



# ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025:2006 for:

## SPECIAL STEEL BILLETS

from Acciaierie di Calvisano S.p.A.



**Programme:**

The International EPD® System,  
[www.environdec.com](http://www.environdec.com)

**Programme operator:**

EPD International AB

**Valid until:**

2030-01-28

**Publication date:**

2025-01-29

**EPD registration number:**

EPD-IES-0018710

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](http://www.environdec.com)

# GENERAL INFORMATION

## PROGRAMME INFORMATION

<b>Programme:</b>	The International EPD® System
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
<b>Website:</b>	<a href="http://www.environdec.com">www.environdec.com</a>
<b>E-mail:</b>	<a href="mailto:info@environdec.com">info@environdec.com</a>

### Accountabilities for PCR, LCA and independent, third-party verification

#### PRODUCT CATEGORY RULES (PCR)

PCR: 2015:03, versione 2.1.1, 'International EPD® System  
"Basic iron or steel products & special steels, except construction steel products"

PCR review was conducted by: Gorka Benito Alonso, IK INGENIERIA, [g.benito@ik-ingenieria.com](mailto:g.benito@ik-ingenieria.com)

#### LIFE CYCLE ASSESSMENT (LCA)

LCA accountability: Aequilibria S.r.l. - SB

#### THIRD-PARTY VERIFICATION

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

EPD verification by accredited certification body

Third-party verification: ICMQ Spa is an approved certification body accountable for the third-party verification

**The certification body is accredited by: Accredia**

Procedure for follow-up of data during EPD validity involves third party verifier:

Yes  No

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

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.



## COMPANY INFORMATION

### Owner of the EPD:

Acciaierie di Calvisano SpA

### Contact:

Eric Filippini, 030 99961,  
eric.filippini@it.feralpigroup.com

### Description of the organisation:

Feralpi Group is one of Europe's leading steel producer in Europe and it is specialized for both construction and special steel production. From the head company Feralpi Siderurgica, founded in 1968 in Lonato del Garda (Brescia), a strong path of growth has given rise to an international Group, diversified, verticalized upstream and downstream in the production and marketing chain.

In 1972 Feralpi shareholders and local partners took part in the construction of a new steel mill in Calvisano (BS), with a 50-tonne furnace for producing billets for use in rolling processes. Now days Acciaierie di Clavisano produces billets mainly for the other companies of the Group.

### Product-related or management system-related certifications:

#### ACCIAIERIE DI CALVISANO SPA

- ◆ Quality Assurance System in accordance with the Pressure Equipment Directive 2014/68/EU, Annex I, Section 4.3, AD 2000-Merkblatt W 0 as well as EN 764-5, Para. 4.2
- ◆ Content of recycled/recovered/by-product materials - Particular rules for recycled/recovered/by-product content of building products certification – CP DOC 262 rev. 2
- ◆ UNI EN ISO 14001:2015
- ◆ UNI EN ISO 9001:2015
- ◆ UNI EN ISO 14064-1:2019
- ◆ UNI EN ISO 50001:2018
- ◆ ISO 14067:2018 - ANNEX C

### Name and location of production site:

Acciaierie di Calvisano SpA - Via Kennedy, 101/A 25012 Viadana di Calvisano BS



## PRODUCT INFORMATION

**Product name:**

Acciaierie di Calvisano SpA  
Special steel billets

**Product identification:**

Special steel billets (example applicable standards:  
EN ISO 16120/1-4, EN ISO 683/1-4, EN 10025/2, EN ISO  
14341, EN ISO 16834, UNI EN 10263/1-4, DIN 17115)

**Product description:**

Steel coming from post and pre consumer steel  
scraps produced in electric arc furnace route (EAF)  
end refined in LF.

**Example of special steel produced include:**

Medium and High Carbon steels, Structural steels,  
Free-cutting steels, Steels for welding, springs, Cold  
Heading, Chains, Queched and Tempered steels and  
Case-hardening steels.

Billet section from 140 to 160 mm.  
Length from 3000 to 13000 mm.

**UN CPC code:**

412

**Geographical scope:**

Global



## LCA INFORMATION

**Functional unit / declared unit:** 1 ton of steel

**Reference service life:** Not applicable

**Time representativeness:** 2023

**Database(s) and LCA software used:** Ecoinvent 3.10 and SimaPro Developer 9.6.0.1, EF 3.1

**Description of system boundaries:** cradle to gate with module C1-C4 and D

**System diagram:**

LIFE-CYCLE STAGE	INFORMATION MODULES
Upstream	Purchase of raw material
	Purchase of packaging
	Purchase of auxiliary materials
Core	Transport of products to Calvisano plants
	Plant consumption for raw material processing
	Production of plant waste

**Description of system boundaries:**

cradle to gate

**Excluded lifecycle stages:**

Cut-off thresholds have been applied for:

- ◆ The processing of production equipment, construction, and other capital goods;
- ◆ Personnel travel to the workplace by company vehicle and research and development activities;
- ◆ The production of production machinery, buildings, and other company infrastructure.

**Data proxy:** The threshold permitted by PCR to use in the study up to a maximum 10% of general data (not selected) is respected for all impact categories.

**More information:** <https://www.feralpigroup.com>

**Name and contact information of LCA practitioner:** Aequilibria Srl – SB, [info@aequilibria.com](mailto:info@aequilibria.com) - [www.aequilibria.com](http://www.aequilibria.com)



# CONTENT DECLARATION



## PRODUCT

PRODUCT COMPONENTS	%	ENVIRONMENTAL / HAZARDOUS PROPERTIES
Steel Scrap	> 92	
Lime	~ 4	
Ferrous alloy	~ 1	
Carbon	~ 2	
<b>TOTAL</b>	<b>100%</b>	

## PACKAGING

### Distribution packaging:

Each billet has its own label, made of steel.

### Consumer packaging:

<https://www.feralpigroup.com/it/prodotti/recupero-imbballaggi>

## RECYCLED MATERIAL

### Provenience of recycled materials (pre-consumer or post-consumer) in the product:

Recycled materials come from scrap and derivatives used in the manufacturing process



## RESULTS OF THE ENVIRONMENTAL PERFORMANCE INDICATORS

The energy sources behind the electricity grid used in manufacturing is the Italian residual mix 0,62 kg CO<sub>2</sub> eq./kWh (AIB report May 2024). Below are tables with results for each identified group in order from lowest to highest total GWP.

### GROUP 1

#### IMPACT CATEGORY INDICATORS

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Global warming potential (GWP)	Fossil	kg CO <sub>2</sub> eq.	3,36E+02	1,29E+02	<b>4,65E+02</b>
	Biogenic	kg CO <sub>2</sub> eq.	2,03E+00	-4,47E-01	<b>1,58E+00</b>
	Land use and land transformation	kg CO <sub>2</sub> eq.	1,47E-01	5,06E-02	<b>1,98E-01</b>
	TOTAL	kg CO <sub>2</sub> eq.	3,38E+02	1,29E+02	<b>4,66E+02</b>
Ozone layer depletion (ODP)		kg CFC 11 eq.	5,54E-06	1,03E-06	<b>6,57E-06</b>
Acidification potential (AP)		mol H <sup>+</sup> eq.	1,70E+00	2,17E-01	<b>1,92E+00</b>
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	1,05E-01	4,98E-02	<b>1,54E-01</b>
	Aquatic marine	kg N eq.	3,17E-01	1,13E-01	<b>4,29E-01</b>
	Aquatic terrestrial	mol N eq.	3,37E+00	8,69E-01	<b>4,24E+00</b>
Photochemical oxidant creation potential (POCP)		kg NMVOC eq.	1,20E+00	4,23E-01	<b>1,63E+00</b>
Abiotic depletion potential (ADP)*	Metals and minerals	kg Sb eq.	2,77E-03	1,73E-04	<b>2,94E-03</b>
	Fossil resources	MJ, net calorific value	5,24E+03	8,09E+02	<b>6,05E+03</b>
Water deprivation potential (WDP)*		m <sup>3</sup> world eq. deprived	7,83E+01	5,68E+00	<b>8,40E+01</b>

\* Disclaimer: 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**

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,09E+03	2,10E+01	<b>1,11E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	1,09E+03	2,10E+01	<b>1,11E+03</b>
Primary energy resources Non-renewable	Use as energy carrier	MJ, net calorific value	5,24E+03	5,20E+02	<b>5,76E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	5,24E+03	5,20E+02	<b>5,76E+03</b>
Secondary material (optional)		kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Non-renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Net use of fresh water (optional)		m <sup>3</sup>	2,39E+00	1,21E-01	<b>2,51E+00</b>

**WASTE INDICATORS (OPTIONAL)**

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	1,90E-02	1,63E+01	<b>1,63E+01</b>
Non-hazardous waste disposed	kg	9,97E-02	3,43E+01	<b>3,44E+01</b>
Radioactive waste disposed	kg	8,19E-03	1,78E-04	<b>8,37E-03</b>



OUTPUT FLOW INDICATORS (OPTIONAL)

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Components for reuse	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Material for recycling	kg	1,43E+02	0,00E+00	<b>1,43E+02</b>
Materials for energy recovery	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, electricity	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, thermal	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>

BILLETS INCLUDED IN THIS GROUP ARE:

- BILLETТА CAL082K\_CAL
- BILLETТА CAL082K-1\_CAL



**GROUP 2**  
IMPACT CATEGORY INDICATORS

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Global warming potential (GWP)	Fossil	kg CO <sub>2</sub> eq.	4,52E+02	1,28E+02	<b>5,80E+02</b>
	Biogenic	kg CO <sub>2</sub> eq.	2,91E+00	-4,48E-01	<b>2,46E+00</b>
	Land use and land transformation	kg CO <sub>2</sub> eq.	2,49E-01	5,02E-02	<b>2,99E-01</b>
	TOTAL	kg CO <sub>2</sub> eq.	4,55E+02	1,27E+02	<b>5,83E+02</b>
Ozone layer depletion (ODP)		kg CFC 11 eq.	6,91E-06	1,01E-06	<b>7,92E-06</b>
Acidification potential (AP)		mol H <sup>+</sup> eq.	2,38E+00	2,13E-01	<b>2,60E+00</b>
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	1,53E-01	4,97E-02	<b>2,02E-01</b>
	Aquatic marine	kg N eq.	4,53E-01	1,12E-01	<b>5,65E-01</b>
	Aquatic terrestrial	mol N eq.	4,81E+00	8,56E-01	<b>5,66E+00</b>
Photochemical oxidant creation potential (POCP)		kg NMVOC eq.	1,68E+00	4,17E-01	<b>2,10E+00</b>
Abiotic depletion potential (ADP)*	Metals and minerals	kg Sb eq.	3,79E-03	1,70E-04	<b>3,96E-03</b>
	Fossil resources	MJ, net calorific value	6,51E+03	7,92E+02	<b>7,30E+03</b>
Water deprivation potential (WDP)*		m <sup>3</sup> world eq. deprived	9,32E+01	5,60E+00	<b>9,88E+01</b>

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## RESOURCE USE INDICATORS

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,27E+03	2,09E+01	<b>1,29E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	1,27E+03	2,09E+01	<b>1,29E+03</b>
Primary energy resources Non-renewable	Use as energy carrier	MJ, net calorific value	6,51E+03	5,13E+02	<b>7,02E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	6,51E+03	5,13E+02	<b>7,02E+03</b>
Secondary material (optional)		kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Non-renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Net use of fresh water (optional)		m <sup>3</sup>	3,00E+00	1,20E-01	<b>3,12E+00</b>

## WASTE INDICATORS (OPTIONAL)

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	4,51E-02	1,63E+01	<b>1,63E+01</b>
Non-hazardous waste disposed	kg	1,30E-01	3,37E+01	<b>3,38E+01</b>
Radioactive waste disposed	kg	1,01E-02	1,77E-04	<b>1,03E-02</b>

## OUTPUT FLOW INDICATORS (OPTIONAL)

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Components for reuse	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Material for recycling	kg	1,43E+02	0,00E+00	<b>1,43E+02</b>
Materials for energy recovery	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, electricity	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, thermal	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>

## BILLETS INCLUDED IN THIS GROUP ARE:

- BILLETTA E335\_MAR
- BILLETTA C48S\_MAR
- BILLETTA C45AL\_MAR
- BILLETTA C38AL\_MAR
- BILLETTA SA350LF2\_MET
- BILLETTA C40\_OLF
- BILLETTA C33AL\_MAR
- BILLETTA SA350LF2\_MET
- BILLETTA C15AL\_MAR
- BILLETTA E360HF\_ACI
- BILLETTA S355J2\_FAD
- BILLETTA S355K2\_OLF
- BILLETTA A350LF2\_OSF
- BILLETTA A350LF2\_FIL
- BILLETTA C48S\_MAR
- BILLETTA C55\_MAR
- BILLETTA C40AL\_MAR
- BILLETTA S355K2\_OLF
- BILLETTA CALS08\_CAL
- BILLETTA CAL45S\_CAL
- BILLETTA CAL45E\_CAL
- BILLETTA E335\_MAR
- BILLETTA CAL18B\_CAL
- BILLETTA ZCAL29B\_CAL
- BILLETTA CAL26B\_CAL
- BILLETTA CAL28B-1\_CAL
- BILLETTA CAL28B-1\_CAL
- BILLETTA CAL30MB\_CAL
- BILLETTA CAL30MB\_CAL
- BILLETTA CAL28B\_CAL
- BILLETTA CAL19B\_CAL
- BILLETTA CAL23B\_CAL
- BILLETTA CAL23B-1\_CAL
- BILLETTA CAL21B\_CAL
- BILLETTA ZCAL22B\_CAL
- BILLETTA CAL21B\_CAL
- BILLETTA CAL35B\_CAL
- BILLETTA CAL18B\_CAL
- BILLETTA CAL15B\_CAL
- BILLETTA CAL15B\_CAL
- BILLETTA CAL18B-1\_CAL
- BILLETTA CAL28B-1\_CAL
- BILLETTA CAL30B\_CAL
- BILLETTA CAL23B-1\_CAL
- BILLETTA CAL15X\_CAL
- BILLETTA CAL30X\_CAL
- BILLETTA CAL34K\_CAL
- BILLETTA CAL040\_CAL
- BILLETTA CAL082K\_CAL
- BILLETTA CAL078\_CAL
- BILLETTA CAL080K\_CAL
- BILLETTA CAL072-1\_CAL
- BILLETTA CAL082K\_CAL
- BILLETTA CAL082K-1\_CAL
- BILLETTA CAL082Y-1\_CAL
- BILLETTA CAL086\_CAL
- BILLETTA CAL052\_CAL
- BILLETTA CAL037\_CAL
- BILLETTA CAL042\_CAL
- BILLETTA CAL048\_CAL
- BILLETTA CAL044\_CAL
- BILLETTA CALG21B\_CAL
- BILLETTA CALM82Y-1\_CAL
- BILLETTA CAL51D\_CAL
- BILLETTA CALW10KP\_CAL
- BILLETTA S275JR\_MAR
- BILLETTA CAL04F\_CAL
- BILLETTA CAL35B-1\_CAL
- BILLETTA S235JR\_MAR
- BILLETTA S275JR\_MAR
- BILLETTA S275JR\_MAR
- BILLETTA S275JR\_MAR
- BILLETTA A694 F52\_MET
- BILLETTA S235JR\_ALT
- BILLETTA S235JR\_MAR
- BILLETTA S235JR\_ALT
- BILLETTA S235JR\_MAR
- BILLETTA S235JR\_MAR
- BILLETTA S235JR\_MAR
- BILLETTA S235JR\_ALT
- BILLETTA C45\_MAR
- BILLETTA S235KS\_MAR
- BILLETTA CAL60E\_CAL
- BILLETTA ZCAL10F\_CAL
- BILLETTA CAL10F-1\_CAL
- BILLETTA CAL072\_CAL
- BILLETTA CAL080\_CAL
- BILLETTA CAL082\_CAL
- BILLETTA CAL075\_CAL
- BILLETTA CAL084\_CAL
- BILLETTA CAL082K-1\_CAL
- BILLETTA CAL065\_CAL
- BILLETTA CAL068\_CAL
- BILLETTA CAL060\_CAL
- BILLETTA CAL056\_CAL
- BILLETTA CAL062\_CAL
- BILLETTA CALS10\_CAL
- BILLETTA CAL36D\_CAL
- BILLETTA CAL05-1B\_CAL
- BILLETTA CAL07B\_CAL

**GROUP 3**  
**IMPACT CATEGORY INDICATORS**

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
<b>Global warming potential (GWP)</b>	Fossil	kg CO <sub>2</sub> eq.	5,11E+02	1,29E+02	<b>6,39E+02</b>
	Biogenic	kg CO <sub>2</sub> eq.	2,35E+00	-4,48E-01	<b>1,90E+00</b>
	Land use and land transformation	kg CO <sub>2</sub> eq.	3,10E-01	5,04E-02	<b>3,61E-01</b>
	TOTAL	kg CO <sub>2</sub> eq.	5,13E+02	1,28E+02	<b>6,41E+02</b>
<b>Ozone layer depletion (ODP)</b>		kg CFC 11 eq.	6,57E-06	1,02E-06	<b>7,59E-06</b>
<b>Acidification potential (AP)</b>		mol H <sup>+</sup> eq.	2,95E+00	2,15E-01	<b>3,17E+00</b>
<b>Eutrophication potential (EP)</b>	Aquatic freshwater	kg P eq.	3,96E-01	4,97E-02	<b>4,46E-01</b>
	Aquatic marine	kg N eq.	6,07E-01	1,12E-01	<b>7,19E-01</b>
	Aquatic terrestrial	mol N eq.	7,04E+00	8,63E-01	<b>7,90E+00</b>
<b>Photochemical oxidant creation potential (POCP)</b>		kg NMVOC eq.	2,11E+00	4,20E-01	<b>2,53E+00</b>
<b>Abiotic depletion potential (ADP)*</b>	Metals and minerals	kg Sb eq.	7,34E-02	1,72E-04	<b>7,36E-02</b>
	Fossil resources	MJ, net calorific value	7,15E+03	8,03E+02	<b>7,95E+03</b>
<b>Water deprivation potential (WDP)*</b>		m <sup>3</sup> world eq. deprived	1,35E+02	5,65E+00	<b>1,41E+02</b>

\* Disclaimer: 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**

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,34E+03	2,09E+01	<b>1,36E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	1,34E+03	2,09E+01	<b>1,36E+03</b>
Primary energy resources Non-renewable	Use as energy carrier	MJ, net calorific value	7,15E+03	5,13E+02	<b>7,66E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	7,15E+03	5,13E+02	<b>7,66E+03</b>
Secondary material (optional)		kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Non-renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Net use of fresh water (optional)		m <sup>3</sup>	4,05E+00	1,20E-01	<b>4,17E+00</b>

**WASTE INDICATORS (OPTIONAL)**

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	4,72E-02	1,63E+01	<b>1,63E+01</b>
Non-hazardous waste disposed	kg	1,45E-01	3,38E+01	<b>3,39E+01</b>
Radioactive waste disposed	kg	1,13E-02	1,76E-04	<b>1,15E-02</b>

OUTPUT FLOW INDICATORS (OPTIONAL)

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Components for reuse	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Material for recycling	kg	1,43E+02	0,00E+00	<b>1,43E+02</b>
Materials for energy recovery	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, electricity	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, thermal	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>

BILLETS INCLUDED IN THIS GROUP ARE:

- BILLETTA CAL34KD\_CAL
- BILLETTA CAL34KD\_CAL

**GROUP 4**  
IMPACT CATEGORY INDICATORS

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Global warming potential (GWP)	Fossil	kg CO <sub>2</sub> eq.	5,37E+02	1,28E+02	<b>6,65E+02</b>
	Biogenic	kg CO <sub>2</sub> eq.	3,78E+00	-4,48E-01	<b>3,33E+00</b>
	Land use and land transformation	kg CO <sub>2</sub> eq.	3,05E-01	5,02E-02	<b>3,55E-01</b>
	TOTAL	kg CO <sub>2</sub> eq.	5,41E+02	1,28E+02	<b>6,69E+02</b>
Ozone layer depletion (ODP)		kg CFC 11 eq.	8,08E-06	1,01E-06	<b>9,09E-06</b>
Acidification potential (AP)		mol H <sup>+</sup> eq.	2,81E+00	2,13E-01	<b>3,02E+00</b>
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	1,91E-01	4,97E-02	<b>2,41E-01</b>
	Aquatic marine	kg N eq.	5,32E-01	1,11E-01	<b>6,44E-01</b>
	Aquatic terrestrial	mol N eq.	5,63E+00	8,56E-01	<b>6,48E+00</b>
Photochemical oxidant creation potential (POCP)		kg NMVOC eq.	1,96E+00	4,17E-01	<b>2,38E+00</b>
Abiotic depletion potential (ADP)*	Metals and minerals	kg Sb eq.	5,43E-03	1,70E-04	<b>5,60E-03</b>
	Fossil resources	MJ, net calorific value	7,56E+03	7,93E+02	<b>8,35E+03</b>
Water deprivation potential (WDP)*		m <sup>3</sup> world eq. deprived	1,06E+02	5,60E+00	<b>1,11E+02</b>

\* Disclaimer: 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

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,38E+03	2,10E+01	<b>1,40E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	1,38E+03	2,10E+01	<b>1,40E+03</b>
Primary energy resources Non-renewable	Use as energy carrier	MJ, net calorific value	7,56E+03	5,10E+02	<b>8,07E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	7,56E+03	5,10E+02	<b>8,07E+03</b>
Secondary material (optional)		kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Non-renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Net use of fresh water (optional)		m <sup>3</sup>	3,47E+00	1,19E-01	<b>3,59E+00</b>

## WASTE INDICATORS (OPTIONAL)

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	5,48E-02	1,63E+01	<b>1,64E+01</b>
Non-hazardous waste disposed	kg	1,53E-01	3,34E+01	<b>3,35E+01</b>
Radioactive waste disposed	kg	1,13E-02	1,78E-04	<b>1,15E-02</b>

OUTPUT FLOW INDICATORS (OPTIONAL)

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Components for reuse	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Material for recycling	kg	1,43E+02	0,00E+00	<b>1,43E+02</b>
Materials for energy recovery	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, electricity	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, thermal	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>

**BILLETS INCLUDED IN THIS GROUP ARE:**

- BILLETTA C45AL\_MAR
- BILLETTA C38AL\_MAR
- BILLETTA CAL21B-1\_CAL
- BILLETTA CAL30KB\_CAL
- BILLETTA 27MNCRB5\_MAR
- BILLETTA 27MNCRB5\_MAR
- BILLETTA 42CRMOS4\_ROD
- BILLETTA ZCAL21B\_CAL

**GROUP 5**  
**IMPACT CATEGORY INDICATORS**

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
<b>Global warming potential (GWP)</b>	Fossil	kg CO <sub>2</sub> eq.	5,53E+02	1,29E+02	<b>6,82E+02</b>
	Biogenic	kg CO <sub>2</sub> eq.	3,57E+00	-4,48E-01	<b>3,12E+00</b>
	Land use and land transformation	kg CO <sub>2</sub> eq.	3,36E-01	5,05E-02	<b>3,87E-01</b>
	TOTAL	kg CO <sub>2</sub> eq.	5,57E+02	1,28E+02	<b>6,86E+02</b>
<b>Ozone layer depletion (ODP)</b>		kg CFC 11 eq.	6,79E-06	1,03E-06	<b>7,82E-06</b>
<b>Acidification potential (AP)</b>		mol H <sup>+</sup> eq.	3,15E+00	2,16E-01	<b>3,37E+00</b>
<b>Eutrophication potential (EP)</b>	Aquatic freshwater	kg P eq.	3,79E-01	4,97E-02	<b>4,28E-01</b>
	Aquatic marine	kg N eq.	6,43E-01	1,12E-01	<b>7,55E-01</b>
	Aquatic terrestrial	mol N eq.	7,33E+00	8,66E-01	<b>8,20E+00</b>
<b>Photochemical oxidant creation potential (POCP)</b>		kg NMVOC eq.	2,23E+00	4,21E-01	<b>2,65E+00</b>
<b>Abiotic depletion potential (ADP)*</b>	Metals and minerals	kg Sb eq.	6,47E-02	1,72E-04	<b>6,48E-02</b>
	Fossil resources	MJ, net calorific value	7,63E+03	8,07E+02	<b>8,44E+03</b>
<b>Water deprivation potential (WDP)*</b>		m <sup>3</sup> world eq. deprived	1,36E+02	5,66E+00	<b>1,41E+02</b>

\* Disclaimer: 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**

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,48E+03	2,10E+01	<b>1,50E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	1,48E+03	2,10E+01	<b>1,50E+03</b>
Primary energy resources Non-renewable	Use as energy carrier	MJ, net calorific value	7,63E+03	5,20E+02	<b>8,15E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	7,63E+03	5,20E+02	<b>8,15E+03</b>
Secondary material (optional)		kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Non-renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Net use of fresh water (optional)		m <sup>3</sup>	4,38E+00	1,21E-01	<b>4,50E+00</b>

**WASTE INDICATORS (OPTIONAL)**

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	3,95E-02	1,63E+01	<b>1,63E+01</b>
Non-hazardous waste disposed	kg	1,55E-01	3,43E+01	<b>3,45E+01</b>
Radioactive waste disposed	kg	1,22E-02	1,78E-04	<b>1,24E-02</b>

OUTPUT FLOW INDICATORS (OPTIONAL)

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Components for reuse	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Material for recycling	kg	1,43E+02	0,00E+00	<b>1,43E+02</b>
Materials for energy recovery	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, electricity	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, thermal	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>

BILLETS INCLUDED IN THIS GROUP ARE:

- BILLETTA 42CRMOS4\_ROD

**GROUP 6**  
IMPACT CATEGORY INDICATORS

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Global warming potential (GWP)	Fossil	kg CO <sub>2</sub> eq.	5,57E+02	1,27E+02	<b>6,84E+02</b>
	Biogenic	kg CO <sub>2</sub> eq.	7,18E+00	-4,49E-01	<b>6,74E+00</b>
	Land use and land transformation	kg CO <sub>2</sub> eq.	3,15E-01	4,99E-02	<b>3,65E-01</b>
	TOTAL	kg CO <sub>2</sub> eq.	5,65E+02	1,27E+02	<b>6,91E+02</b>
Ozone layer depletion (ODP)		kg CFC 11 eq.	6,90E-06	9,96E-07	<b>7,89E-06</b>
Acidification potential (AP)		mol H <sup>+</sup> eq.	2,94E+00	2,11E-01	<b>3,16E+00</b>
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	1,76E-01	4,96E-02	<b>3,16E+00</b>
	Aquatic marine	kg N eq.	5,68E-01	1,11E-01	<b>6,79E-01</b>
	Aquatic terrestrial	mol N eq.	6,02E+00	8,50E-01	<b>6,87E+00</b>
Photochemical oxidant creation potential (POCP)		kg NMVOC eq.	2,03E+00	4,14E-01	<b>2,44E+00</b>
Abiotic depletion potential (ADP)*	Metals and minerals	kg Sb eq.	2,93E-03	1,68E-04	<b>3,10E-03</b>
	Fossil resources	MJ, net calorific value	7,63E+03	7,83E+02	<b>8,41E+03</b>
Water deprivation potential (WDP)*		m <sup>3</sup> world eq. deprived	1,04E+02	5,55E+00	<b>1,10E+02</b>

\* Disclaimer: 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

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,75E+03	2,08E+01	<b>1,77E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	1,75E+03	2,08E+01	<b>1,77E+03</b>
Primary energy resources Non-renewable	Use as energy carrier	MJ, net calorific value	7,63E+03	5,09E+02	<b>8,13E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	7,63E+03	5,09E+02	<b>8,13E+03</b>
Secondary material (optional)		kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Non-renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Net use of fresh water (optional)		m <sup>3</sup>	4,40E+00	1,19E-01	<b>4,52E+00</b>

## WASTE INDICATORS (OPTIONAL)

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	2,40E-02	1,63E+01	<b>1,63E+01</b>
Non-hazardous waste disposed	kg	1,51E-01	3,34E+01	<b>3,36E+01</b>
Radioactive waste disposed	kg	1,25E-02	1,75E-04	<b>1,26E-02</b>

OUTPUT FLOW INDICATORS (OPTIONAL)

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Components for reuse	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Material for recycling	kg	1,43E+02	0,00E+00	<b>1,43E+02</b>
Materials for energy recovery	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, electricity	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, thermal	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>

BILLETS INCLUDED IN THIS GROUP ARE:

- BILLETTA 60SICR7\_MAR
- BILLETTA 55SI7\_MAR
- BILLETTA CALMS15\_CAL
- BILLETTA CALSG2\_CAL



**GROUP 7**  
IMPACT CATEGORY INDICATORS

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Global warming potential (GWP)	Fossil	kg CO <sub>2</sub> eq.	5,66E+02	1,28E+02	<b>6,94E+02</b>
	Biogenic	kg CO <sub>2</sub> eq.	3,45E+00	-4,48E-01	<b>3,00E+00</b>
	Land use and land transformation	kg CO <sub>2</sub> eq.	4,97E-01	5,03E-02	<b>5,47E-01</b>
	TOTAL	kg CO <sub>2</sub> eq.	5,70E+02	1,28E+02	<b>6,98E+02</b>
Ozone layer depletion (ODP)		kg CFC 11 eq.	7,42E-06	1,02E-06	<b>8,43E-06</b>
Acidification potential (AP)		mol H <sup>+</sup> eq.	1,01E+01	2,15E-01	<b>1,03E+01</b>
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	4,56E-01	4,97E-02	<b>5,05E-01</b>
	Aquatic marine	kg N eq.	7,47E-01	1,12E-01	<b>8,59E-01</b>
	Aquatic terrestrial	mol N eq.	8,59E+00	8,61E-01	<b>9,45E+00</b>
Photochemical oxidant creation potential (POCP)		kg NMVOC eq.	3,02E+00	4,19E-01	<b>3,44E+00</b>
Abiotic depletion potential (ADP)*	Metals and minerals	kg Sb eq.	7,96E-02	1,71E-04	<b>7,98E-02</b>
	Fossil resources	MJ, net calorific value	7,97E+03	7,99E+02	<b>8,77E+03</b>
Water deprivation potential (WDP)*		m <sup>3</sup> world eq. deprived	3,81E+02	5,63E+00	<b>3,87E+02</b>

\* Disclaimer: 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**

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
<b>Primary energy resources – Renewable</b>	Use as energy carrier	MJ, net calorific value	2,20E+03	2,09E+01	<b>2,22E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	2,20E+03	2,09E+01	<b>2,22E+03</b>
<b>Primary energy resources Non-renewable</b>	Use as energy carrier	MJ, net calorific value	7,97E+03	5,14E+02	<b>8,49E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	7,97E+03	5,14E+02	<b>8,49E+03</b>
<b>Secondary material (optional)</b>		kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
<b>Renewable secondary fuels (optional)</b>		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
<b>Non-renewable secondary fuels (optional)</b>		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
<b>Net use of fresh water (optional)</b>		m <sup>3</sup>	1,01E+01	1,20E-01	<b>1,02E+01</b>

**WASTE INDICATORS (OPTIONAL)**

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
<b>Hazardous waste disposed</b>	kg	5,84E-02	1,63E+01	<b>1,64E+01</b>
<b>Non-hazardous waste disposed</b>	kg	1,68E-01	3,38E+01	<b>3,40E+01</b>
<b>Radioactive waste disposed</b>	kg	1,55E-02	1,76E-04	<b>1,56E-02</b>

OUTPUT FLOW INDICATORS (OPTIONAL)

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Components for reuse	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Material for recycling	kg	1,43E+02	0,00E+00	<b>1,43E+02</b>
Materials for energy recovery	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, electricity	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, thermal	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>

BILLETS INCLUDED IN THIS GROUP ARE:

- BILLETTA CALG05T\_CAL

**GROUP 8**  
IMPACT CATEGORY INDICATORS

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Global warming potential (GWP)	Fossil	kg CO <sub>2</sub> eq.	6,21E+02	1,28E+02	<b>7,49E+02</b>
	Biogenic	kg CO <sub>2</sub> eq.	5,55E+00	-4,48E-01	<b>5,10E+00</b>
	Land use and land transformation	kg CO <sub>2</sub> eq.	3,78E-01	5,02E-02	<b>4,28E-01</b>
	TOTAL	kg CO <sub>2</sub> eq.	6,27E+02	1,27E+02	<b>7,54E+02</b>
Ozone layer depletion (ODP)		kg CFC 11 eq.	7,34E-06	1,01E-06	<b>8,35E-06</b>
Acidification potential (AP)		mol H <sup>+</sup> eq.	4,12E+00	2,13E-01	<b>4,33E+00</b>
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	6,40E-01	4,97E-02	<b>6,90E-01</b>
	Aquatic marine	kg N eq.	8,84E-01	1,11E-01	<b>9,95E-01</b>
	Aquatic terrestrial	mol N eq.	1,05E+01	8,56E-01	<b>1,14E+01</b>
Photochemical oxidant creation potential (POCP)		kg NMVOC eq.	2,95E+00	4,17E-01	<b>3,37E+00</b>
Abiotic depletion potential (ADP)*	Metals and minerals	kg Sb eq.	1,24E-01	1,70E-04	<b>1,24E-01</b>
	Fossil resources	MJ, net calorific value	8,36E+03	7,92E+02	<b>9,15E+03</b>
Water deprivation potential (WDP)*		m <sup>3</sup> world eq. deprived	1,77E+02	5,60E+00	<b>1,82E+02</b>

\* Disclaimer: 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

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,80E+03	2,09E+01	<b>1,82E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	1,80E+03	2,09E+01	<b>1,82E+03</b>
Primary energy resources Non-renewable	Use as energy carrier	MJ, net calorific value	8,36E+03	5,10E+02	<b>8,87E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	8,36E+03	5,10E+02	<b>8,87E+03</b>
Secondary material (optional)		kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Non-renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Net use of fresh water (optional)		m <sup>3</sup>	5,81E+00	1,19E-01	<b>5,93E+00</b>

## WASTE INDICATORS (OPTIONAL)

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	2,65E-02	1,63E+01	<b>1,63E+01</b>
Non-hazardous waste disposed	kg	1,77E-01	3,35E+01	<b>3,36E+01</b>
Radioactive waste disposed	kg	1,38E-02	1,76E-04	<b>1,39E-02</b>

OUTPUT FLOW INDICATORS (OPTIONAL)

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Components for reuse	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Material for recycling	kg	1,43E+02	0,00E+00	<b>1,43E+02</b>
Materials for energy recovery	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, electricity	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, thermal	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>

BILLETS INCLUDED IN THIS GROUP ARE:

- BILLETTA CALSG8D\_CAL

**GROUP 9**  
**IMPACT CATEGORY INDICATORS**

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
<b>Global warming potential (GWP)</b>	Fossil	kg CO <sub>2</sub> eq.	6,78E+02	1,27E+02	<b>8,05E+02</b>
	Biogenic	kg CO <sub>2</sub> eq.	1,21E+01	-4,49E-01	<b>1,17E+01</b>
	Land use and land transformation	kg CO <sub>2</sub> eq.	4,07E-01	4,97E-02	<b>4,57E-01</b>
	TOTAL	kg CO <sub>2</sub> eq.	6,91E+02	1,26E+02	<b>8,17E+02</b>
<b>Ozone layer depletion (ODP)</b>		kg CFC 11 eq.	7,71E-06	9,85E-07	<b>8,70E-06</b>
<b>Acidification potential (AP)</b>		mol H <sup>+</sup> eq.	3,56E+00	2,10E-01	<b>3,77E+00</b>
<b>Eutrophication potential (EP)</b>	Aquatic freshwater	kg P eq.	2,14E-01	4,96E-02	<b>2,63E-01</b>
	Aquatic marine	kg N eq.	6,70E-01	1,10E-01	<b>7,81E-01</b>
	Aquatic terrestrial	mol N eq.	7,06E+00	8,44E-01	<b>7,90E+00</b>
<b>Photochemical oxidant creation potential (POCP)</b>		kg NMVOC eq.	2,36E+00	4,11E-01	<b>2,77E+00</b>
<b>Abiotic depletion potential (ADP)*</b>	Metals and minerals	kg Sb eq.	3,40E-03	1,66E-04	<b>3,57E-03</b>
	Fossil resources	MJ, net calorific value	9,13E+03	7,75E+02	<b>9,91E+03</b>
<b>Water deprivation potential (WDP)*</b>		m <sup>3</sup> world eq. deprived	1,23E+02	5,51E+00	<b>1,28E+02</b>

\* Disclaimer: 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**

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2,21E+03	2,09E+01	<b>2,23E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	2,21E+03	2,09E+01	<b>2,23E+03</b>
Primary energy resources Non-renewable	Use as energy carrier	MJ, net calorific value	9,13E+03	5,09E+02	<b>9,64E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	9,13E+03	5,09E+02	<b>9,64E+03</b>
Secondary material (optional)		kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Non-renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Net use of fresh water (optional)		m <sup>3</sup>	6,00E+00	1,19E-01	<b>6,12E+00</b>

**WASTE INDICATORS (OPTIONAL)**

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	2,74E-02	1,63E+01	<b>1,63E+01</b>
Non-hazardous waste disposed	kg	1,80E-01	3,34E+01	<b>3,36E+01</b>
Radioactive waste disposed	kg	1,47E-02	1,75E-04	<b>1,49E-02</b>



OUTPUT FLOW INDICATORS (OPTIONAL)

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Components for reuse	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Material for recycling	kg	1,43E+02	0,00E+00	<b>1,43E+02</b>
Materials for energy recovery	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, electricity	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, thermal	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>

BILLETS INCLUDED IN THIS GROUP ARE:

- BILLETTA CALMK54\_CAL

**GROUP 10**  
**IMPACT CATEGORY INDICATORS**

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
<b>Global warming potential (GWP)</b>	Fossil	kg CO <sub>2</sub> eq.	7,04E+02	1,28E+02	<b>8,32E+02</b>
	Biogenic	kg CO <sub>2</sub> eq.	5,98E+00	-4,48E-01	<b>5,54E+00</b>
	Land use and land transformation	kg CO <sub>2</sub> eq.	9,17E-01	5,03E-02	<b>9,67E-01</b>
	TOTAL	kg CO <sub>2</sub> eq.	7,11E+02	1,28E+02	<b>8,39E+02</b>
<b>Ozone layer depletion (ODP)</b>		kg CFC 11 eq.	9,57E-06	1,02E-06	<b>1,06E-05</b>
<b>Acidification potential (AP)</b>		mol H <sup>+</sup> eq.	2,89E+01	2,14E-01	<b>2,91E+01</b>
<b>Eutrophication potential (EP)</b>	Aquatic freshwater	kg P eq.	6,90E-01	4,97E-02	<b>7,39E-01</b>
	Aquatic marine	kg N eq.	1,06E+00	1,12E-01	<b>1,17E+00</b>
	Aquatic terrestrial	mol N eq.	1,22E+01	8,60E-01	<b>1,31E+01</b>
<b>Photochemical oxidant creation potential (POCP)</b>		kg NMVOC eq.	5,25E+00	4,19E-01	<b>5,67E+00</b>
<b>Abiotic depletion potential (ADP)*</b>	Metals and minerals	kg Sb eq.	1,25E-01	1,71E-04	<b>1,25E-01</b>
	Fossil resources	MJ, net calorific value	1,03E+04	7,99E+02	<b>1,11E+04</b>
<b>Water deprivation potential (WDP)*</b>		m <sup>3</sup> world eq. deprived	1,05E+03	5,63E+00	<b>1,06E+03</b>

\* Disclaimer: 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

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	4,33E+03	2,09E+01	<b>4,35E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	4,33E+03	2,09E+01	<b>4,35E+03</b>
Primary energy resources Non-renewable	Use as energy carrier	MJ, net calorific value	1,03E+04	5,11E+02	<b>1,09E+04</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	1,03E+04	5,11E+02	<b>1,09E+04</b>
Secondary material (optional)		kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Non-renewable secondary fuels (optional)		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
Net use of fresh water (optional)		m <sup>3</sup>	2,63E+01	1,19E-01	<b>2,64E+01</b>

## WASTE INDICATORS (OPTIONAL)

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	3,75E-02	1,63E+01	<b>1,63E+01</b>
Non-hazardous waste disposed	kg	2,25E-01	3,36E+01	<b>3,38E+01</b>
Radioactive waste disposed	kg	2,61E-02	1,76E-04	<b>2,63E-02</b>

OUTPUT FLOW INDICATORS (OPTIONAL)

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Components for reuse	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Material for recycling	kg	1,43E+02	0,00E+00	<b>1,43E+02</b>
Materials for energy recovery	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, electricity	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, thermal	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>

BILLETS INCLUDED IN THIS GROUP ARE:

- BILLETTA CALS8TV-1\_CAL

**GROUP 11**  
**IMPACT CATEGORY INDICATORS**

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
<b>Global warming potential (GWP)</b>	Fossil	kg CO <sub>2</sub> eq.	8,58E+02	1,27E+02	<b>9,86E+02</b>
	Biogenic	kg CO <sub>2</sub> eq.	7,33E+00	-4,49E-01	<b>6,88E+00</b>
	Land use and land transformation	kg CO <sub>2</sub> eq.	9,48E-01	5,00E-02	<b>9,98E-01</b>
	TOTAL	kg CO <sub>2</sub> eq.	8,66E+02	1,27E+02	<b>9,93E+02</b>
<b>Ozone layer depletion (ODP)</b>		kg CFC 11 eq.	1,03E-05	1,00E-06	<b>1,13E-05</b>
<b>Acidification potential (AP)</b>		mol H <sup>+</sup> eq.	2,10E+01	2,12E-01	<b>2,12E+01</b>
<b>Eutrophication potential (EP)</b>	Aquatic freshwater	kg P eq.	6,50E-01	4,96E-02	<b>7,00E-01</b>
	Aquatic marine	kg N eq.	1,15E+00	1,11E-01	<b>1,26E+00</b>
	Aquatic terrestrial	mol N eq.	1,30E+01	8,51E-01	<b>1,39E+01</b>
<b>Photochemical oxidant creation potential (POCP)</b>		kg NMVOC eq.	4,97E+00	4,15E-01	<b>5,38E+00</b>
<b>Abiotic depletion potential (ADP)*</b>	Metals and minerals	kg Sb eq.	1,04E-01	1,69E-04	<b>1,04E-01</b>
	Fossil resources	MJ, net calorific value	1,18E+04	7,86E+02	<b>1,26E+04</b>
<b>Water deprivation potential (WDP)*</b>		m <sup>3</sup> world eq. deprived	7,34E+02	5,56E+00	<b>7,40E+02</b>

\* Disclaimer: 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**

PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
<b>Primary energy resources – Renewable</b>	Use as energy carrier	MJ, net calorific value	4,14E+03	2,08E+01	<b>4,16E+03</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	4,14E+03	2,08E+01	<b>4,16E+03</b>
<b>Primary energy resources Non-renewable</b>	Use as energy carrier	MJ, net calorific value	1,18E+04	5,09E+02	<b>1,23E+04</b>
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
	TOTAL	MJ, net calorific value	1,18E+04	5,09E+02	<b>1,23E+04</b>
<b>Secondary material (optional)</b>		kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
<b>Renewable secondary fuels (optional)</b>		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
<b>Non-renewable secondary fuels (optional)</b>		MJ, net calorific value	0,00E+00	0,00E+00	<b>0,00E+00</b>
<b>Net use of fresh water (optional)</b>		m <sup>3</sup>	2,00E+01	1,19E-01	<b>2,01E+01</b>

**WASTE INDICATORS (OPTIONAL)**

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
<b>Hazardous waste disposed</b>	kg	4,11E-02	1,63E+01	<b>1,63E+01</b>
<b>Non-hazardous waste disposed</b>	kg	2,66E-01	3,34E+01	<b>3,36E+01</b>
<b>Radioactive waste disposed</b>	kg	2,59E-02	1,75E-04	<b>2,61E-02</b>

OUTPUT FLOW INDICATORS (OPTIONAL)

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Components for reuse	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Material for recycling	kg	1,43E+02	0,00E+00	<b>1,43E+02</b>
Materials for energy recovery	kg	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, electricity	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>
Exported energy, thermal	MJ per energy carrier	0,00E+00	0,00E+00	<b>0,00E+00</b>

BILLETS INCLUDED IN THIS GROUP ARE:

- BILLETTA CALS8TV\_CAL

# ADDITIONAL ENVIRONMENTAL INFORMATION

Recycled content of products = 98,6% (calculating from ICMQ verified procedure n°P512 28/02/2024, reference year 2022).

The methodology adopted refers to the procedures of the ICMQ CP DOC 262 rev. 2 of 08/03/2022.

PRODUCT TYPE	PRODUCT NAME	RECYCLED MATERIAL			RECOVERED MATERIAL (%)	BY-PRODUCT MATERIAL (%)	TOTAL CONTENT OF RECYCLED, RECOVERED BY-PRODUCT MATERIAL (%)
		TOTAL (%)	PRE-CONSUMER (%)	POST-CONSUMER (%)			
Production of steel billets for reinforcing and special	Billets	88,2	n.p.d.	0	0	10,4	98,6

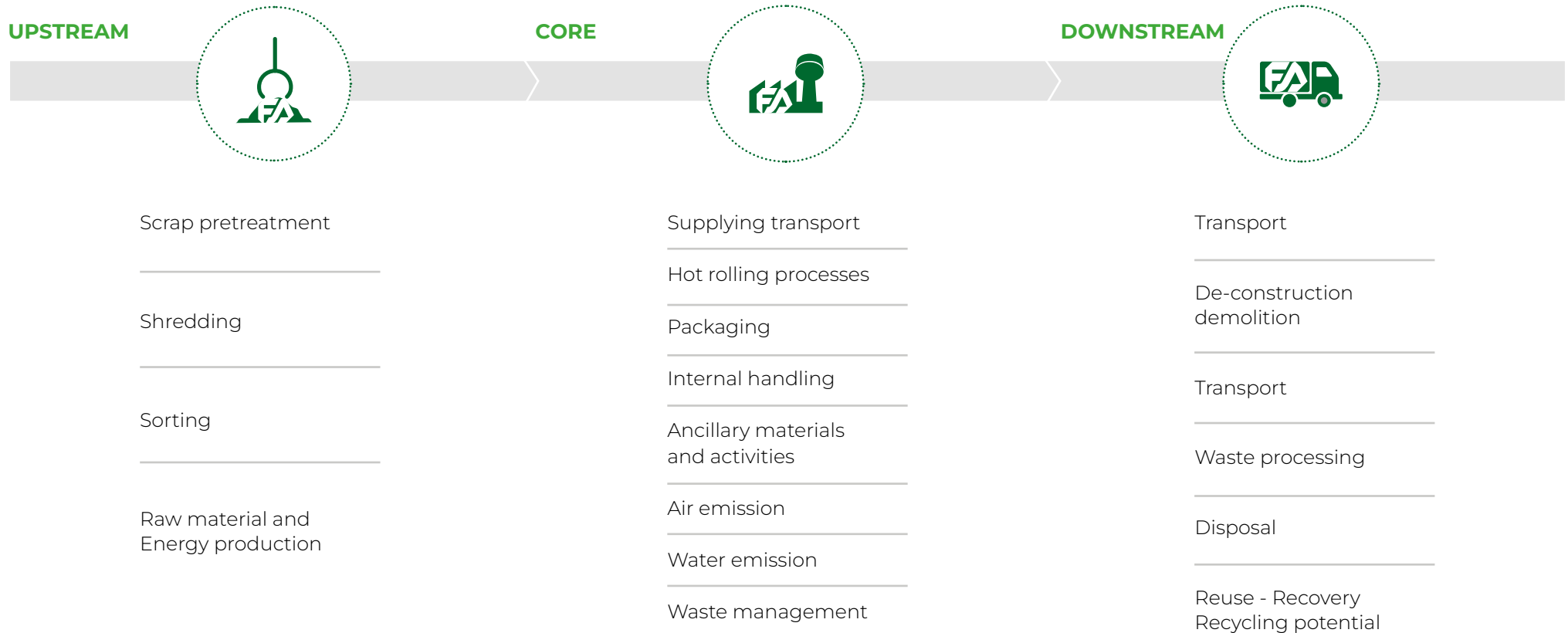


# REFERENCES

- ◆ General Programme Instructions of the International EPD® System. Version 3.0.1
- ◆ PCR: 2015:03, versione 2.1.1, 'International EPD® System "Basic iron or steel products & special steels, except construction steel products"'
- ◆ CFP SA\_EPD Report generale Feralpi dati anno 2023
- ◆ Report specifico billetta speciale - CALVISANO
- ◆ ISO 14040:2007 – Environmental management - Life cycle assessment - Principles and framework
- ◆ ISO 14044:2007 – Environmental management - Life cycle assessment - Requirements and guidelines

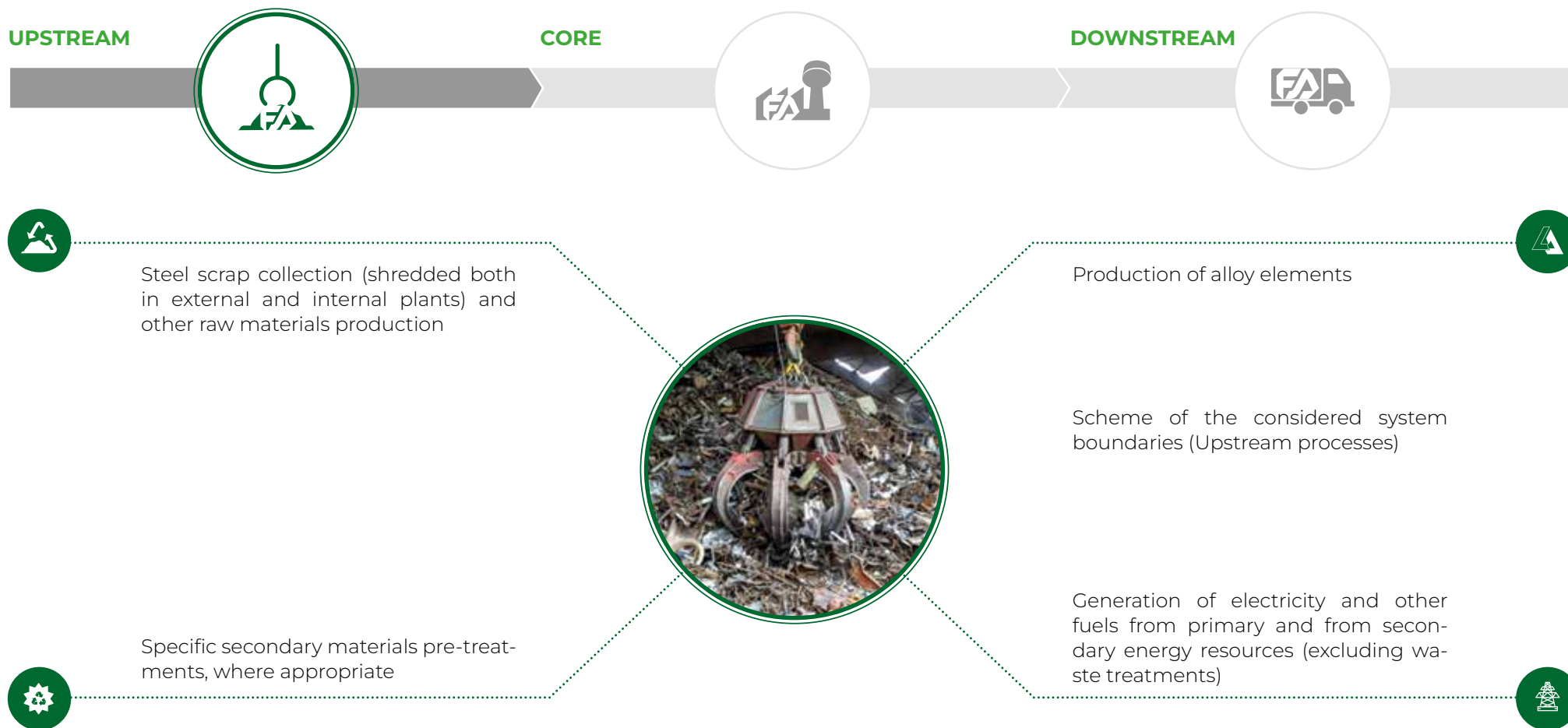


# SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

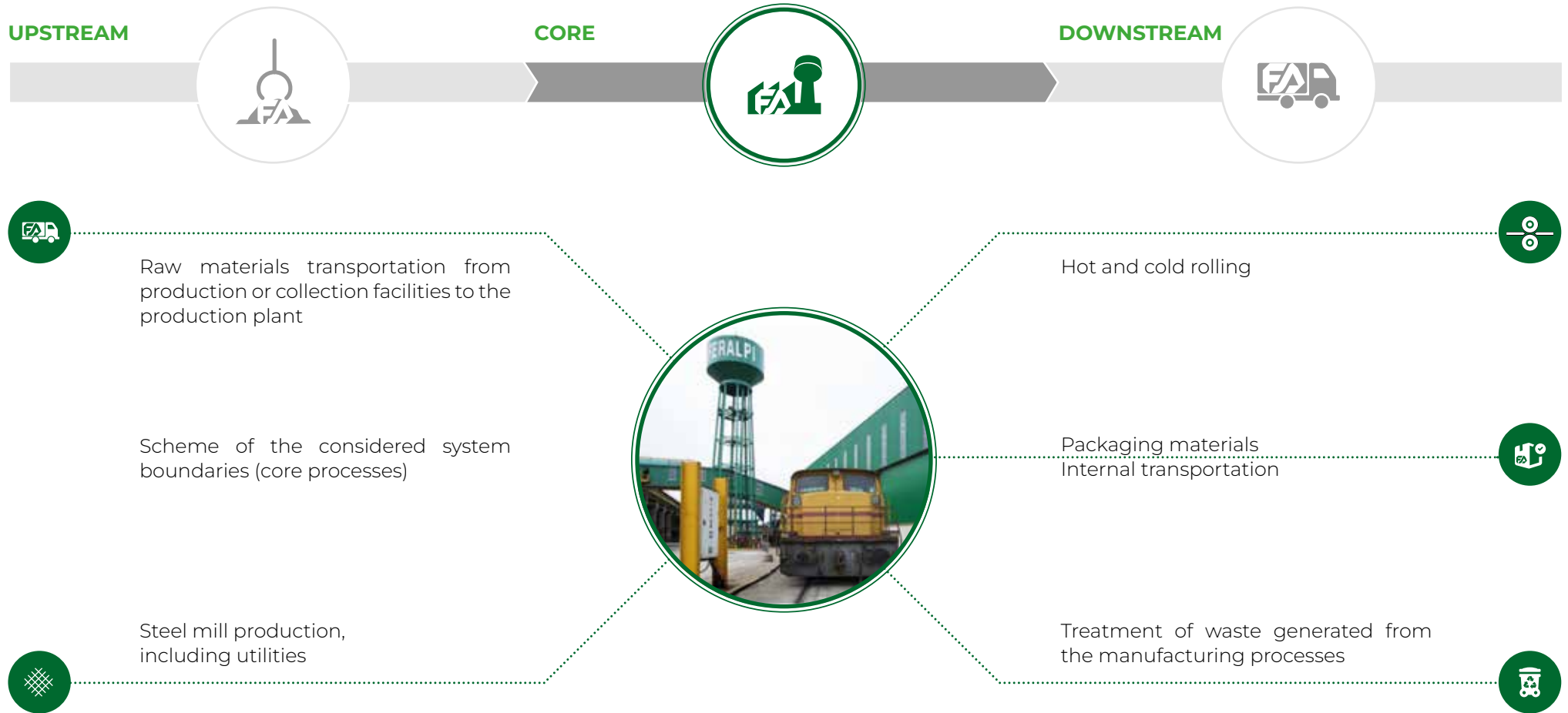


Broad scheme of cold rolled steel production, in which the main activities included in the system boundaries are listed and divided in the three subsystems: UPSTREAM Process, CORE Module and DOWNSTREAM Process

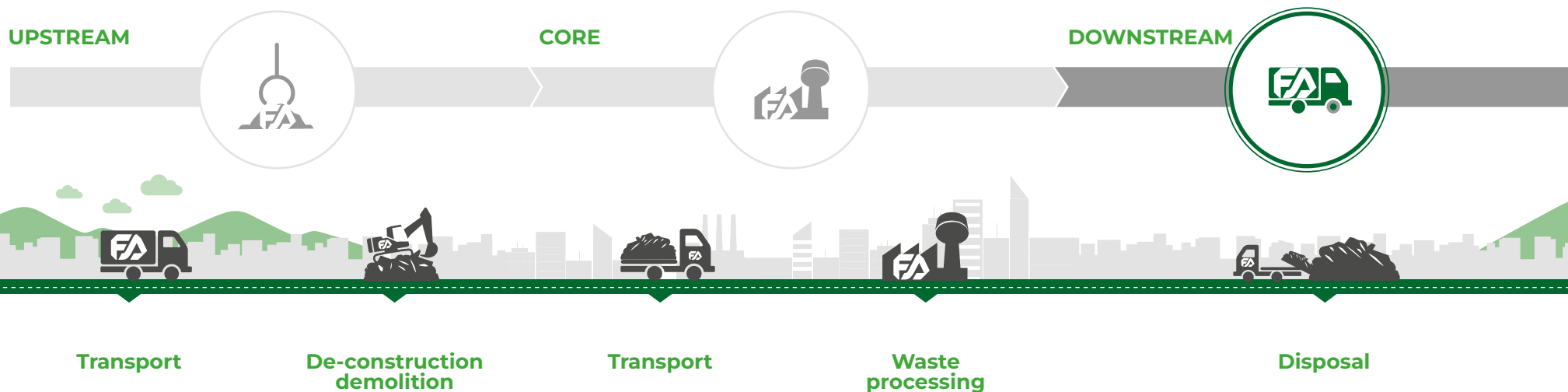
# UPSTREAM PROCESS



# CORE PROCESS



# DOWNSTREAM PROCESS



Transport to the customers (general market average).

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

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

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

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







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