ENVIRONMENTAL PRODUCT DECLARATION



SPECIAL STEEL - SBQ TRT BARS

Călărași plant

EPD Registration n°: EPD-IES-0025018
CPC code: 41
Based on PCR: PCR 2019:14 Construction products v 2.0.1

Programme: The International EPD System www.environdec.com
Program Operator: EPD international AB www.environdec.com

Environmental Product Declaration in accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021

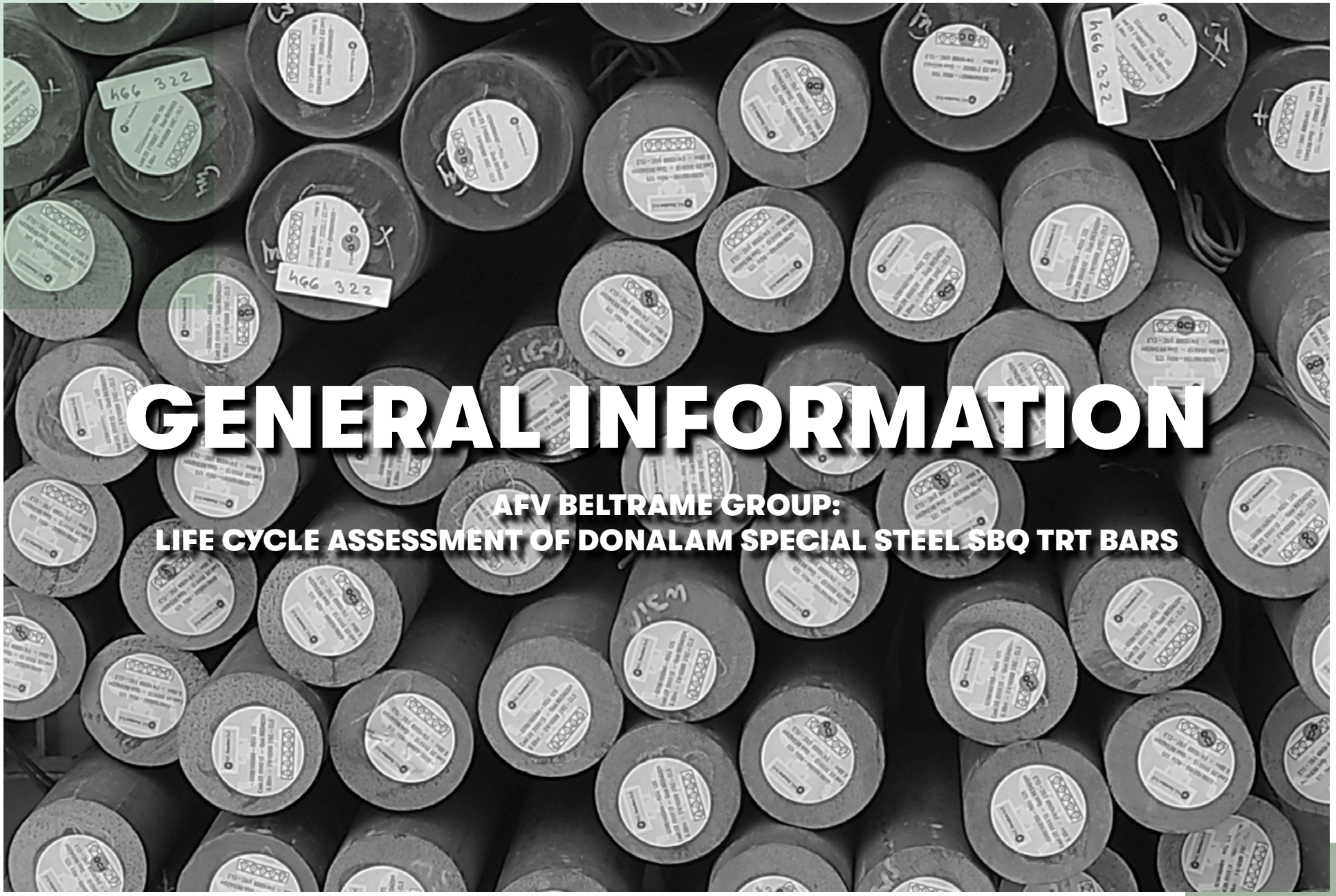
Issue date: 2025-05-09
Revision date: 2026-09-17
Validity date: 2030-05-08

EPD INTERNATIONAL EPD SYSTEM

ECO PLATFORM EPD VERIFIED

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

AFV BELTRAME GROUP



GENERAL INFORMATION

AFV BELTRAME GROUP:
LIFE CYCLE ASSESSMENT OF DONALAM SPECIAL STEEL SBQ TRT BARS

PROGRAMME INFORMATION

EPD
INTERNATIONAL EPD SYSTEM

EPD REFERENCES

PROGRAM OPERATOR: EPD INTERNATIONAL AB, BOX 21060,
SE-100 31 STOCKHOLM, SWEDEN; info@environdec.com

INDEPENDENT VERIFICATION

ISO standard ISO 21930:2017 and CEN standard EN 15804 served as the core PCR
PCR 2019:14 Construction products, Version 2.0.1
PCR review was conducted by: The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepciòn, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.

Independent verification of the declaration and data, according to EN ISO 14025 : 2010

Third party verifier: Rina Service S.p.A. Via Corsica 12, Genova - Italy. ACCREDIA: Registration number 00005VV

☐ EPD process certification (internal) ☑ EPD verification (external)

Accredited by: Accredia
Procedure for follow-up during EPD validity involves third party verified

☑ Yes ☐ No

1. EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, 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; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

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

Life Cycle Assessment of Donalam Călărași Special Steel TRT SBQ Bars.

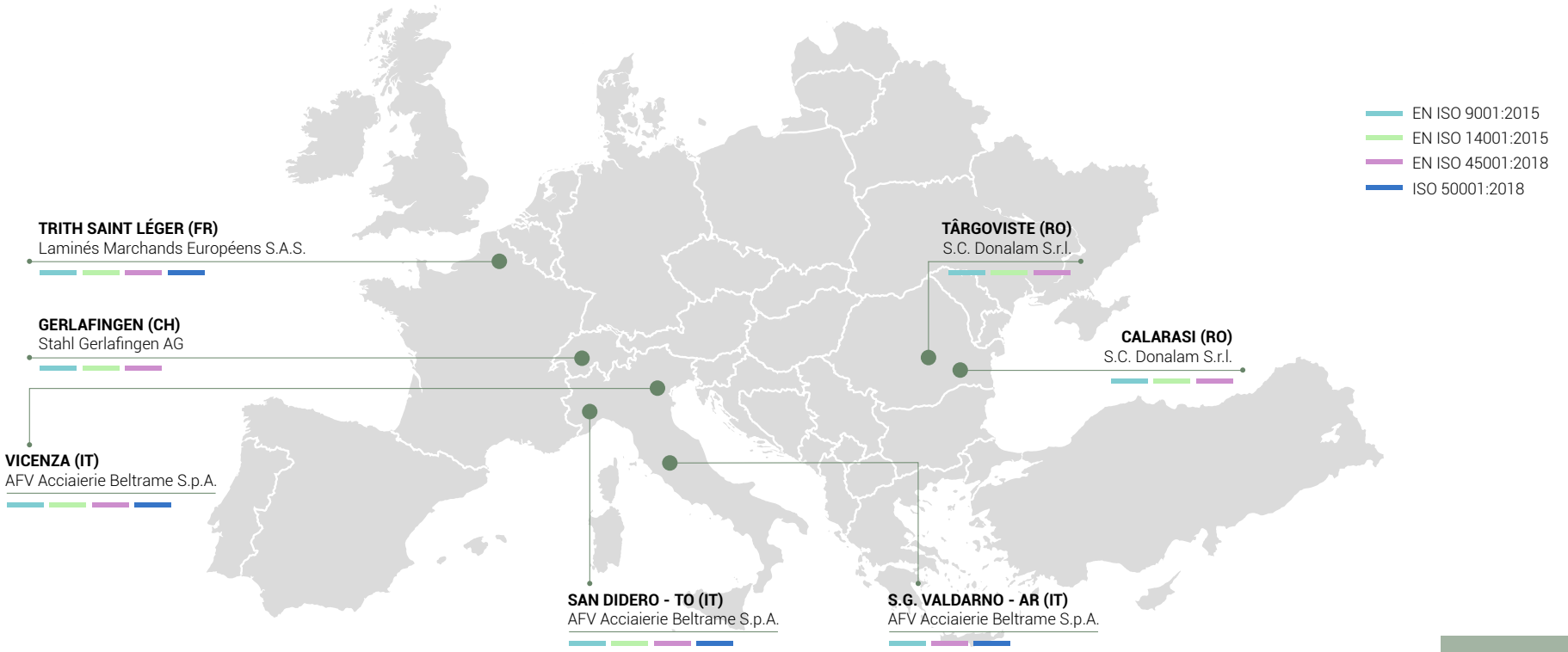


THE COMPANY

The AFV Beltrame Group has operated in the steel industry for over a century, producing rolled sections for use in construction, shipyards, and excavators.
The facilities, which have a production capacity of approximately **3,2 million tons,** include four electric furnaces and twelve rolling mills. These are scattered in seven plants located in **Italy, France, Switzerland, and Romania.**

Their geographical distribution is very advantageous given the areas where the products are consumed and those where raw materials are purchased.
The AFV Beltrame Group is commercially present in all European markets as well as in the Mediterranean region through shares in local companies, agents, or the internal sales force.

All employees, amounting to approximately **2,500 people,** are strongly committed and motivated to satisfy the customers' needs through constant improvements in production, organization and level of service. In order to support the principles in the code of ethics and the policy regarding **Quality, Health and Safety, Environment** and **Energy** (QHSEE), all production plants have adopted an Integrated Management System.



DETAIL PRODUCT DESCRIPTION

This EPD refers to special steel - SBQ bars, with thermal treatment, produced at Calarasi (RO) plant, with rolling mill process, starting from steel cast blooms acquired by external supplier varying steel grades, e.g. S355, C45, 42CrMo4 etc. This EPD covers 100,538 tons of SBQ bars production.

DECLARED UNIT (D.U.) The declared unit is 1 ton (1 000 kg) of special steel - SBQ bar.

PRODUCT DIMENSIONS AND SPECIFIC STANDARDS:

- EN ISO 683-1:2018
- EN 10025-2:2005
- EN ISO 683-2:2018
- Attestation of conformity system 2+ (CE marking)

PRODUCT	STANDARD	DIMENSIONS (mm)		THICKNESS (mm)	
		from	to	from	to
Round bars	EN 10060:2003	73	350	-	-
Square bars	EN 10059:2003	-	-	100	250

CONTACTS

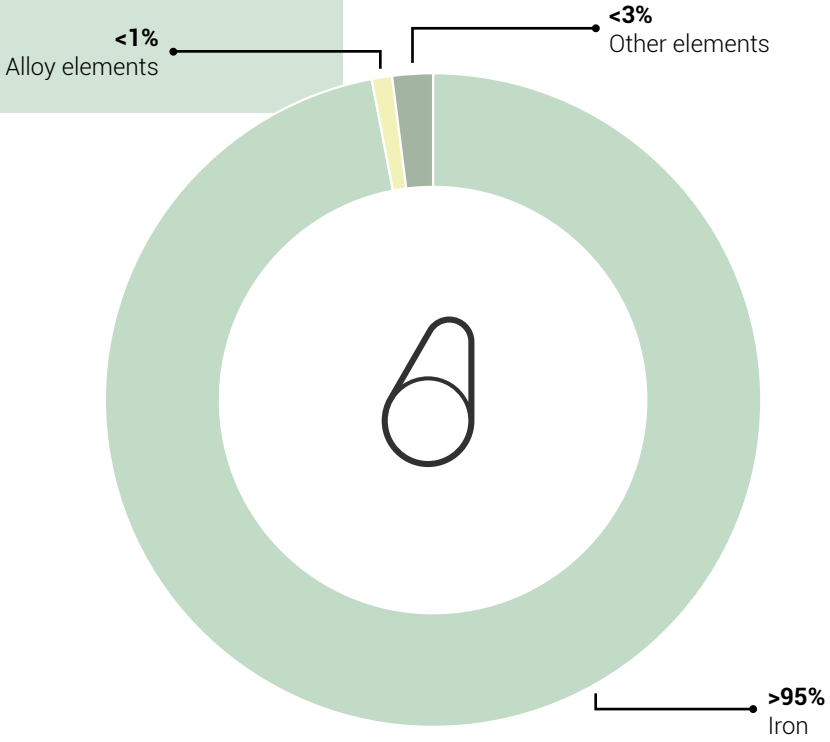
EPD OWNER: Donalam SRL, Șoseaua Găești nr. 9-11, Târgoviște - Romania
Giovan Battista Landra (gb.landra@beltrame-group.com), Phone: +39 0444 967245
Andrea Costa (a.costa@beltrame-group.com), Phone: +39 0444 967367
Elena Aurelia Toma (e.colceag@beltrame-group.com), Phone: +40 727375635
Technical support to Beltrame Group was provided by Alperia Green Future S.r.l. (Corso Vittorio Emanuele II, 36 - Soave).

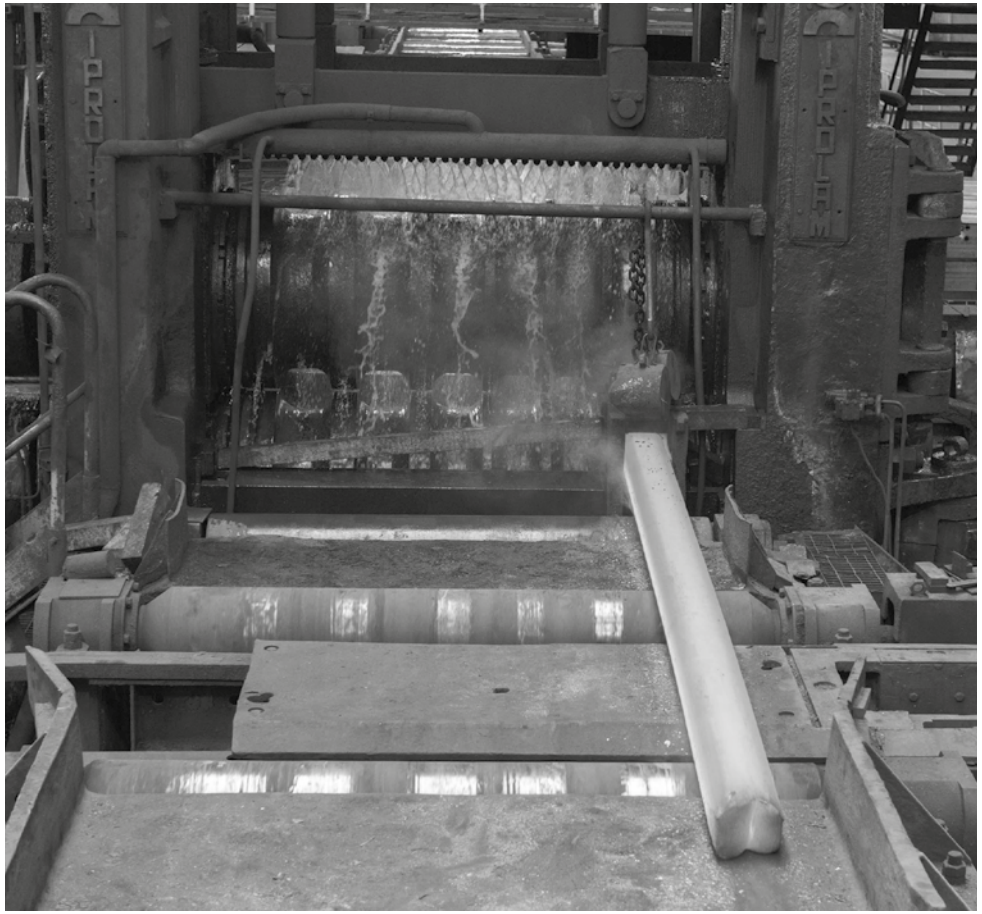
Life Cycle Assessment of Donalam Călărași Special Steel TRT SBQ Bars.

CONTENT DECLARATION

EPD
INTERNATIONAL EPD SYSTEM

The product here considered has the following composition (in average):





No packaging is required for functional unit delivery and distribution.
Billets purchased and processed at the Calarasi plant are sourced entirely from third-party suppliers so the data of post-consumer material is not available The recycled content relative to the finished product shown in the "Additional information" section refers to an average of what is declared by suppliers

Life Cycle Assessment of Donalam Călărași Special Steel TRT SBQ Bars.

SCOPE AND TYPE OF EPD®

EPD INTERNATIONAL EPD SYSTEM

THE APPROACH USED IN THIS EPD IS “CRADLE TO GATE WITH OPTIONS” ONE

The detailed environmental performance (in terms of potential environmental impacts, use of resources and waste generation) is presented for the three phases Upstream, Core and Downstream and related sub-phases (A1-A2-A3-A4-C1-C2-C3-C4-D). Construction installation (A5) and use phase (B1-B7) are modules not declared (ND). The electricity mix used for Donalam-Calarasi plant is modeled as a mix of electricity taken from the grid with warranty certificates and some without, resulting in a GWP-GHG of 0.314 kg CO_2e/kWh

TYPE OF EPD: multiple products.
EPD covers multiple products with the same dimensional range but different steel grade (listed in page 5). The EPD is based on the average results of the product Group.

REPORT LCA: Life Cycle Assessment (LCA) applied to Special steel - SBQ bars

REFERENCE PERIOD: 2025

GEOGRAPHICAL SCOPE OF THE EPD: World according to sales market conditions.

SOFTWARE: SimaPro v 10.2.0.3 (www.pre.nl)

MAIN DATABASE: EF 3.1 normalization and weighting set: Ecoinvent 3.11
Environmental declarations published within the same product category, though originating from different programs, may not be comparable.

TABLE OF MODULES

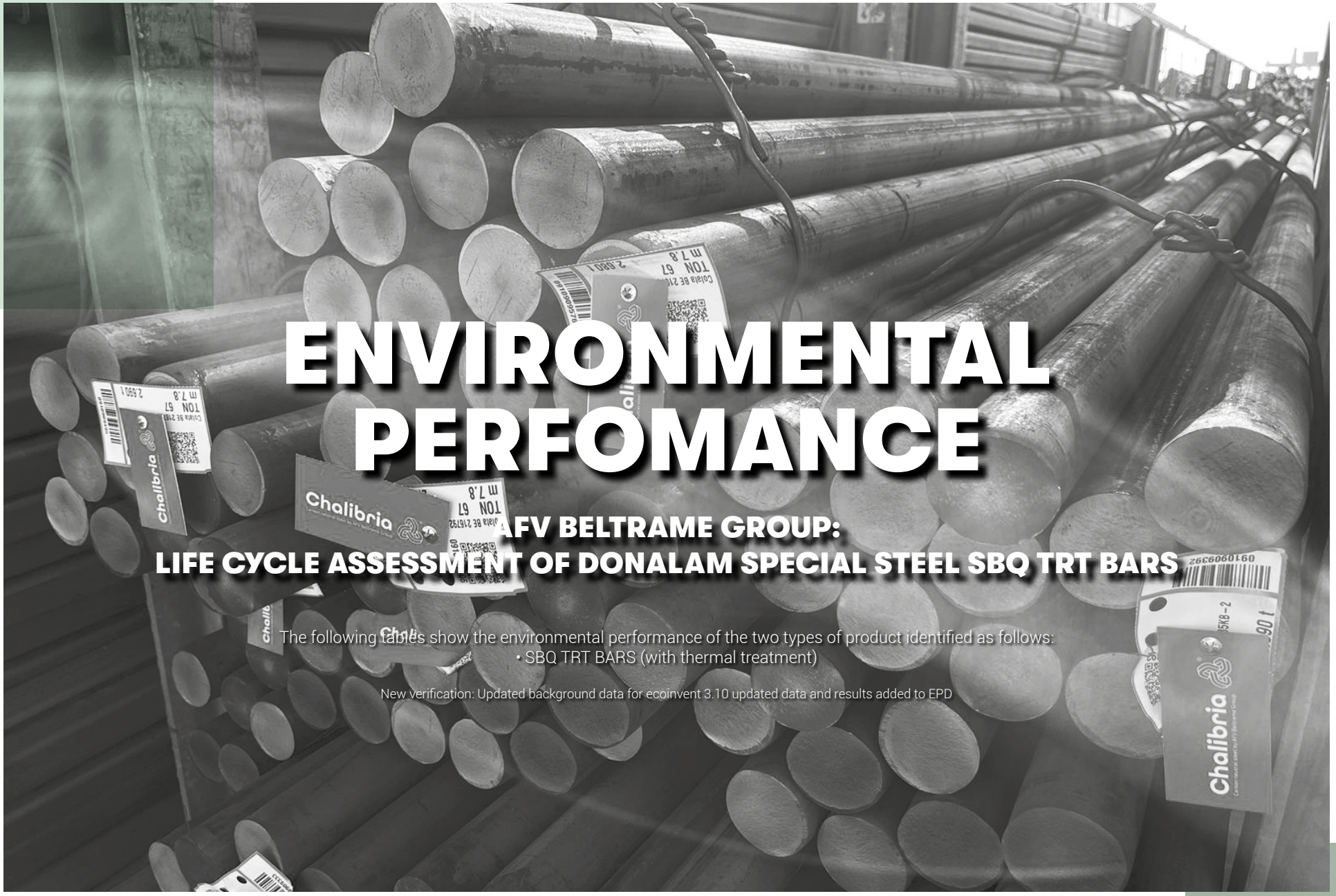
	PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
	Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational 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
Module declared	x	x	x	x	ND	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x
Geography	RO	RO	RO	GLO	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific data used	2%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation-products	<10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation-sites	NOT RILEVANT			-	-	-	-	-	-	-	-	-	-	-	-	-	-

SCOPE AND TYPE OF EPD

The following table shows the details of the determination of primary data.
According to PCR, the declaration of share of primary data is required only for the total GWP-GHG results of modules A1-A3.

PROCESS	SOURCE TYPE	SOURCE	REFERENCE YEAR	DATA CATEGORY	SHARE OF PRIMARY DATA, OF GWP-GHG RESULTS FOR A1-A3
Manufacturing of product	Database	Ecoinvent v3.11	2025	Primary data	0.00%
Electricity used in manufacturing products	Collected data	Ecoinvent v3.11	2025	Primary data	0.51%
Transportation	Collected data	Ecoinvent v3.11	2025	Primary data	3.08%
Other processes	Database	Ecoinvent v3.11	2025	Primary data	0.00%
Total share of primary data, of GWP-GHG results for A1-A3					**4%**

The quality level of the study data was calculated in accordance with the requirements of UNI EN 15804, by adopting the weighted average of three quality parameters: Technological Representativeness (TER), Geographic Representativeness (GR), and Temporal Representativeness (TIR). The final average obtained by each category is always equal to or higher than 4/5, corresponding to a "Good" quality level.



ENVIRONMENTAL PERFOMANCE

AFV BELTRAME GROUP:
LIFE CYCLE ASSESSMENT OF DONALAM SPECIAL STEEL SBQ TRT BARS

The following tables show the environmental performance of the two types of product identified as follows:
- SBQ TRT BARS (with thermal treatment)

New verification: Updated background data for ecoinvent 3.10 updated data and results added to EPD

AFV BELTRAME GROUP

ENVIRONMENTAL PERFOMANCE

If module C is included in the EPD, the results of modules A1-A3 should not be considered independently. To ensure a complete and accurate assessment of environmental impacts, the results of module C must also be taken into account. 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.

EPD INTERNATIONAL EPD SYSTEM

GWP: Global warming potential, total;
GWP,f: Global warming potential, fossil;
GWP,b: Global warming potential, biogenic;
GWP,luluc: Global warming potential, land use & land use change;
GWP,ghg: Global warming potential, excluding biogenic uptake emission and storage.

ODP: Ozone depletion potential;
AP: Acidification Potential;
EP,f: Eutrophication potential, freshwater;
EP,m: Eutrophication potential, marine;
EP,t: Eutrophication potential, terrestrial;
POCP: Photochemical ozone creation potential;

ADPE: Abiotic depletion potential minerals & metals*;
ADPF: Abiotic depletion potential fossil fuels*;
WDP: Water use deprivation potential*.

*: The results of these environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ENVIRONMENTAL IMPACTS PER DECLARED UNIT

Potential environmental impacts	UNITS / D.U.	UPSTREAM	CORE			DOWNSTREAM					D
		A1	A2	A3	A1-A3 TOTAL	A4	C1	C2	C3	C4	
GWP [a]	kg CO_2 eq	1.02E+03	2.05E+01	9.64E+01	1.13E+03	1.45E+02	3.99E-01	2.48E+01	2.55E+00	4.90E-01	-5.49E+02
GWP,f	kg CO_2 eq	1.01E+03	2.04E+01	9.72E+01	1.13E+03	1.45E+02	3.99E-01	2.47E+01	2.55E+00	4.87E-01	-5.48E+02
GWP,b	kg CO_2 eq	5.43E+00	8.58E-02	-7.67E-01	4.75E+00	9.57E-02	8.07E-05	1.70E-02	5.16E-04	2.33E-03	-7.94E-01
GWP,luluc [b]	kg CO_2 eq	1.92E+00	2.19E-02	2.12E-02	1.96E+00	5.44E-02	4.08E-05	8.19E-03	2.61E-04	1.22E-04	-2.44E-01
GWP,ghg [c]	kg CO_2 eq	1.01E+03	2.04E+01	9.72E+01	1.13E+03	1.45E+02	3.99E-01	2.47E+01	2.55E+00	4.87E-01	-5.48E+02
ODP	kg CFC11 eq	6.72E-06	2.90E-07	2.95E-06	9.95E-06	3.28E-06	5.92E-09	5.40E-07	3.78E-08	1.64E-08	-2.93E-06
AP	mol H+ eq	4.83E+00	3.77E-01	2.19E-01	5.43E+00	3.53E-01	3.56E-03	7.94E-02	2.28E-02	5.49E-03	-2.24E+00
EP,f	kg P eq	6.05E-01	4.06E-03	1.92E-02	6.28E-01	1.07E-02	1.28E-05	1.69E-03	8.21E-05	8.38E-04	-3.75E-01
EP,m	kg N eq	1.04E+00	8.68E-02	7.23E-02	1.20E+00	9.28E-02	1.66E-03	2.67E-02	1.06E-02	1.37E-03	-4.95E-01
EP,t	mol N eq	1.03E+01	9.59E-01	4.65E-01	1.17E+01	1.00E+00	1.82E-02	2.91E-01	1.16E-01	1.47E-02	-5.30E+00
POCP	kg NMVOC eq	3.31E+00	2.73E-01	2.89E-01	3.87E+00	5.89E-01	5.43E-03	1.20E-01	3.47E-02	5.34E-03	-1.78E+00
ADPE [d] [e]	kg Sb eq	5.28E-03	4.27E-05	2.69E-04	5.59E-03	4.22E-04	1.42E-07	8.34E-05	9.09E-07	8.21E-07	-4.98E-03
ADPF [d]	MJ	1.06E+04	2.80E+02	1.80E+03	1.26E+04	2.20E+03	5.19E+00	3.51E+02	3.32E+01	1.15E+01	-5.73E+03
WDP*	m^3 world eq.deprived	3.96E+02	1.70E+00	1.45E+01	4.13E+02	1.00E+01	1.11E-02	1.36E+00	7.09E-02	0.00E+00	-1.24E+02

Additional environmental impact indicators are computed in the LCA report but not reported in the EPD.
(a) The total global warming potential (GWP-total) is the sum (see C.2) of GWP-fossil, GWP-biogenic, GWP-luluc.
(b) It is permitted to omit GWP-luluc as separate information if its contribution is <5 % of GWP-total over the declared modules excluding module D.
(c) The GWP-GHG indicator is identical to GWP-total except that the characterisation factor (CF) for biogenic CO_2 is set to zero.
(d) The abiotic depletion potential is calculated and declared in two different indicators: ADP-minerals&metals include all non-renewable, abiotic material resources (i.e. excepting fossil resources); ADP-fossil include all fossil resources and includes uranium.
(e) Ultimate reserve model of the ADP-minerals&metals model.

Life Cycle Assessment of Donalam Călărași Special Steel TRT SBQ Bars.

ENVIRONMENTAL PERFOMANCE

EPD INTERNATIONAL EPD SYSTEM

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 raw materials;
RSF: Use of renewable secondary fuels;
NRSF: Use of non-renewable secondary fuels;
FW: Use of net fresh water.

ENVIRONMENTAL IMPACTS PER DECLARED UNIT

Potential environmental impacts	UNITS / D.U.	UPSTREAM	CORE			DOWNSTREAM					D
		A1	A2	A3	A1-A3 TOTAL	A4	C1	C2	C3	C4	
PERE	MJ	1.60E+03	1.75E+01	2.72E+02	1.89E+03	3.36E+01	3.18E-02	5.54E+00	2.03E-01	2.15E-01	-6.25E+02
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-0.00E+00
PERT	MJ	1.60E+03	1.75E+01	2.72E+02	1.89E+03	3.36E+01	3.18E-02	5.54E+00	2.03E-01	2.15E-01	-6.25E+02
PENRE	MJ	7.47E+02	8.40E+00	1.21E+02	8.76E+02	1.86E+01	1.83E-02	3.04E+00	8.14E-01	1.36E-01	-5.73E+03
PENRM	MJ	6.97E-01	0.00E+00	0.00E+00	6.97E-01	0.00E+00	0.00E+00	0.00E+00	-6.97E-01	0.00E+00	-0.00E+00
PENRT	MJ	7.48E+02	8.40E+00	1.21E+02	8.77E+02	1.86E+01	1.83E-02	3.04E+00	1.17E-01	1.36E-01	-5.73E+03
SM	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-0.00E+00
FW	m^3	1.06E+01	7.13E-02	1.12E+00	1.18E+01	3.08E-01	3.66E-04	4.38E-02	2.34E-03	-1.38E-01	-3.62E+00

*Totals may not correspond to the sum of the individual contributes due to approximations.

Life Cycle Assessment of Donalam Călărași Special Steel TRT SBQ Bars.

ENVIRONMENTAL PERFOMANCE

EPD INTERNATIONAL EPD SYSTEM

HWD: Hazardous waste disposed;
NHWD: Non-hazardous waste disposed;
RWD: Radioactive waste disposed;
CRU: Components for re-use;
MFR: Materials for recycling;
MER: Materials for energy recovery;
EE: Exported energy.

ENVIRONMENTAL IMPACTS PER DECLARED UNIT											
Potential environmental impacts	UNITS / D.U.	UPSTREAM	CORE			DOWNSTREAM					D
		A1	A2	A3	A1-A3 TOTAL	A4	C1	C2	C3	C4	
HWD	kg	5.11E-01	5.72E-03	1.24E-01	6.41E-01	6.27E-02	4.86E-05	8.85E-03	3.11E-04	5.17E-03	-6.41E-01
NHWD	kg	1.17E+02	3.44E+00	2.59E+01	1.46E+02	1.89E+02	3.50E-03	1.68E+01	2.24E-02	5.01E+01	-1.46E+02
RWD	kg	7.93E-03	4.90E-04	8.07E-03	1.65E-02	6.25E-04	5.43E-07	1.03E-04	3.47E-06	3.50E-06	-1.65E-02
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-0.00E+00
MFR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-0.00E+00
EE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-0.00E+00

ENVIRONMENTAL PERFOMANCE

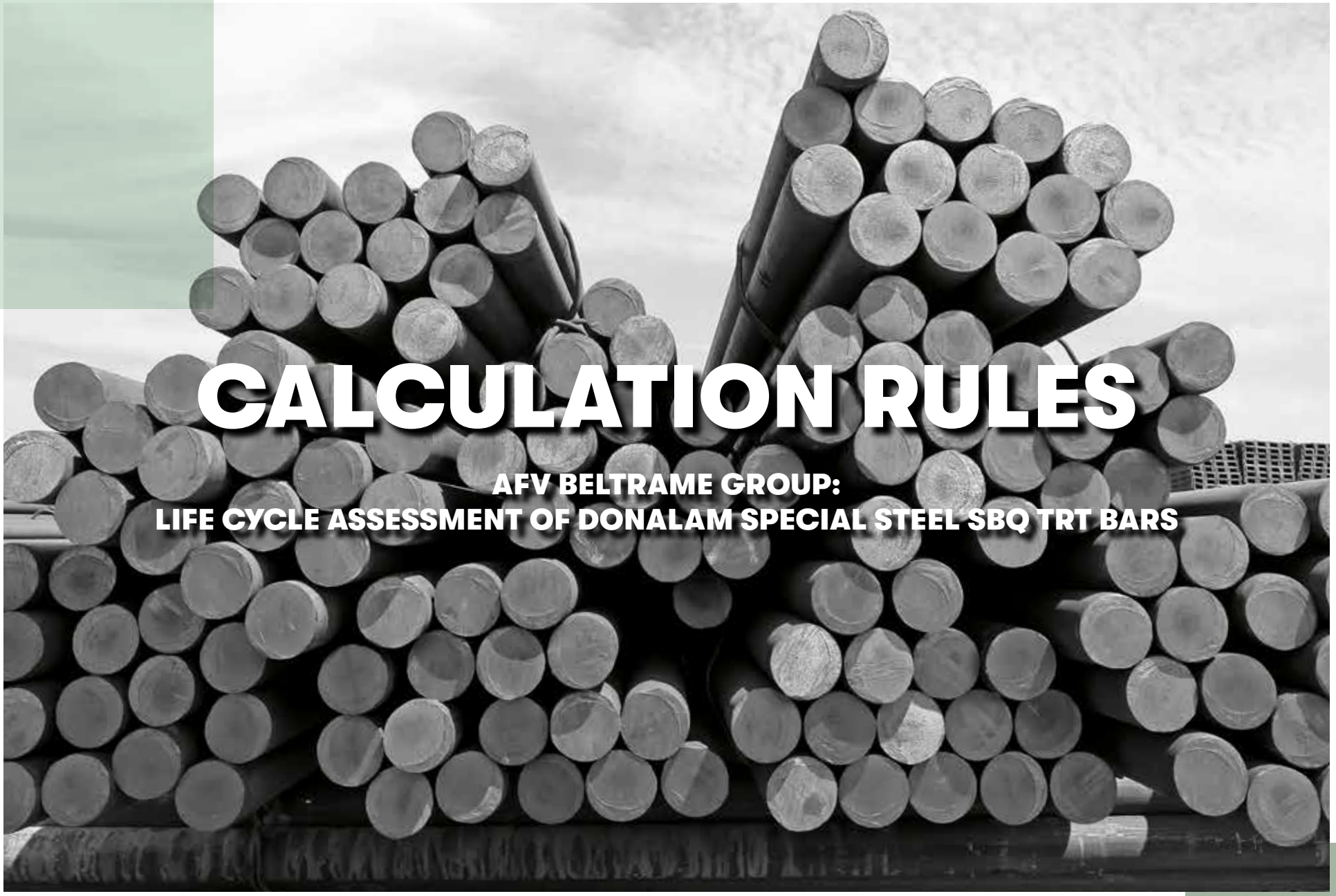
EPD INTERNATIONAL EPD SYSTEM

Different scenarios for module C3-C4.
As indicated by the PCR, are the impacts associated with different waste management scenarios:

- 100% recycling: C3 100% & C4 0%;
- 100% landfilling: C3 0% & C4 100%.

ENVIRONMENTAL IMPACTS PER DECLARED UNIT									
Potential environmental impacts	UNITS / D.U.	100% RECYCLING				100% LANDFILLING			
		C1	C2	C3	C4	C1	C2	C3	C4
GWP, total	kg CO_2 eq	3.99E-01	2.48E+01	2.68E+00	-	3.99E-01	2.48E+01	-	9.79E+00
GWP, fossil	kg CO_2 eq	3.99E-01	2.47E+01	2.68E+00	-	3.99E-01	2.47E+01	-	9.74E+00
GWP, biogenic	kg CO_2 eq	8.07E-05	1.70E-02	5.43E-04	-	8.07E-05	1.70E-02	-	4.65E-02
GWP, luluc	kg CO_2 eq	4.08E-05	8.19E-03	2.74E-04	-	4.08E-05	8.19E-03	-	2.45E-03
ODP	kg CFC11 eq	5.92E-09	5.40E-07	3.98E-08	-	5.92E-09	5.40E-07	-	3.28E-07
AP	mol H+ eq	3.56E-03	7.94E-02	2.40E-02	-	3.56E-03	7.94E-02	-	1.10E-01
EP, freshwater	kg P eq	1.28E-05	1.69E-03	8.64E-05	-	1.28E-05	1.69E-03	-	1.68E-02
EP, marine	kg N eq	1.66E-03	2.67E-02	1.12E-02	-	1.66E-03	2.67E-02	-	2.74E-02
EP, terrestrial	mol N eq	1.82E-02	2.91E-01	1.22E-01	-	1.82E-02	2.91E-01	-	2.95E-01
POCP	kg NMVOC eq	5.43E-03	1.20E-01	3.65E-02	-	5.43E-03	1.20E-01	-	1.07E-01
ADPE	kg Sb eq	1.42E-07	8.34E-05	9.57E-07	-	1.42E-07	8.34E-05	-	1.64E-05
ADPF	MJ	5.19E+00	3.51E+02	3.49E+01	-	5.19E+00	3.51E+02	-	2.30E+02
WDP	m^3 depriv.	1.11E-02	1.36E+00	7.46E-02	-	1.11E-02	1.36E+00	-	-1.28E+02

Life Cycle Assessment of Donalam Călărași Special Steel TRT SBQ Bars.



CALCULATION RULES

AFV BELTRAME GROUP:
LIFE CYCLE ASSESSMENT OF DONALAM SPECIAL STEEL SBQ TRT BARS

AFV BELTRAME GROUP

CALCULATION RULES

EPD
INTERNATIONAL EPD SYSTEM

METHODOLOGY

The environmental burden of the product has been calculated according to the GPI 5.0.1 issued by the International EPD System[1] (Cradle to gate with options).
This declaration is based on the application of Life Cycle Assessment (LCA) methodology to the whole life-cycle system.

Special steel - SBQ bars at plant level, was described by using specific data from manufacturing facility (Calarasi) for year 2025.

Customized LCA[2] questionnaires were used to gather in-depth information about all aspects of the production system (for example, raw materials specifications, pre treatments, process efficiencies, air emissions, waste management), ultimately providing a complete picture of the environmental burden of the system from raw materials supply (A1) to Transport (A2) and Manufacturing (A3). The use phase was not considered according to PCR, while transport to final destination (A4) and end-of-life phases (C1-C2-C3-C4-D) were considered. A distance of 130 km from operation plant and dismantling site was adopted. According to World Steel and EuroFer statistics a collection rate of 0,90 was adopted. Therefore, in nominal installation and operating conditions, no emissions to air nor to water shall occur.

Data quality has been assessed and validated during data collection process.
According to EN:15804 the applied cut-off criterion for mass and energy flows is 1%.

DECLARED UNIT

Bars are usually traded in mass so that the declared unit is **1 ton of special steel - SBQ bar.**



[1)] International EPD System is managed by EPD International AB (www.environdec.com).
[2)] The LCA methodology is standardized at international level by ISO 14040 and ISO 14044.

CALCULATION RULES

EPD INTERNATIONAL EPD SYSTEM

UPSTREAM — **CORE** — **DOWNSTREAM**





According to the PCR 2019:14 v. 1.3.4 the main activities are listed and divided in three subsystems: **UPSTREAM Process, CORE Module, DOWNSTREAM Process.**

UPSTREAM		CORE		DOWNSTREAM	
A1	Scrap pre-treatment	A2/ A3	Supplying transport	A4	Distribution
	Demolition		Billets production	C1	De-costruction/demolition
	Shearing		Hot rolling process	C2	Transport
	Crushing		Packaging	C3	Waste processing
	Material and energy ware production		Internal handing	C4	Disposal
	Other raw materials		Ancillary activities	D	Reuse-Recovery-Recycling potential
	Energy		Air emission		
			Water emission		
			Wastes		

Figure 1. Scheme of the considered system boundaries (including upstream, core and downstream main processes).

UPSTREAM PROCESS

EPD
INTERNATIONAL EPD SYSTEM

UPSTREAM — CORE — DOWNSTREAM

Scheme of the considered system boundaries (upstream processes).

Production of blooms.

Production of materials and ancillaries.



Specific secondary materials pre-treatments, where appropriate.

Generation of electricity and other fuels from primary and from secondary energy resources (excluding waste treatments).

A1 - Raw Materials Supply

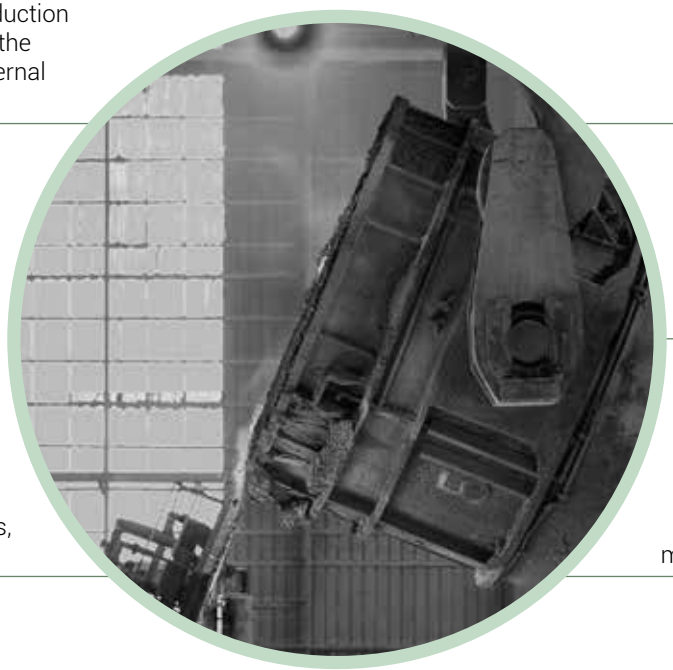
CORE PROCESS

UPSTREAM | **CORE** | DOWNSTREAM

Scheme of the considered system boundaries (core processes).

Raw materials transportation from production or collection facilities to the production plant and internal transportation.

Specific secondary materials pre-treatments, where appropriate.



Rolling mill, production, including utilities.

Packaging materials.

Treatment of waste generated from the manufacturing processes.

A2 - Transportation + A3 - Manufacturing

Life Cycle Assessment of Donalam Călărași Special Steel TRT SBQ Bars.

DOWNSTREAM PROCESS

EPD INTERNATIONAL EPD SYSTEM

UPSTREAM — CORE — **DOWNSTREAM**





A4
DISTRIBUTION

Transport to the customers. Distances estimated considering the transported quantities and the distances from Vicenza plant to the client. Final products are delivered to many national and international areas.



C1
DE-CONSTRUCTION DEMOLITION

Dismantling and demolition operations required to remove the product from the building. Initial onsite sorting of the materials is included as well.



C2
TRANSPORT

Transportation of the discarded product as part of the waste processing (to recycling site or to a final disposal site).



C3
WASTE PROCESSING

Waste processing, including collection of waste fraction from deconstruction and waste processing of material flows intended for reuse, recycling and energy recovery.



C4
DISPOSAL

Waste disposal including physical pre-treatment and management of the disposal site.



D
REUSE - RECOVERY - RECYCLING POTENTIAL

Environmental impacts associated to waste use after the investigated system (including recycling).

ADDITIONAL INFORMATION

EPD
INTERNATIONAL EPD SYSTEM

Main environmental characteristics of the considered plants are:

1. Prevention and reduction of air emissions:
   - operation of furnaces equipped with low-NOx burners to limit the formation of NOx during the combustion process;
   - the furnaces are equipped with temperature control zones and combustion systems with automatic recovery burners;
   - six-monthly or annual air pollution monitoring (in accordance with IPPC requirements) for all existing stacks on-site, with values falling within the limits set by current environmental legislation and BAT for reducing pollutant emissions;
   - continuous monitoring and adjustment of the air-fuel ratio to ensure efficient combustion and reduce emissions;
   - maintaining the integrity of the furnace and associated equipment to prevent fugitive emissions of gases and dust.

2. Minimisation of water consumption by using a recirculating water from wells, minimum 95% recirculated water. This is done by treatment system with filters, water's recirculation, decantation and cooling.

3. Waste management using the following techniques:
   - prevention of produced wastes by improving maintenance and operation, training and control;
   - proper collection and storage to facilitate recovery;
   - on-site recovery and recycling of wood waste coming from transports of raw materials (blooms), reused for the packaging of the delivered bars and sawdust waste that we recover for trees fertilization separation of the scale in the water treatment process and external recovery to authorized external companies;
   - external recovery for all ferrous metal wastes;
   - recovery of oils and packaging from cardboard and plastics by authorized external companies;
   - involving employees in waste management. Every year we implement environmental projects from employees which are awarded;
   - a small part of the total waste that cannot be recycled is intended for the final disposal of authorized external companies;
   - annual communication to customers related to the environment, health and safety and the sustainable life cycle of the product which can be recycled as scrap metal and steel.

4. Radioactivity monitoring of raw materials by means of detection equipment.

5. Maintaining of the environmental certification in accordance with the standard SR EN ISO 14001:2015.

6. The calculation of recycled content for Calarasi plant is carried out differently from other plants. It takes as reference the recycled content of billets and blooms that are purchased from external suppliers, each of which declares the content of its own product. By averaging the single recycled content on the amount purchased, the overall recycled content is obtained. For 2025, the recycled content for Călărași plant was 70,3%.



Life Cycle Assessment of Donalam Călărași Special Steel TRT SBQ Bars.

REFERENCES

- **EN 15804:2012+A2:2019**
- **ISO 14040:2021**
- **ISO 14044:2021**
- **Life Cycle Assessment (LCA) of reinforced steel rebar**
- **General Programme Instructions, 5.0.1**
- **PCR 2019:14 - Construction products - v 2.0.1**
- **Versions history**
  Differences versus previous versions
  2025-05-09 original version of EPD.
  Revision:
  2026-09-17 an increase of 10% or more in the aggregated results over included life-cycle stages.





AFV BELTRAME GROUP