impact Assessment Methods. Ecoinvent report No. 3.
- Huijbregts, M. A., Steinmann, Z. J., Elshout, P. M., Stam, G., Verones, F., Vieira, M. D., van Zelm, R. (2017). ReCiPe 2016 v1.1. harmonized life cycle impact assessment method at midpoint and endpoint level Report I: Characterization. Bilthoven, The Netherlands.
- ISO 14020. (2000). Environmental Labels and Declarations — General Principles.
- ISO 14025. (2006). Type III Environmental Declarations.
- ISO 14044. (2006). Environmental management - Life cycle assessment - Requirements and guidelines. S.
- Periódico UNAL. (2024, May 28). Colombia is losing its steel in the scrap war. National University of Colombia. <https://periodico.unal.edu.co/articulos/colombia-esta-perdiendo-su-acero-en-la-guerra-por-la-chatarra>.
- PRé Consultants. (2010). Data base manual. Methods library. Retrieved abril 20, 2010, from <http://www.pre.nl/download/manuals/DatabaseManualMethods.pdf>
- PRé Sustainability. (2021). SimaPro database manual. Methods library.
- The International EPD System. (2025). General Programme Instructions for The International EPD System. Version 5.0.1 Published on 2025-02-27.
- PCR 2019:14 Construction products, version 2.0.1. (2025). Retrieved from <https://www.environdec.com/>.
- Zaragoza A. Dulce; Ana L. Tecorralco; Coto A. Gabriel (2025), Life Cycle Assessment of the steel products manufactured by DIACO S.A, Fabricated steel reinforcing bars manufactured by DIACO, Center for Life Cycle Assessment and Sustainable Design – CADIS.

VERSION HISTORY

- Version 001, 2026-03-18
Original version of the EPD.
- Version 002, 2026-04-14
Corrected editorial mistakes.

