

BASIC IRON OR STEEL PRODUCTS & SPECIAL STEELS, EXCEPT CONSTRUCTION STEEL PRODUCTS  
PRODUCT CATEGORY CLASSIFICATION: UN CPC 4112 AND 412

PCR 2015:03

*VERSION 3.0.0 FOR OPEN CONSULTATION. DO NOT USE OR CITE.*

VALID UNTIL 20XX-YY-ZZ *(TO BE ADDED BY THE SECRETARIAT)*

**DRAFT FOR OPEN  
CONSULTATION**

BASIC IRON OR STEEL PRODUCTS &amp; SPECIAL STEELS, EXCEPT CONSTRUCTION STEEL PRODUCTS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 4112 AND 412

## INTRODUCTION TO OPEN CONSULTATION

This draft PCR document is available for open consultation from 2024-11-06 until 2025-01-06. Feel free to forward the draft to any other stakeholder you might think is relevant, including colleagues and other organisations.

We are interested in comments from stakeholders on:

- General
  - Alignment with PCRs available in other programmes for type III environmental declarations, industry-specific LCA guidelines or similar.
- Scope of PCR
  - Product category definition and description
  - Classification of product category using CPC codes
- Goal and scope, life cycle inventory and life cycle impact assessment
  - Functional unit/declared unit
  - System boundary
  - Allocation rules
  - Data quality requirements
  - Recommended databases for generic data
  - Impact categories and impact assessment methodology
- Additional information

Comments shall be sent directly to the PCR Moderator (contact details available in Section 1). There is a template for comments on [www.environdec.com](http://www.environdec.com) that may be used.

For questions about the PCR, please contact the PCR moderator. For general questions about the International EPD System, EPD or PCR development, please contact the Secretariat via <https://www.environdec.com/support>.

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# 1 INTRODUCTION

This document constitutes Product Category Rules (PCR) developed in the framework of the International EPD System: a programme for Environmental Product Declarations (EPD)<sup>1</sup> according to ISO 14025:2006, ISO 14040:2006, ISO 14044:2006, and product-specific standards, such as EN 15804 and ISO 21930 for construction products. EPDs are voluntary documents for a company or an industry association to present transparent, consistent, and verifiable information about the environmental performance of their products (goods or services).

The General Programme Instructions (GPI), publicly available on [www.environdec.com](http://www.environdec.com), includes the rules for the overall administration and operation of the programme and the basic rules for developing EPDs registered in the programme. A PCR complements the GPI and the normative standards by providing specific rules, and guidelines for developing an EPD for one or more specific product categories (see Figure 1), thereby enabling the generation of consistent EPDs within a product category. A PCR should not repeat the rules and guidelines of the GPI, but include additions, specifications and deviations to the rules set in the GPI. As such, a PCR shall be used together with the GPI.

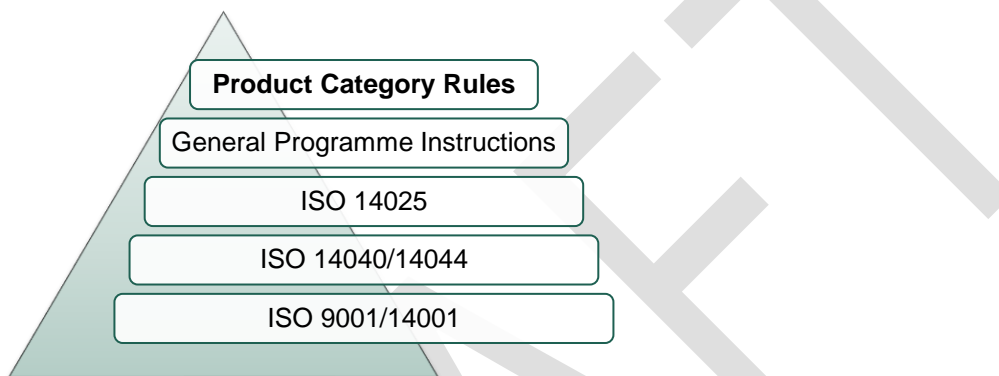


Figure 1. The hierarchy between PCRs, standards, and other documents.

The present PCR uses the following terminology:

- The term “shall” is used to indicate what is obligatory, i.e., a requirement.
- The term “should” is used to indicate a recommendation. Any deviation from a recommendation shall be justified in the EPD development process.
- The terms “may” or “can” are used to indicate an option that is permissible.

For definitions of other terms used in the document, see the GPI and normative standards.

Any references to this PCR shall include the PCR registration number, name, and version number.

The programme operator maintains the copyright of the PCR to ensure that it is possible to publish, update, and make it available to all organisations to develop and register EPDs. Stakeholders participating in PCR development should be acknowledged in the final document and on the website.

<sup>1</sup> Termed type III environmental declarations in ISO 14025.

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## 2 GENERAL INFORMATION

### 2.1 ADMINISTRATIVE INFORMATION

Name:	Basic iron or steel products & Special Steels, except construction products
Registration number and version:	PCR 2015:03, Version 3.0.0
Programme:	 The International EPD System
Programme operator:	EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden. Website: <a href="http://www.environdec.com">www.environdec.com</a> E-mail: <a href="mailto:support@environdec.com">support@environdec.com</a>
PCR Moderator:	Gorka Benito Alonso, IK INGENIERIA, g.benito@ik-ingenieria.com
PCR Committee:	<ul style="list-style-type: none"> <li>• Clare Broadbent - World Steel Association</li> <li>• Federico Musoni - NLMK Verona</li> <li>• Mats Zakcrisson - RISE Research Institutes of Sweden</li> <li>• Cesar Ruiz - Global Steel wire</li> <li>• Emilio Hidalgo - Sidenor Special Steels</li> <li>• Carlos Javier Abajo - CELSA, Castellbisbal</li> <li>• Olivier Nodin - Ascométal France</li> <li>• Carlo Brondi - Cnr - STIIMA. Institute of Intelligent Industrial Technologies and Systems for Advanced Manufacturing</li> </ul>
Publication date:	<i>To be added by the Secretariat</i> See Section 9 for a version history of the PCR.
Valid until:	<i>To be added by the Secretariat</i> The validity may change. See <a href="http://www.environdec.com">www.environdec.com</a> for the latest version of the PCR and the latest information on its validity and transition periods between versions.
Development and updates:	<p>The PCR has been developed following ISO 14027, including public consultation and review. The rules for the development and updating processes are described in Section 9 of the GPI.</p> <p>The PCR is valid for a pre-determined time period to ensure that it is updated at regular intervals. When the PCR is about to expire, the PCR Moderator shall initiate a discussion with the Secretariat on if and how to proceed with updating the PCR and renewing its validity. A PCR may be updated before it expires, based on changes in normative standards or provided significant and well-justified proposals for changes or amendments are presented.</p> <p>When there has been an update of the PCR, the new version should be used to develop EPDs. For small updates (change of third-digit version number), the previous version is normally immediately removed from the PCR library on <a href="http://www.environdec.com">www.environdec.com</a> and there is no transition period. For medium updates (change of second-digit version number), the previous version of the PCR is valid in parallel during a transition period of at least 90 days, but not exceeding its previously set validity period. For large updates (change of first-digit version number), the previous version is valid in parallel during a transition period of at least 180 days, but not exceeding its previously set validity period.</p> <p>Stakeholder feedback on PCRs is very much encouraged. Any comments on this PCR may be sent directly to the PCR Moderator and/or the Secretariat during its development or during its period of validity.</p>

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Standards and documents conformance:	General Programme Instructions of the International EPD System, version 5.0.0, based on ISO 14025 and ISO 14040/14044. <sup>2</sup>
PCR language(s):	At the time of publication, this PCR was available in English. If the PCR is available in several languages, these are available on <a href="http://www.environdec.com">www.environdec.com</a> . In case of translated versions, the English version takes precedence in case of any discrepancies.

## 2.2 SCOPE OF PCR

### 2.2.1 PRODUCT CATEGORY DEFINITION AND DESCRIPTION

This document provides Product Category Rules (PCR) for the assessment of the environmental performance of Crude steel and/or basic iron steel products including Special steels (except those destined to become construction products) and the declaration of this performance by an EPD. The product category corresponds to UN CPC4112 (Crude steel) and 412 (Products of iron or steel, not finished).

Crude steel and/or basic iron steel products must be considered those semi-finished steels or intermediate steels that will be further processed to become a finished consumer product. For example, ingots, billets, blooms, billets, slabs, plates, bars, rolled steel, etc., fall under the scope of this PCR, when they are manufactured with the goal to be supplied to further manufacturers and then transformed in final products like naval chains, bearing steels, tool steels, shafts for automotive industry, etc.

Additionally, Pig Iron is also under the scope of this PCR.

Construction steels are not included in this PCR as later explained.

This PCR covers the following steel manufacturing technologies: Blast Furnace (BF), Basic Oxygen Furnace (BOF) and Electric Arc Furnace (EAF):

- The steel making process using pig-iron from the blast furnace and scrap steel through BF and/or BOF.
- The steel making process using scrap steel or direct reduced iron (DRI) through EAF.
- Combined BF-BOF integrated steelmaking process

In the verified EPD, the technology used to manufacture the semi-finished steel product shall be detailed.

Other alternative steel making technologies (as for example inductive furnace route) are not covered by this PCR by now.

The product group and CPC code shall be specified in the EPD according to the classification as follows. The product category is defined under ISIC – CPC’s classifications:

United Nations Central Product Classification	UN CPC 4112
Section:	4 - Metal products, machinery and equipment
Division:	41 - Basic metals
Group:	411 - Basic iron and steel
Class:	4112 - Crude steel
Subclasses	41121 Non-alloy steel in ingots or other primary forms, and semi-finished products of non-alloy steel"
	41122 Alloy steel in ingots or other primary forms and semi-finished products of alloy steel"

United Nations Central Product Classification	UN CPC 412
Section:	4 - Metal products, machinery and equipment
Division:	41 - Basic metals
Group:	412 - Products of iron or steel
Classes:	4121 - Flat-rolled products of steel, not further worked than hot-rolled
	4122 Flat-rolled products of steel, not further worked than cold-rolled"

<sup>2</sup> Some rules influencing EPD development are independent of the GPI version referred to in the PCR. For example, the latest rules on EPD verification procedures in the GPI shall be followed within 90 days of its publication. See Section 5.1 in the GPI for a description of the four categories of rules and when they shall be followed.

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	4123	Flat-rolled products of steel, further worked than hot-rolled or cold-rolled; flat-rolled products of silicon-electrical and high-speed steel, whether or not further worked"
	4124	Bars and rods, hot-rolled, of iron or steel
	4125	Angles, shapes and sections, not further worked than hot-rolled, hot-drawn or extruded, of iron or non-alloy steel; sheet piling of steel; welded angles, shapes and sections, of steel; railway or tramway track construction material of steel
	4126	Bars, rods, angles, shapes and sections, cold-processed or further worked, of iron or steel; angles, shapes and sections, hot-rolled, hot-drawn or extruded, of alloy steel; steel wire"
	4127	Bars and rods of high-speed steel and silico-manganese steel; hollow drill bars and rods of steel"
	4128	Tubes, pipes and hollow profiles, of steel"
	4129	Tubes, pipes and hollow profiles of cast-iron and cast-steel and related fittings; tube or pipe fittings of steel other than cast"

Construction steels are not included in this PCR, as they are covered by the existing PCR 2019:14 - Construction products (EN 15804+A2), compliant with the EN 15804 standard "Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products".

### 2.2.2 GEOGRAPHICAL SCOPE

This PCR may be used globally.

### 2.2.3 EPD VALIDITY

An EPD becomes valid as of its version date (see Section 8.4.5 of the GPI). When an EPD is originally published, the validity period is normally five years starting from the version date or until the EPD has been de-registered from the International EPD System. Shorter validity periods are also accepted, for example if decided by the EPD owner.

For rules on when an EPD shall be updated and re-verified during its validity, see Section 6.8.1 of the GPI. For validity periods in case of updates of EPDs, see Section 6.8 of the GPI.

The version date and the period of validity shall be stated in the EPD.

Publication of a new version of the PCR or the GPI does not affect the validity of already published EPDs.

### 3 REVIEW AND BACKGROUND INFORMATION

This PCR was developed in accordance with the PCR development process described in the GPI of the International EPD System, including open consultation and review.

#### 3.1 OPEN CONSULTATION

##### 3.1.1 VERSION 1.0

This PCR was available for open consultation from 2015-02-15 until 2015-04-17, during which any stakeholder was able to provide comments by posting on the PCR forum on [www.environdec.com](http://www.environdec.com) or by contacting the PCR moderator.

Stakeholders were invited via e-mail or other means to take part in the open consultation, and were encouraged to forward the invitation to other relevant stakeholders.

No comments were received.

##### 3.1.2 VERSION 2.0

This PCR was available for open consultation from 2019-10-08 until 2019-12-03, during which any stakeholder was able to provide comments by posting on the PCR forum on [www.environdec.com](http://www.environdec.com) or by contacting the PCR moderator.

Stakeholders were invited via e-mail or other means to take part in the open consultation, and were encouraged to forward the invitation to other relevant stakeholders.

No comments were received.

##### 3.1.3 VERSION 3.0.0

This PCR update was available for open consultation from 2024-11-06 until 2025-01-06, during which any stakeholder was able to provide comments by contacting the PCR Moderator and/or the Secretariat.

Stakeholders were invited via e-mail or other means to take part in the open consultation and were encouraged to forward the invitation to other relevant stakeholders. The following stakeholders provided comments during the open consultation and agreed to be listed as contributors in the PCR and on [www.environdec.com](http://www.environdec.com):

- *List of stakeholder names and affiliation (to be added after the open consultation).*

*In case no stakeholders provided comments and agreed to be listed as contributors, the above sentence shall be adjusted accordingly ("No stakeholders provided comments during the open consultation and agreed to be listed as contributors in the PCR and on [www.environdec.com](http://www.environdec.com).") and the bullet list shall be removed.*

#### 3.2 PCR REVIEW

##### 3.2.1 VERSION 1.0

<p>PCR review panel:</p>	<p>The Technical Committee of the International EPD System. A full list of members is available on <a href="http://www.environdec.com">www.environdec.com</a>. The review panel may be contacted via <a href="mailto:support@environdec.com">support@environdec.com</a>.</p> <p>Members of the Technical Committee were requested to state any potential conflict of interest with the PCR Committee, and if there were conflicts of interest they were excused from the review.</p>
<p>Chair of the PCR review:</p>	<p>Massimo Marino</p>



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Review dates:	2015-06-05 – 2015-06-25
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### 3.2.2 VERSION 2.0

PCR review panel:	The Technical Committee of the International EPD® System. A full list of members available on <a href="http://www.environdec.com">www.environdec.com</a> . The review panel may be contacted via <a href="mailto:info@environdec.com">info@environdec.com</a> .  Members of the Technical Committee were requested to state any potential conflict of interest with the PCR moderator or PCR committee, and were excused from the review.
Chair of the PCR review:	Hudai Kara
Review dates:	2019-12-05 – 2020-03-27

### 3.2.3 VERSION 3.0.0

PCR review panel:	The Technical Committee of the International EPD® System. A full list of members available on <a href="http://www.environdec.com">www.environdec.com</a> . The review panel may be contacted via <a href="mailto:info@environdec.com">info@environdec.com</a> .  Members of the Technical Committee were requested to state any potential conflict of interest with the PCR moderator or PCR committee, and were excused from the review.
Chair of the PCR review:	To be added by the secretariat
Review dates:	To be added by the secretariat

## 3.3 EXISTING PCRS FOR THE PRODUCT CATEGORY

As part of the development of this PCR, existing PCRs and other internationally standardised methods that could potentially act as PCRs were considered to avoid unnecessary overlaps in scope and to ensure harmonisation with established methods of relevance for the product category. The existence of such documents was checked among the following EPD programmes and international standardisation bodies:

- International EPD System. [www.environdec.com](http://www.environdec.com).
- AENOR Global EPD. <https://www.aenor.com/>
- EPD Norge. <https://www.epd-norge.no/>
- Institut Bauen und Umwelt (IBU): <https://epd-online.com>
- SCS Global Services <https://www.scsglobalservices.com/>

Table 1. Existing PCRs and other internationally standardised methods that were considered to avoid overlap in scope and to ensure harmonisation with established methods.

Name of PCR/standard, incl. registration number	Programme/standardisation body	Version number	Scope
Fabricated metal products, except	International EPD System	PCR 2023:01, v1.0.2	LCA basis for developing EPDs for

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construction products (1.0.2)			finished metal products manufacturers
Hot-rolled non-alloy construction steel products from electric furnace rules	AENOR GLOBAL EPD	RCP-001	LCA basis for developing EPDs for finished steel construction products manufacturers
Steel and aluminium construction products	EPD NORGE	NPCR 013	LCA basis for developing EPDs for finished steel construction products manufacturers
Building metals	IBU	V6	LCA basis for developing EPDs for Building metals
Structural steels	IBU	V7	LCA basis for developing EPDs for Structural steels
Thin walled profiles and profiled panels of metal	IBU	V6	LCA basis for developing EPDs for walled profiles and profiled panels of metal
Reinforcing Steel	IBU	V6	LCA basis for developing EPDs for Reinforcing Steel
Steel pipes for pressure applications	IBU	V6	LCA basis for developing EPDs for Steel pipes for pressure applications

### 3.4 REASONING FOR DEVELOPMENT OF PCR

This PCR was developed to enable publication of EPDs for the product category defined in Section 2.2.1 based on ISO 14025 and ISO 14040/14044. The PCR enables different practitioners to generate consistent results when assessing the environmental impact of products of the same product category, and thereby it supports comparability of products within a product category.

### 3.5 UNDERLYING STUDIES USED FOR PCR DEVELOPMENT

The methodological choices made during the development of this PCR (declared/functional unit, system boundary, allocation methods, impact categories, data quality rules, etc.) were primarily based on the following underlying studies:

- LCA & Environmental Product Declaration from Sidenor Aceros Especiales S.L. 37MnSiV6R Microalloyed steel. September 15, 2022
- LCA & Environmental Product Declaration from Global Steel Wire, SA. Special Steel wire rod produced in Electric Arc Furnace. December 11, 2023
- LCA & Environmental Product Declaration from Global Steel Wire, SA. High carbon wire, cold heading wire and wire derivatives. September 29, 2022
- LCA & Environmental Product Declaration from nervacero, S.A.(Celsa Group). Steel billets. September 20, 2023
- LCA & Environmental Product Declaration from Trefilerías Quijano. High carbon wire, cold heading wire and wire derivatives. September 29, 2022
- LCA & Environmental Product Declaration from Quijano Bedding & Seating. Steel Wire for mattress springs, upholstery and different applications. September 27, 2022
- LCA & Environmental Product Declaration from Celsa France, S.A.S. Steel billets. September 20, 2023
- LCA & Environmental Product Declaration from Laminados Losal S.A.U. Bulb flat. March 6, 2024
- LCA & Environmental Product Declaration from Acerinox Europa S.A.U. Hot-Rolled ferritic Stainless steel. July 12, 2023

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- LCA & Environmental Product Declaration from Acerinox Europa S.A.U. Cold Rolled Ferritic Stainless Steel. July 12, 2023
- LCA & Environmental Product Declaration from Acerinox Europa S.A.U. Hot rolled Austenitic Stainless Steel. July 12, 2023
- LCA & Environmental Product Declaration from Acerinox Europa S.A.U. Cold-Rolled Austenitic Stainless Steel. July 12, 2023

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## 4 LCA METHOD

This section provides rules for the LCA method used to develop an EPD for the product category as defined in Section 2.2.1. The basic rules of the LCA method are set in Annex A of the GPI, and this section only includes additions, specifications and deviations to the rules set in the GPI. Guidance and examples of applying the LCA method are also available on [www.environdec.com/methodology](http://www.environdec.com/methodology).

### 4.1 MODELLING APPROACH

See Section A.1 of the GPI.

As a reminder, note that the LCA modelling approach of the International EPD System is attributional LCA (in contrast to consequential LCA), meaning that specific or average data shall be used (i.e., not marginal data), and that allocation problems shall be solved via allocation and not by sub-dividing the unit process into two or more subprocesses, (also called system expansion beyond the system boundaries or “substitution”. Credits for avoided environmental impact shall not be used to solve allocation problems).

### 4.2 DECLARED/FUNCTIONAL UNIT

In this PCR, a declared unit is used instead of a functional unit. A declared unit is used when the function or end-use of the product is unknown or cannot be established.

The declared unit shall be defined as 1 tonne (1000 kg) of semi-finished iron or steel product and its packaging (the weight of the packaging is not included in this 1000kg). The reference flow corresponds to the declared unit and shall be defined at the at the manufacturer gate.

The declared unit shall be specified in the EPD. The declared unit is independent on the production characteristics in terms of diameters range or other geometrical characteristics.

#### 4.2.1 TECHNICAL SPECIFICATION, LIFESPAN AND REFERENCE SERVICE LIFE (RSL)

As a “cradle-to-gate” approach is applied, there are no technical specifications to be considered or declared of the product as part of its function.

As noted in 2.1.1, crude steel and/or basic iron steel products are considered to be semi-finished steels or intermediate steels that will be further processed to become a finished consumer product, but its final form function and use is not yet defined when declaring the current environmental data according to the scope covered by this PCR.

So there is no need to specify any estimated product lifespan or RSL, as it does not apply.

### 4.3 SYSTEM BOUNDARY

As this PCR covers intermediate products or products for which further processing, the end use is unknown. The system boundary then is limited to “cradle to gate” in accordance to GPI Section A.3.

All environmentally relevant processes from “cradle-to-gate” should be included, so that at minimum 95% of the total energy use, mass of product content, and environmental impact is accounted for (see Section 4.5).

End-of-life treatment is excluded, as the intermediate iron or steel product will be further processed and transformed (sometimes physically, sometimes chemically) into other product system. A “cradle-to-grave” LCA study will require detailed information and parameters to define the function of the finished product and scenarios for handling the use and EOL treatments, in order to meet comparability within the specific product group. As the objective of this PCR is to cover semi-finished or intermediate iron and steels that will be further processed to become a finished consumer product, there is no way of applying a common product group criteria for use and EOL processes. Finished steel products manufactured from intermediate steels could have any application (automotive, construction, naval, pipes, boilers, containers, scientific sector, electronics etc.) and the environmental impact of those in downstream stages should be defined, calculated and allocated by the manufacturers of those finished products (using these intermediate-steels LCA and EPD data as part of his own Upstream processes). So products under this PCR are supposed to be used alongside the manufacturing chain of finished steel products, being supplied to next manufacturing stage by the EPD owners.

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Not including EOL stage in the system boundaries does not affect to the overall environmental profile considering that the method of avoiding allocation by expanding the system boundaries is not applicable within the framework of the International EPD System due to the rationale of the book-keeping LCA approach (Attributional LCA) used and the concept of modularity ("Polluter-Pays Principle"). So neither credits associated with upstream burdens of the scrap used in the steel making process nor credits associated with EOL recycling of the semi-finished steel product could be included (any "negative flows" should be changed to zero).

### 4.3.1 LIFE-CYCLE STAGES AND INFORMATION MODULES

According to the "cradle-to-gate" scope of this PCR, the product life cycle shall be divided into the A1-A3 life-cycle stages and information modules:

- Product stage, modules A1-A3:
  - A1: Raw material extraction and processing (e.g., mining of iron ore, coal, alloys...), production of materials, processing of secondary material input (e.g., scrap, recycled alloys...), production of distribution and consumer packaging, etc.
    - Iron Ore: Production of direct Iron ore, sintered, pelletized, direct reduced iron and briquetted shall be included in the LCA.
    - Coal: Anthracite or metallurgical coke. If no specific data is available, an average global coal mix source could be used, using data from either LCA updated databases or from a recognised International Energy Agency. Mining origin of Coal should be taken into account.
    - Scrap: Origin of scrap used in steelmaking should be explained in the LCA related information section in the EPD, and included in the LCA calculations, either it is external (post-consumer) or internal (pre-consumer) scrap.
    - Production of distribution and consumer packaging, if relevant.
  - A2: Transports from the suppliers to the manufacturer of the semi-finished iron or steel product
  - A3: Manufacturing of the product<sup>3</sup>
    - Auxiliary materials consumption for manufacturing process, including manufacturing process related material consumption such as e.g., limestone, electrodes, refractory, fluxes, chemicals... energy production and consumption, emissions to air, water and soil
    - Waste generated during manufacturing and its treatment (slag, sludges, etc.)
    - Emissions generated during manufacturing (CO, NO<sub>x</sub>, SO<sub>x</sub>, heavy metals, PM, etc.)
    - Generation of electricity used in the manufacturing process
    - Production and consumption of fuels, steam and other energy carriers used in the manufacturing.
    - Furnace gases, Slags, Mill scale, Dusts: The Steelmaking process generates important and valuable co-products, as materials (steel dust, slags...) or as energy sources (hot gases converted in electricity or in heat). Any treatment previous to putting these co-products in the market should be included in this module. Considered allocation method should be explained and applied in accordance with this PCR rules.

In the EPD, the environmental performance of each A1-A3 life-cycle stages shall be reported separately, and in aggregated form for the life-cycle stages (module A).

Note that generation of electricity and production of fuels, steam and other energy carriers shall be assigned to the information module in which the energy carrier is used. Also note that each module shall include the waste processing of waste generated in the module up to the end-of-waste state or final disposal. Related, note the way of assigning losses described in Figure 3 of Section A.3.1 of the GPI.

Processes not listed here may also be included. All elementary flows at resource extraction shall be included, except for the flows that fall under the general cut-off rule in Section 4.5.

<sup>3</sup> These are often, but not always, the processes under operational control of the EPD owner.

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4.3.1.1 Excluded processes

See Section A.3.1.1 of the GPI.

4.3.2 OTHER BOUNDARY SETTING RULES

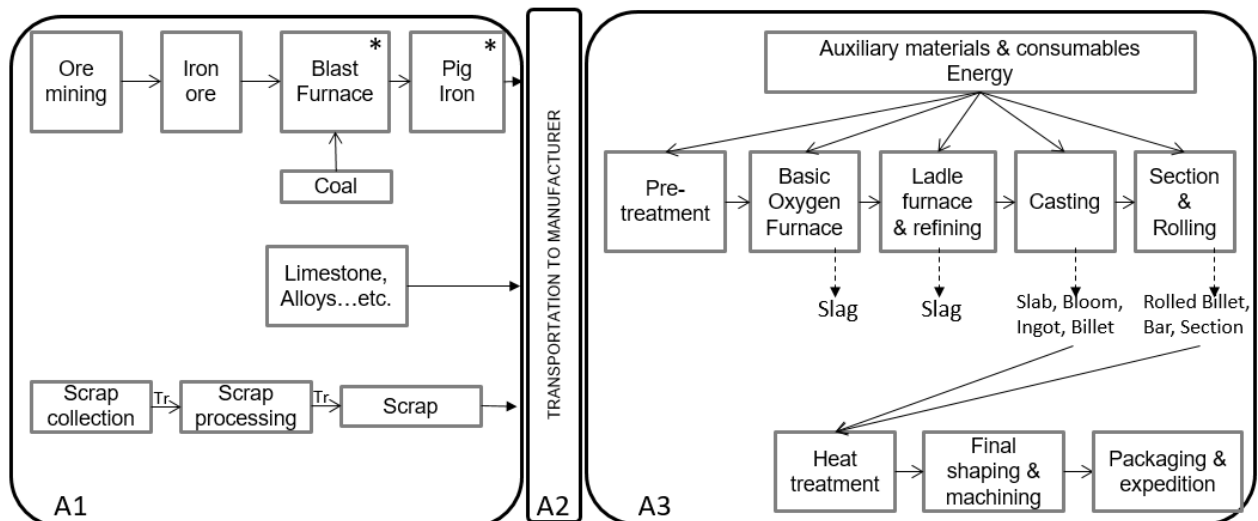
See Section A.3.2 of the GPI for rules on setting boundaries to nature as well as geographical and temporal boundaries. See Section A.4 of the GPI and Section 4.6 below for rules on setting boundaries to other product systems.

4.4 PROCESS FLOW DIAGRAM

The specific process flow diagram of the steelmaking manufacturer will depend on the technologies and the integrated processes the manufacturer has, the flow diagrams below are given as reference but shall be adapted to the actual processes of the declaring manufacturer:

- Steel making process using pig-iron from blast furnace and scrap steel through Basic Oxygen Furnace (BOF).

BASIC OXYGEN FURNACE (BOF)



\* Some manufacturers may have the Blast furnace and the pig iron making inside their facilities, instead of buying the Pig Iron from suppliers. In this case, these processes could be included in the A3 module.

Figure 1. Process flow diagram illustrating the processes that shall be included in the product system, divided into the life-cycle stages. The illustration of processes to include may not be exhaustive.

- The steel making process using scrap steel or direct reduced iron (DRI) through Electric Arc Furnace (EAF)

### ELECTRIC ARC FURNACE (EAF)

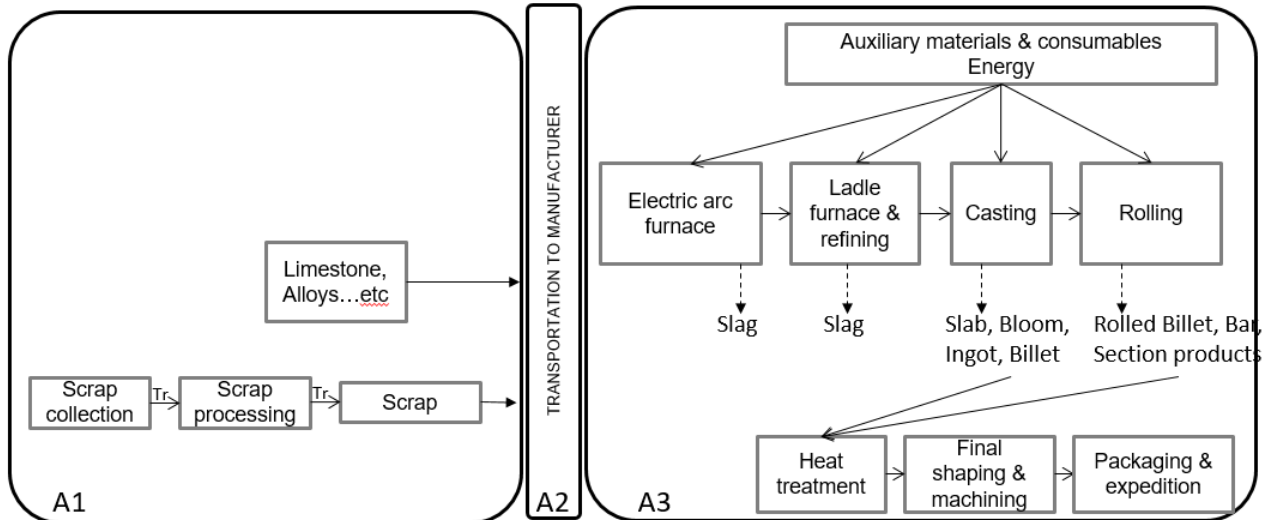


Figure 2. Process flow diagram illustrating the processes that shall be included in the product system, divided into the life-cycle stages. The illustration of processes to include may not be exhaustive.

## 4.5 CUT-OFF RULES

See Section A.3.3 of the GPI.

## 4.6 ALLOCATION RULES

See Section A.4 of the GPI.

### 4.6.1 ALLOCATION OF CO-PRODUCTS

See Section A.4.1 of the GPI.

### 4.6.2 ALLOCATION OF WASTE

See Section A.4.2 of the GPI.

## 4.7 DATA AND DATA QUALITY RULES

See Section A.5 of the GPI.

### 4.7.1 DATA CATEGORIES

See Section A.5.1 of the GPI.

### 4.7.2 DATA QUALITY REQUIREMENTS FOR PRIMARY DATA

See Section A.5.2 of the GPI.

### 4.7.3 DATA QUALITY REQUIREMENTS FOR REPRESENTATIVE SECONDARY DATA

See Section A.5.3 of the GPI.

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#### 4.7.4 DATA QUALITY ASSESSMENT AND DECLARATION

See Section A.5.4 of the GPI.

#### 4.7.5 EXAMPLES OF DATABASES FOR SECONDARY DATA

Table 2 lists examples of databases and datasets to be used for secondary data. Note that a data quality assessment shall be performed also for data listed in the table, and that other data that fulfil the data quality requirements may also be used.

Table 2. Examples of databases and datasets to use for secondary data.

Process	Geographical scope	Database
Steel, Iron ore and Pig Iron	Global	World Steel Association <a href="http://www.worldsteel.org">www.worldsteel.org</a>
Steel, Iron ore and Pig Iron	Global	Ecoinvent database <a href="http://www.ecoinvent.com">www.ecoinvent.com</a>
Electricity	Global	Data combined with IEA (International Energy Agency) statistics on electricity generation mixes for nations, regions, etc. <a href="http://www.iea.org/statistics/">http://www.iea.org/statistics/</a>
Electricity	Global	Ecoinvent database <a href="http://www.ecoinvent.com">www.ecoinvent.com</a>
Chemicals	European	European Commission Environment <a href="http://ec.europa.eu/enterprise/sectors/chemicals/reach/index_en.htm">http://ec.europa.eu/enterprise/sectors/chemicals/reach/index_en.htm</a>
Chemicals	Global	Ecoinvent database <a href="http://www.ecoinvent.com">www.ecoinvent.com</a>
Transports	European	European Reference Life Cycle Data System (ELCD) <a href="http://eplca.jrc.ec.europa.eu/ELCD3">http://eplca.jrc.ec.europa.eu/ELCD3</a>
Transports	Global	Ecoinvent database <a href="http://www.ecoinvent.com">www.ecoinvent.com</a>
Waste management	Global	Ecoinvent database <a href="http://www.ecoinvent.com">www.ecoinvent.com</a>

#### 4.8 OTHER LCA RULES

See Section A.6 of the GPI.

##### 4.8.1 MASS BALANCE

See Section A.6.1 of the GPI.

##### 4.8.2 ELECTRICITY MODELLING

See Section A.6.2 of the GPI.

##### 4.8.3 BIOGAS MODELLING

See Section A.6.3 of the GPI.

#### 4.9 SPECIFIC RULES PER LIFE-CYCLE STAGE AND MODULE D

See Section A.7 of the GPI.

#### 4.10 ENVIRONMENTAL PERFORMANCE INDICATORS

See Section A.8 of the GPI.



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## 4.11 SPECIFIC RULES PER EPD TYPE

### 4.11.1 MULTIPLE PRODUCTS FROM THE SAME COMPANY

See Section A.9.1 of the GPI.

As a reminder, note that several sets of results reflecting different products, shall not be declared in the same EPD.

However, similar products may be grouped and thereby included in the same EPD under one only set of results.

*Similar products are defined as products covered by the same PCR, with identical or similar functions, manufactured by a single company at one or several manufacturing sites, with the same major steps in the A3/core processes.*

For such an EPD, there are three options:

- For each indicator, declare the average results of the included products. This average shall be weighted according to the production volumes of the included products. In this option, the average content shall be declared in the content declaration.
- Declare the results of one of the included products i.e., one representative product. The choice of the representative product shall be justified in the EPD, for example based on production volumes. In this option, the content of the representative product shall be declared in the content declaration.
- For each indicator and module, declare the highest result of the included products. This options thus corresponds to the results of a “worst-case product”, which may be consists of results from one or several of the included products. In this option, the content declaration shall include the lowest amounts of recycled content of the included products and their packaging, respectively, and the information on environmental and hazardous properties of substances shall reflect the highest share and most hazardous such substances contained in the any of the included products.

For all options, the range of the content of the included products should be included in the content declaration, in addition to the average/representative/worst-case content as specified above.

As the scope of the PCR does not include construction products, variations in the environmental results above 10% are allowed. The LCA report shall include an explanation of the variation and a justification of the grouping of products, and the EPD shall (in the LCA information section) declare the variation of each impact indicator results for which the variation is above 10% and include an explanation of the variation. EPDs based on worst-case results, are exempted from the requirement to declare the variation if above 10%.

The option chosen shall be clearly described at the cover page of the EPD, as “EPD of multiple products, based on the average results of the product group”, “EPD of multiple products, based on a representative product”, “EPD of multiple products, based on several representative products”, or “EPD of multiple products, based on worst-case results”.

### 4.11.2 SECTOR EPD

See Section A.9.2 of the GPI.

### 4.11.3 EPD OWNED BY A TRADER

See Section A.9.3 of the GPI.

### 4.11.4 EPD OF PRODUCT NOT YET ON THE MARKET

See Section A.9.4 of the GPI.

### 4.11.5 EPD OF PRODUCT RECENTLY ON THE MARKET

See Section A.9.5 of the GPI.

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## 5 CONTENT OF LCA REPORT

Data for verification shall be presented in the form of an LCA report – a systematic and comprehensive summary of the project documentation that supports the verification of an EPD. The LCA report is not part of the public communication.

See Section 8.3.1 of the GPI for rules on the content of the LCA report.

Note that there may be rules on the content of the LCA report elsewhere in the GPI or in this PCR.

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## 6 CONTENT AND FORMAT OF EPD

See Section 7 of the GPI.

### 6.1 EPD LANGUAGES

See Section 7.1 of the GPI.

### 6.2 UNITS AND QUANTITIES

See Section 7.2 of the GPI.

### 6.3 USE OF IMAGES IN EPD

See Section 7.3 of the GPI.

### 6.4 SECTIONS OF THE EPD

See Section 7.4 of the GPI.

#### 6.4.1 COVER PAGE

See Section 7.4.1 of the GPI.

#### 6.4.2 GENERAL INFORMATION

See Section 7.4.2 of the GPI.

#### 6.4.3 INFORMATION ABOUT EPD OWNER

See Section 7.4.3 of the GPI.

#### 6.4.4 PRODUCT INFORMATION

See Section 7.4.4 of the GPI.

#### 6.4.5 CONTENT DECLARATION

See Section 7.4.5 of the GPI.

Information about the content of the product in the form of a list of materials and substances, and their mass, shall be declared.

Proprietary materials and substances of confidential nature are exempted from the above requirement (see Section 8.2.3 of the GPI). If not declared, these shall be replaced by a generic term/description of the material/substance and/or a range of values (instead of specific values), provided that the applicable rules for declaration of hazardous are followed.

The recycled content of steel in the final product, if not known, as average, shall be declared.

#### 6.4.6 LCA INFORMATION

See Section 7.4.6 of the GPI.

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## 6.4.7 ENVIRONMENTAL PERFORMANCE

See Section 7.4.7 of the GPI.

The EPD shall declare the environmental performance indicators listed or referred to in Section 4.10, per declared unit, per life-cycle stage A1 to A3 separated, and in aggregated form.

## 6.4.8 ADDITIONAL ENVIRONMENTAL INFORMATION

See Section 7.4.8 of the GPI.

## 6.4.9 ADDITIONAL SOCIAL AND ECONOMIC INFORMATION

See Section 7.4.9 of the GPI.

## 6.4.10 INFORMATION RELATED TO SECTOR EPDS

See Section 7.4.10 of the GPI.

## 6.4.11 VERSION HISTORY

See Section 7.4.11 of the GPI.

## 6.4.12 ABBREVIATIONS

See Section 7.4.12 of the GPI.

## 6.4.13 REFERENCES

See Section 7.4.13 of the GPI.

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## 7 LIST OF ABBREVIATIONS

CPC	Central product classification
EPD	Environmental product declaration
GPI	General Programme Instructions
ISO	International Organization for Standardization
LCA	Life cycle assessment
PCR	Product category rules
RSL	Reference service life
UN	United Nations
SI	The International System of Units
BOF	Basic Oxygen Furnace
EAF	Electric Arc Furnace
CO <sub>2</sub>	Carbon dioxide
NM VOC	Non-methane volatile organic compounds
SO <sub>2</sub>	Sulphur dioxide

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## 8 REFERENCES

PCR Basic Module, CPC Division 41: Basic metal products, except machinery and equipment”, version 2.0, dated 2013-10-24

PCR 2014:10 Fabricated steel products, except construction products, machinery and equipment (Version 1.0)

EPD NORGE:NPCR 013 Steel as Construction Material

IBU: PCR for building metals. 2012-10

EPD International (2024) General Programme Instructions for the International EPD System. Version 5.0.0, dated 2024-06-19. Available on [www.environdec.com](http://www.environdec.com).

ISO (2006a) ISO 14025:2006, Environmental labels and declarations – Type III environmental declarations – Principles and procedures.

ISO (2006b) ISO 14040:2006, Environmental management – Life cycle assessment – Principles and framework.

ISO (2006c) ISO 14044: 2006, Environmental management – Life cycle assessment – Requirements and guidelines.

ISO (2015a) ISO 14001:2015, Environmental management systems – Requirements with guidance for use.

ISO (2015b) ISO 9001:2015, Quality management systems – Requirements.

ISO (2018b) ISO/TS 14067:2018, Greenhouse gases – Carbon footprint of products – Requirements and guidelines for quantification and communication.

LCA & Environmental Product Declaration from Sidenor Aceros Especiales S.L. 37MnSiV6R Microalloyed steel. September 15, 2022

LCA & Environmental Product Declaration from Global Steel Wire, SA. Special Steel wire rod produced in Electric Arc Furnace. December 11, 2023

LCA & Environmental Product Declaration from Global Steel Wire, SA. High carbon wire, cold heading wire and wire derivatives. September 29, 2022

LCA & Environmental Product Declaration from nervacero, S.A.(Celsa Group). Steel billets. September 20, 2023

LCA & Environmental Product Declaration from Trefilerías Quijano. High carbon wire, cold heading wire and wire derivatives. September 29, 2022

LCA & Environmental Product Declaration from Quijano Bedding & Seating. Steel Wire for mattress springs, upholstery and different applications. September 27, 2022

LCA & Environmental Product Declaration from Celsa France, S.A.S. Steel billets. September 20, 2023

LCA & Environmental Product Declaration from Laminados Losal S.A.U. Bulb flat. March 6, 2024

LCA & Environmental Product Declaration from Acerinox Europa S.A.U. Hot-Rolled ferritic Stainless steel. July 12, 2023

LCA & Environmental Product Declaration from Acerinox Europa S.A.U. Cold Rolled Ferritic Stainless Steel. July 12, 2023

LCA & Environmental Product Declaration from Acerinox Europa S.A.U. Hot rolled Austenitic Stainless Steel. July 12, 2023

LCA & Environmental Product Declaration from Acerinox Europa S.A.U. Cold-Rolled Austenitic Stainless Steel. July 12, 2023

## 9 VERSION HISTORY OF PCR

### VERSION 1.0, 2015-07-01

Original version of PCR published.

### VERSION 1.01, 2015-09-29

Corrected error, as an indicator for renewable energy resources was missing.

### VERSION 2.0, 2020-03-27

Compliance with General Programme Instructions for the International EPD® System. Version 3.01, and prolonged validity by four years.

### VERSION 2.1, 2023-09-23

Added Pig Iron under the scope of the PCR

### VERSION 2.1.1, 2024-01-17

Validity period prolonged with 1 year upon initiation of an updating process.

### VERSION 3.0.0, 202X-XX-XX

PCR updated content adapted to requirements in GPI 5.0

PRODUCT CATEGORY RULES (PCR)

PUBLICATION DATE 20YY-MM-DD *(TO BE ADDED BY THE SECRETARIAT)*



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