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DIRECTORATE-GENERAL
TAXATION AND CUSTOMS UNION

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GUIDANCE DOCUMENT ON CBAM IMPLEMENTATION FOR IMPORTERS OF GOODS INTO THE EU

This guidance document represents the views of the European Commission Services at the time of publication. It is not legally binding.

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1   SUMMARY

The Carbon Border Adjustment Mechanism (CBAM) is an environmental policy instrument designed to apply the same carbon costs to imported products as would be incurred by installations operating in the European Union (EU). In doing so, the CBAM reduces the risk of the EU's climate objectives being undermined by production relocating to countries with less ambitious decarbonisation policies (so-called 'carbon leakage').

Under the CBAM, in its definitive (post-transitional) period EU authorised declarants representing the importers of certain goods will purchase and surrender CBAM certificates for the embedded emissions of their imported goods. As the price for those certificates will derive from the EU Emission Trading System (EU ETS) allowance price, and since Monitoring, Reporting and Verification (MRV) rules have been designed based on the MRV system of the EU ETS, this will equalise the price of carbon incurred between imported goods and goods produced in installations participating in the EU ETS.

This guidance document is part of a series of guidance documents and electronic templates provided by the European Commission to support the harmonised implementation of the CBAM during **the transitional period (1 October 2023 to 31 December 2025)**. It provides an introduction to the CBAM and the concepts to be used for reporting of embedded emissions of goods imported into the EU. This guidance does not add to the mandatory requirements of the CBAM, but it is aimed at assisting correct interpretation to facilitate implementation.

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2   INTRODUCTION

2.1   About this document

This document has been written to support stakeholders by explaining the requirements of the CBAM Regulation in a non-legislative language. This guidance focuses on the **requirements for importers of CBAM goods into the EU for the transitional period, from 1 October 2023 to 31 December 2025**, during which time the CBAM is applied without a financial obligation for importers and solely for data collection purposes.

- **Chapter 3** provides a quick guidance for the intended reader of this document, the importer of CBAM goods and/ or reporting declarant. It gives a roadmap to the most important concepts of CBAM reporting and where to find more information in this document.

- **Chapter 4** provides an introduction to the CBAM and an overview of the compliance cycle, roles and responsibilities and milestones and deadlines for reporting declarants during the transitional period.

- **Chapter 5** presents an overview of the goods and value chains for the sectors and goods that are included in the scope of the CBAM.

- **Chapter 6** sets out the reporting obligations and recommendations which are potentially applicable to any affected importer of CBAM goods.

- **Chapter 7** explains the general exemptions from the CBAM.

A separate guidance document is provided by the European Commission for third country operators of installations producing CBAM goods (herein referred to as "operators"). The guidance documents are accompanied by an electronic template for information that may be used by installation operators to communicate information on the embedded emissions of their goods to the reporting declarants.

Presentation of numbers in EU documents

To align with EU legal documents, this guidance document uses the following convention when presenting numbers.

The decimal separator used to separate the integral part of a number from its fractional part is a comma, e.g.: 0,890

Thousands, and powers of 10^{3n} thereafter, are separated by a space, e.g.:

- fifteen thousand is written as 15 000

- fifteen million is written as 15 000 000

2.2 How to use this document

Where article numbers are given in this document without further specification, they always refer to the CBAM Regulation[1]. Where the 'Implementing Regulation' is cited, it means the Regulation[2] which sets out the detailed monitoring and reporting rules for the transitional period. For acronyms and definitions used in this document, please see Annex A and Annex B.

A series of icons are used throughout to help guide the reader:

Icon	Description of use
!	Points to information of particular importance for importers and reporting declarants.
Simplified!	Highlights simplified approaches of the general requirements of the CBAM.
(lightbulb icon)	Used where recommended improvements are presented
(hammers icon)	Used where other documents, templates or electronic tools are available from other sources
(book icon)	Points to examples given for the topics discussed in the surrounding text
▶▶▶	Highlights sections that refer to the definitive period of the CBAM, rather than the transitional period

2.3 Where to find further information

The textbox below signposts the key sections of the CBAM Regulation and the Implementing Regulation that are **relevant to importers of CBAM goods during the transitional period**.

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[1] Regulation (EU) 2023/956 of the European Parliament and of the Council of 10 May 2023 establishing a carbon border adjustment mechanism; Available from: http://data.europa.eu/eli/reg/2023/956/oj

[2] Commission Implementing Regulation (EU) …/... of 17 August 2023 laying down the rules for the application of Regulation (EU) 2023/956 of the European Parliament and of the Council as regards reporting obligations for the purposes of the carbon border adjustment mechanism during the transitional period; available from: the European Commission's dedicated website for the CBAM.

The CBAM Regulation

Regulation (EU) 2023/956 of the European Parliament and of the Council of 10 May 2023 establishing a carbon border adjustment mechanism.

Available from: **http://data.europa.eu/eli/reg/2023/956/oj**

- **Article 2** – sets out the scope of the CBAM with reference to Annex I.

- **Article 3 and Annex IV** – provide definitions for common terms used in the CBAM.

- **Articles 5 and 17** – sets out requirements for application for the status of authorised CBAM declarant, by importers or their indirect customs representative, to import goods, and for the authorisation by the relevant Member State. (*Apply from 31 December 2024*).

- **Article 10** – sets out requirements for operator registration under the CBAM (*from 31 December 2024*).

- **Article 11** – requires Member States to designate a competent authority and for the European Commission to publish the list of competent authorities and include it in the CBAM registry.

- **Articles 14 and 16** – requires the European Commission to establish a CBAM registry of authorised CBAM declarants and to assign an account to each authorised declarant. (*Apply from 31 December 2024*).

- **Article 30** – requires the European Commission to undertake a review of the scope of the CBAM by 31 December 2024.

- **Articles 32 to 35** – set out the reporting obligations on EU importers in the transitional period.

- **Article 36** – sets out the dates from when the other articles start to apply.

- **Annex I** – provides the list of CBAM goods by industry sector with CN code to identify goods, and the corresponding relevant greenhouse gases.

- **Annex III** – identifies the non-EU countries and territories that are not covered by the CBAM.

- **Annex IV** – provides the general methods for calculating the embedded emissions in goods; in section 2 for Simple Goods and in section 3 for Complex Goods.

Implementing Regulation (pursuant to Article 35(7) of the CBAM Regulation):

Commission Implementing Regulation (EU) …/... of 17 August 2023 laying down the rules for the application of Regulation (EU) 2023/956 of the European Parliament and of the Council as regards reporting obligations for the purposes of the carbon border adjustment mechanism during the transitional period.

Available from: https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en

- **Article 2 and Annex II** Section 1 – provide definitions for common terms used in the CBAM and the MRV rules.

- **Article 3** – provides the reporting obligations of the reporting declarants, including the parameters for which data is to be reported.

- **Articles 4 and 5** – set out the approaches for the calculation of the embedded emissions and conditions for the use of default values.

- **Article 6** – presents the requirements for reporting regarding inward processing.

- **Article 7** – indicates the information to be reported regarding the carbon price due.

- **Articles 8, 9 and 13** – relate to the obligations of the reporting declarant for submission and modification of the CBAM reports.

- **Article 16** – relates to the penalties that shall be applied by Member States if the reporting declarant has not correctly fulfilled its reporting obligations.

- **Articles 19 and 22** – set out technical elements of the CBAM Transitional Registry.

- **Annex I**: Table 1 - CBAM Report Structure, Table 2 - Detailed information requirements in the CBAM report.

- **Annex II**: Section 2, Table 1 – mapping of CN codes to the CBAM aggregated goods categories; and Section 3 – definition of production processes for the CBAM goods categories, including system boundaries of production routes and relevant precursors.

- **Annex IV:** Minimum data to be reported by producers of goods ("operators") to importers (or reporting declarants).

- **Annexes V to VII**: Tables listing data requirements for other reports, including for inward processing (by importers), EORI and the National Import System.

- **Annex VIII:** Standard factors that may be used for the monitoring of direct emissions.

 All EU legislation can be found on: **eur-lex.europa.eu/homepage.html**

Other guidance and training materials that have been produced by the European Commission to help operators and importers include:

- A separate guidance document is provided by the European Commission for operators of non-EU installations producing CBAM goods.

- Guidance developed for importers on how to complete quarterly reports on the CBAM Trader Portal.

- Excel-based template for operators to automatically calculate embedded emissions and communicate this data clearly to importers of goods.
- Training videos.

The guidance documents and template are available on the European Commission's dedicated CBAM website.

3   QUICK GUIDE FOR IMPORTERS

This section provides a step-by-step overview of important concepts, rules and obligations under the transitional period.

Are you an importer of CBAM goods? CBAM goods are goods currently imported into the EU from the cement, iron and steel, aluminium and some chemical industries (fertilizers and hydrogen), and electricity. To answer this question, you must compare the CN codes[3] of your imported products against the list of goods given in Annex I to the CBAM Regulation. More information on how to approach this can be found in Section 5.2 of this document, and subsequent sub-sections 5.3 to 5.7, set out further detail for each sector.

If you do not import such goods, you do not need read this document. However, it is written to be of help also to all other kinds of interested audiences (academia, GHG verifiers, competent authorities, consultants, etc.). **If you just want to understand how the CBAM works in general**, you may find an introduction to the CBAM in Section 4.

What are embedded emissions? The concept has been developed to reflect as much as possible the way in which emissions are covered by the EU ETS as if the CBAM goods were produced in the EU. The EU ETS requires operators to pay a price for their own ("direct") emissions. However, if they consume electricity, they also experience the CO_2 costs included in the price of electricity they purchase[4] ("indirect emissions"). The same applies to the input materials needed for their production process, and which may be supplied by an EU ETS installation. These so-called precursors therefore contribute to the CO_2 costs the EU ETS installation faces. The "embedded emissions" are defined in parallel to the emissions causing CO_2 costs in the EU ETS: they take into account the direct and indirect[5] emissions of the production process as well as the embedded emissions of precursors. The scope of the CBAM is principally related to the rules of the EU ETS and therefore has differences to other methods for calculating product carbon footprints such as the "GHG Protocol" or ISO 14067. A detailed introduction to the concept and calculation of embedded emissions is given in section 6.1.3.

What information do you need to request from the operator of the installation producing goods you import, in order to be able to report? To answer this question, you need to perform the following steps.

- Step 1: Define the CBAM goods imported and make sure you understand how they map to each "aggregated goods category" (i.e. an aggregation of CBAM goods with different CN codes, but suitable to be covered by common monitoring rules)

- Step 2: Identify all the **parameters you need to request from the operator and to report on**:

    o **Direct emissions** of the installation: the operator has two options available:

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[3]   CN (Common Nomenclature) codes are the EU version of the HS (Harmonised System) codes for international trade. CN codes consist usually of 8 digits (the first 6 digits are identical to the HS code). Where Annex I to the CBAM Regulation contains fewer digits, it means that all CN codes starting with those digits are covered.

[4]   If the EU installation produces its own electricity, it experiences the CO_2 costs immediately.

[5]   Indirect emissions have to be reported for *all* CBAM goods during the transitional period, although at this stage only a smaller number of goods is included in Annex II to the CBAM Regulation, i.e. only those will have to cover indirect emissions in the definitive period.

a) The "calculation-based" approach, which uses the **quantities of all fuels and relevant materials[6]** consumed, and corresponding "calculation factors" (in particular the so-called "**emission factor**" based on the carbon content of the fuel or material);

b) The "measurement-based" approach, which involves measuring the **concentration of the greenhouse gases** as well as the **flow of the flue gas** for each "emission source" (stack).

Note, however, that **during the introductory period until 31 July 2024 the operator may apply other methods allowed for emissions monitoring in their jurisdiction**, if they lead to a similar emission coverage and accuracy. These other methods may include default values made available and published by the European Commission for the transitional period or any other default values. However, they can be used in the condition that the reporting declarant shall indicate and reference in the CBAM reports the methodology followed for establishing such values. For PFC[7] emissions from primary aluminium production a special methodology based on overvoltage measurements is to be applied. For N_2O emissions from nitric acid production, the measurement-based method is compulsory. In all other cases, the operator may choose which method best fits the situation of their installation.

o **Indirect emissions**: These are emissions occurring during the production of the electricity that the installation of your supplier consumed, irrespective of whether this electricity was produced within the installation or imported from outside. You need to report the quantities of **electricity consumed** for each product imported, and multiply it by the relevant emission factor of electricity. For the latter factor, the following options exist:

a) If the electricity comes from the grid, you can use:

  ▪ The default emission factor provided by the European Commission based on IEA[8] data, or

  ▪ Any other emission factor of the country of origin electricity grid based on publicly available data representing either the average emission factor or the CO_2 emission factor.

b) If the operator also produces electricity within the installation (they are an "auto-producer"). In this case the operator needs to monitor the emissions of the power unit or CHP unit[9] in the same way as monitoring other direct emissions of the installation, and **use specific rules to calculate the emission factor from the fuel mix** and taking into account CHP heat production, if applicable.

c) If the operator receives electricity from a specific installation under a "power purchase agreement". Provided this power unit monitors its emissions in line with the same rules as applicable for auto-produced electricity and

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6   The term "source stream" is used to cover both, fuels and other input or output materials that have an influence on emissions.

7   Perfluorocarbons.

8   International Energy Agency.

9   CHP means Combined Heat and Power, also known as "Cogeneration".

communicates that information to the operator and this is provided to you, you may use the resulting emission factor for this electricity.

Detailed guidance is found in Section 6.1.4 of this document.

o **Precursors (optional)**: The reporting of detailed data on precursors by the operator to you, as the reporting declarant, is optional, as you do not need to report this information separately in the CBAM report. However, it is necessary for the emissions related to the precursor(s) to be included in the data that is reported for the CBAM good, and therefore it is good practise for the precursor data to be provided to facilitate the checking of the reported data.

The concept of embedded emissions includes the addition[10] of embedded emissions of certain materials used in the production process, the so-called precursors. **Which precursors are relevant** to each production process is listed in section 3 of Annex II of the Implementing Regulation and is discussed in Section 5 of this document for each affected sector.

b) **If the precursor is produced within the same installation as the CBAM good**, the operator needs to include the precursor's embedded emissions when calculating the embedded emissions of the goods.

c) **If the precursor is purchased** from other installations, the producer of the CBAM good needs to request data from the relevant suppliers of the precursor in the same way as you are asking the for data on the goods that are imported into the EU. The relevant information includes for each precursor, **separately for each installation of its production**:

  ▪ Identification of the installation where it was produced;

  ▪ The specific[11] direct and indirect embedded emissions of the precursor;

  ▪ The production route, and additional parameters that the importer needs to report when the final good is imported to the EU under the CBAM. These additional parameters are listed in section 2 of Annex IV of the Implementing Regulation and discussed in Section 5 of this document for each affected sector.

  ▪ The reporting period applied by the supplier of the precursor.

  ▪ If applicable, information on a carbon price due by the supplier of the precursor in the relevant jurisdiction (see point 5 below).

d) In both cases, i.e. for purchased or self-produced precursors, the operator need to monitor the **quantity of each precursor used** during the reporting period for each of their production processes.

The rules for monitoring precursor-related data are found in section E of Annex III of the Implementing Regulation. More details are given in Section 6.1.5 of this document.

o Finally, there are some **additional qualifying parameters** that you, as the EU importer will need to report under the CBAM. These depend on the goods

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[10] Note the difference between precursors and normal input materials: For the determination of direct emissions it is taken into account that the carbon atoms contained in a material may be oxidised to CO_2 and emitted. However, for *precursors*, additionally the emissions which took place already earlier (during their own production), i.e. the precursor's embedded emissions, need to be added.

[11] Specific (embedded) emissions means emissions related to one tonne of the material under discussion.

produced. For example, for cements imported, the total clinker content needs to be reported, for mixed fertilizers, the contents of the different forms of nitrogen, etc. The relevant parameters are listed in section 2 of Annex IV of the Implementing Regulation. You need to ensure that operators provide the necessary information on these parameters for their goods.

Step 3: **Is a carbon price due in the jurisdiction where the goods or precursor goods are produced?** To ensure similar treatment between installations in the EU ETS and in other countries, paying a carbon price in the country or sub-national region where a CBAM good, and its precursors, are produced will allow for a reduction in the CBAM obligation in the definitive period from 2026 onwards. There is also a need to report on this during the transitional period of the CBAM (namely until the end of 2025). This reporting of carbon prices during the transitional period is important to inform the European Commission for consideration of any future improvements to the CBAM legislation.

Note that you need to collect **information for each precursor purchased** if a carbon price applies in its country of origin. If the producer of the precursor does not provide the required information, you must assume the carbon price due for the precursor to be zero.

The reporting rules of information regarding the carbon price due are found in Article 7 of the Implementing Regulation. Detailed guidance is given in section 6.2.5 of this document.

Step 4: Understand the **reporting period** used by the operator. The default case is the (European) calendar year. However, if the producing installation is situated in a country with a different calendar, or where there are other reasonable arguments for a different period, this may be used, too, if it covers at least three months. Suitable alternative periods include in particular the reporting periods of a carbon pricing scheme or compulsory emissions monitoring scheme in the country of your installation, or the fiscal year used. The main reason for choosing such other periods is that there may be additional scrutiny applied for those purposes, such as stock taking and financial auditing for annual financial accounts, or third-party verification of emissions, which will give a higher level of confidence in the quality of your data when also used for CBAM purposes. Further guidance on reporting periods is given in Section 4.3.4.

Step 5: **The operator** must **communicate the embedded emissions data to you, the EU importer(s)** who bear(s) the reporting obligation under the CBAM Regulation. As you may purchase your goods from a multitude of suppliers, there may be a large number of operators from whom you must request this information. In order to perform this communication as efficiently as possible, the European Commission provides a common template that can be used for this purpose.

While the use of this template is voluntary, it needs to be highlighted that the use of **a common template greatly simplifies the communication** on both ends. Your suppliers may be established in different countries and may speak different languages. The common template ensures a common reporting format, so that the same type of information can always be found in the same field in the template, and the meaning of each field will also be clear.

At the end of each reporting period, the operator must **compile the monitored data of the whole reporting period**, determine the attributed emissions of each production process, and divide them by the corresponding "activity level" (i.e. the total tonnes of goods under the related CBAM category produced within the reporting period) in order to get the **specific embedded emissions of the good**. This is the main parameter you need to obtain from the operator, plus the additional qualifying parameters mentioned under steps 2 and 3 above.

The template can be found on the European Commission's dedicated website for the CBAM. It has been designed based on the rules set out in Annex IV of the Implementing Regulation on the content of the recommended communication from operators of installations to reporting declarants. More guidance on compiling relevant information for importers and using the template is given in Section 6.3 of this document and directly within the template.

What happens after the transitional period.

From 2026, the definitive period of the CBAM will apply. That means that from 1 January 2026 onwards, importers will have to bear a "CBAM obligation" in the form of certificates, which you purchase at the average price of EU ETS allowances, for every CBAM good imported into the EU. There will be a phase-in with increasing coverage of embedded emissions by the CBAM obligation from 2026. The full embedded emissions will only be covered from 2034 onwards[12].

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[12] The detailed calculation formula will be developed and published by the European Commission at a later stage.

4 THE CARBON BORDER ADJUSTMENT MECHANISM

4.1 Introduction to the CBAM

The Carbon Border Adjustment Mechanism (CBAM) is an environmental policy instrument designed to support the EU climate ambitions of achieving a net reduction of greenhouse gas (GHG) emissions of at least 55% by 2030 and of reaching climate neutrality by 2050 at the latest.

The CBAM complements the EU Emission Trading System (EU ETS), which was recently strengthened as part of the EU's "Fit for 55" legislative package. Under the EU ETS, operators of installations producing emission-intensive goods surrender emission allowances for each tonne of CO_2e emissions. Since an (increasing) amount of these allowances are purchased in auctions or on the secondary market, these producers face a 'carbon price'[13] on their GHG emissions. However, producers in many non-EU countries do not have such an obligation, and this competitive advantage puts European products at risk of carbon leakage i.e. a relocation of production to outside of the EU.

In order to mitigate the risk of carbon leakage prior to the CBAM, the relevant industry sectors have been receiving a part of their allowances free of charge ("free allocation") under the EU ETS. With the introduction of the CBAM, free allocation will gradually be phased out as the CBAM is gradually phased in. Instead of alleviating the carbon costs for EU producers, the CBAM ensures that importers of goods from non-EU countries bear similar carbon costs for the "embedded emissions" of the imported goods. This general guiding principle of both EU ETS and CBAM aims to incentivise emissions reductions on an equivalent basis between EU producers and non-EU producers exporting to the EU.

The CBAM does not target countries but the embedded carbon emissions of products imported into the EU for specific sectors that are within the scope of the EU ETS and the most at risk of carbon leakage. These are: cement, iron and steel, aluminium, fertilizers, hydrogen and electricity. It also includes some precursors and some downstream products of the aforementioned sectors (hereinafter referred to as "CBAM goods"). For a complete list of CBAM goods per sector see Section 5 of this document.

The CBAM will be introduced in phases as follows:

- **Transitional period** (1 October 2023 to 31 December 2025):
  Designed as a "learning phase", during which CBAM importers will report a set of data, including emissions embedded in their goods, *without paying a financial adjustment* for the embedded emissions. However, penalties may be imposed, for example for failing to submit the required *quarterly CBAM reports*.

- **Definitive period** (starting on 1 January 2026):
  - From 2026 to 2033, the embedded emissions for CBAM goods will be gradually covered by the CBAM obligation, as free allocation under the EU ETS is gradually phased out.

  - From 2034, 100% of embedded emissions of the CBAM goods will be covered by CBAM certificates and no free allocation will be given under the EU ETS for these goods.

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[13] More precisely, a price for the CO_2 or other equivalent greenhouse gas emissions.

The CBAM in the definitive period is designed to mirror the emission cost under the EU ETS:

- EU operators will pay the CO_2 price of their emissions and surrender allowances (EUAs) under the EU ETS; and

- EU importers of CBAM goods into the EU will surrender CBAM certificates that closely reflect the situation of the EU ETS, both in terms of MRV rules and of the price of the certificates.

The CBAM is designed in compliance with World Trade Organization (WTO) rules and other international obligations of the EU and applied equally to imports from all countries outside the EU.[14]

This document only deals with the requirements of the transitional period.

This period is meant for learning and setting up of the relevant MRV approaches outside the EU, and of institutions and information technology systems within the EU.

4.2   Definitions and scope of emissions covered in the CBAM

The textbox below signposts the key sections in the Implementing Regulation defining terms used for the CBAM.

Implementing Regulation references:

The CBAM Regulation (EU) 2023/956, Chapter I Article 3 Definitions and Annex IV Definitions

Annex II, Section 1 Definitions.

A list of abbreviations and definitions used is also provided in annexes in the back of this guidance document.

The following terms are frequently used in this guidance document:

- **'tonne of CO_2e'** means one metric tonne of carbon dioxide ('CO_2'), or an amount of any other greenhouse gas listed in Annex I adjusted to the equivalent global warming potential of CO_2.

- **'Direct emissions'** means emissions from the production processes of goods, including emissions from the production of heating and cooling consumed during the production processes, regardless of the location of the production of the heating and cooling.

- **'Indirect emissions'** means emissions from the production of electricity, which is consumed during the production processes of goods, regardless of the location of the production of the consumed electricity.

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[14]   The only exception are goods from countries that either apply the EU ETS (currently Iceland, Norway and Liechtenstein) or have an ETS fully linked with the EU ETS (currently Switzerland). Producers in these countries therefore face the same carbon price as in the EU.

- **'Embedded emissions'** means emissions released during the production of goods, including the embedded emissions of relevant precursor materials consumed in the production process.

- **'Relevant precursor material'** means a simple or complex good which has embedded emissions not equal zero and which is identified as being within the system boundaries for the calculation of embedded emissions of a complex good.

- **'Simple goods'** means goods produced in a production process requiring exclusively input materials and fuels having zero embedded emissions.

- **'Complex goods'** means goods other than simple goods.

- **'Specific embedded emissions'** means the embedded emissions of one tonne of goods, expressed as tonnes of CO_2e emissions per tonne of goods.

- **'Specific embedded emissions'** means the embedded emissions of one tonne of goods, expressed as tonnes of CO_2e emissions per tonne of goods.

- '**Production process'** means the parts of an installation in which chemical or physical processes are carried out to produce goods under an aggregated goods category defined in Table 1 of Section 2 of Annex II to the Implementing Regulation, and its specified system boundaries regarding inputs, outputs and corresponding emissions.

- '**Aggregated goods category**' is *implicitly* defined in the Implementing Regulation by listing the relevant aggregated goods categories and all the goods identified by their CN codes in Table 1 of Section 2 of Annex II.

- **'Production route'** means a specific technology used in a production process to produce goods under an aggregated goods category. One production process usually relates to one group of CBAM goods produced (the 'aggregated goods categories'). However, in some case more than one production route exists for producing these goods.

4.3   Transitional period

A summary of key elements of the transitional period is presented in Table 4-1.

Table 4-1 Transitional period – key points

Duration	1 October 2023 to 31 December 2025.
MRV rules	Implementing Regulation pursuant to Article 35(7) of the CBAM Regulation.
Reporting of indirect emissions	Required for all CBAM goods.
Default values for reporting of embedded emissions	Global values (except electricity). May be used for precursors of complex goods contributing up to 20% of the total for the complex good. Must be used for imports of electricity and for indirect emissions, unless certain criteria are met.

Flexibility regarding MRV rules	The use of rules from other (non-EU) carbon pricing or reporting schemes are allowed for operators of installations until the end of 2024, if they cover the same emissions and provide similar accuracy.
	Importers may use other (estimation) methods until 31 July 2024.
Frequency of reporting	Quarterly (importers).
Verification of reported data	Not required.
	Operators and importers should aim to report as accurately and completely as possible.
	If verification has been undertaken this should be noted in the submission.
Surrender of CBAM certificates	Not required.

4.3.1 Key reporting roles and responsibilities

The **"reporting declarant"[15]** is the entity which is responsible for the reporting of embedded emissions of imported goods. In principle, the reporting declarant is the "**Importer**". However, in practice there are different options depending on the person lodging the customs declaration. Where different actors are involved in the importation process, it is important to remember that every tonne of imported good is the *responsibility of exactly one reporting declarant*, i.e. that it is neither reported twice nor omitted from reporting.

In line with the options provided under the Union Customs Code (UCC[16]), the reporting declarant can be either[17]:

- The **importer who lodges a customs declaration** for release for free circulation of goods in its own name and on its own behalf;

- The **person, holding an authorisation** to lodge a customs declaration referred to in Article 182(1) of the UCC, who declares the importation of goods; or

- The **indirect customs representative**, where the customs declaration is lodged by the indirect customs representative appointed in accordance with Article 18 of the UCC, when the importer is established outside the Union or where the indirect customs representative has agreed to the reporting obligations in accordance with Article 32 of the CBAM Regulation.

The reporting declarant must provide a 'CBAM report' on a quarterly basis[18], to the European Commission via the **CBAM Transitional Registry**, no later than one month

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[15] The Implementing Regulation uses this term in order to cover both situations, either where an importer or its indirect customs representative are responsible for the CBAM reporting.

[16] Regulation (EU) No 952/2013, consolidated version: http://data.europa.eu/eli/reg/2013/952/2022-12-12

[17] Article 2(1) of the Implementing Regulation.

[18] Article 35 of the CBAM Regulation

after the end of that quarter. This is to report the information listed in section 6.3.2 on the goods imported into the EU during that quarter. Note the specific requirements, including on the date of importation, in case of the so-called "inward processing" customs procedure (see section 4.3.6).

Due to the administrative requirements of the CBAM, it is expected that many importers may make use of customs representatives, i.e. importers may delegate their obligations. Where the importer is not established in an EU Member State, the CBAM reporting obligations apply to the indirect customs representative. If an importer established in the EU appoints an indirect customs representative, the reporting obligations can be fulfilled by the indirect customs representative.

The **operator of an installation** producing CBAM goods outside the EU is the second key role for the functioning of the CBAM. Installation operators are the persons who have direct access to information on the emissions of their installations. They are therefore responsible for **monitoring and reporting the embedded emissions of goods** they have produced and are exporting to the EU.

Third-party verifiers will play an important role in the definitive period. However, during the transitional period, verification is a fully voluntary measure which operators of installations may choose as a means to improve their data quality, and to prepare for the requirements of the definitive period.

Furthermore, the **competent authority in the EU Member State** where the reporting declarant is established plays an important role. It is in charge of enforcing the certain provisions of the CBAM Regulation, such as reviewing the CBAM reports to ensure that reporting declarants submit complete and correct quarterly CBAM reports, and to impose penalties in line with the Implementing Regulation, if necessary.

The European Commission (in this document also referred to as "**the Commission**") is responsible for running the CBAM Transitional Registry, assessing the overall implementation of the CBAM during the transitional period by checking the information contained in the quarterly CBAM reports, for further developing the legislation with a view to the definitive period, and for co-ordinating the competent authorities in the EU Member States. Furthermore, the European Commission provides a dedicated website for the CBAM, with further guidance documents, templates for reporting, training material, and the portal to the CBAM Transitional Registry (which will be further updated to become the CBAM Registry in the definitive period).

4.3.2   *What needs to be monitored by operators*

The first element is the monitoring of **direct emissions** of the installation. Whenever an installation produces several different products, the emissions must also be **appropriately attributed to the individual products**.

Operators must also monitor and report to the reporting declarant(s) the quantities of specific input materials which themselves have embedded emissions (the so-called "precursors") used in the manufacturing process and determine the **embedded emissions of these precursor materials**. Where operators purchase precursors, they need to obtain data on the embedded emissions of precursor materials used in the production of the CBAM goods from the supplier of these precursors.

Indirect emissions released from the generation of the electricity consumed during the production of all CBAM goods must be monitored for the purposes of the CBAM[19] and attributed to the goods produced. Again, emissions embedded in precursors must be included, where relevant.

Explanation of how to determine these embedded emissions and to define system boundaries are elaborated upon in the guidance document for operators.

Finally, operators must **communicate to the importer(s) the carbon price due for the production of the good within its own jurisdiction, if any**. This includes the carbon price per tonne CO_2e, and the amount of free allocation or any other financial support, compensation or rebate received per tonne of the product relevant for the CBAM. Notably, in case of complex goods, the carbon costs due by the producers of precursor materials should also be taken into account.

4.3.3   *What needs to be reported by reporting declarants*

During the transitional period, **importers need to report on a quarterly basis the embedded emissions in goods imported during that quarter of a calendar year**, detailing direct and indirect emissions as well as any carbon price effectively due abroad.

Since the importer only uses emissions data generated elsewhere, **the main task is to ensure the completeness of the imports list and of the other relevant factors** to be reported in the CBAM report.

The following information must be reported by importers in the CBAM report:

- The **total quantity of each type of goods**, expressed in megawatt hours (MWh) for electricity and in tonnes for other goods, specified per installation producing the goods in the country of origin;

- The actual **total embedded emissions**, expressed in tonnes of CO_2e emissions per MWh of electricity or for other goods in tonnes of CO_2e emissions per tonne of each type of goods;

- The **total indirect emissions**, including amount of electricity consumed and the applicable emissions factor;

- **The carbon price due in a country of origin for the embedded emissions in the imported goods**, taking into account relevant rebates or other forms of compensation.

In order to obtain this information, it is imperative to have a clear procedures in place for monitoring imports. Suggested best practices include:

- If the CN code of the good being imported falls within the list of goods given by Annex I to the CBAM Regulation, the reporting obligation under the CBAM has to be triggered. The most efficient way for importers to handle the CBAM might be to install a tool which generates a list of all imported goods falling under the

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[19]   During the transitional period, indirect emissions of *all* CBAM goods are to be monitored and reported, including the embedded indirect emissions of precursors. However, in the definitive period, indirect emissions will be included only for certain products (see section **Error! Reference source not found.**).

CBAM. This could, for example, be carried out automatically by book-keeping software.

- The importer could also make the disclosure of information a dedicated clause in the purchase contract with the producer of the goods imported.

If the operator uses the simple spreadsheet provided to prepare their CBAM declaration , then it will only require limited efforts by the reporting declarant to complete the report in the CBAM Transitional Registry, provided the list of imported goods is kept up-to-date, and the embedded emissions per tonne of product are known. However, the use of this spreadsheet tool is not mandatory and therefore importers may receive the required data from operators in other formats. It is therefore important that reporting declarants are aware of the parameters to be reported to ensure the necessary data are received from operators. The contents of the CBAM report is set out in Annex I of the Implementing Regulation.

4.3.4   Reporting periods for operators and importers

The **reporting period** is the reference period for determining embedded emissions. operators and importers have different reporting periods.

Installation operators

For operators, the default reporting period is twelve months to allow them to collect representative data that reflects an installation's annual operations.

The twelve-month reporting period may be either a:

- **Calendar year** – which is the default option for reporting; or alternatively a

- **Fiscal year** – if this can be justified on the basis that the data for a fiscal reporting year is more accurate, or to avoid incurring unreasonable cost; for example, where the financial year end coincides with an annual stock take of fuels and materials.

A period of twelve months is considered representative as this reflects seasonal variations in an installation's operations, as well as any periods of disruption to the process resulting from planned annual shutdowns (e.g. for maintenance) and start-ups. A full year also helps to mitigate any data gaps e.g. by taking meter reads on either side of any missing periodic data points.

However, operators may also choose an alternative reporting period, of a least three months, if the installation participates in an eligible MRV system and the reporting period coincides with the requirements of that MRV system. For example:

- A mandatory carbon pricing scheme (an emission trading system or carbon tax, levy or fee) or GHG reporting scheme with a compliance obligation. In this case that scheme's reporting period may be used, if it covers at least three months; or

- Monitoring and reporting for the purpose of another monitoring scheme (e.g. a GHG emission reduction project, which includes verification by an accredited verifier. In this case the reporting period of the applicable MRV rules may be used if it is at least three months.

In all the above cases, the direct and indirect embedded emissions of goods should be calculated as the **average of the reporting period** chosen.

In order to allow representative data to be reported from the start of the transitional period, operators should aim to share a full year of data for 2023 in January 2024, with importers, for the first quarterly report. In order to do this, operators should:

- Collect emissions data and activity data from the start of the transitional period, for as much of 2023 as is available. For the period before actual emissions monitoring starts[20], operators will have to make estimates based on best available data (e.g. by using production protocols, backward calculation based on known correlations between known data and the relevant emissions, etc.).

- Start to collect data for the last quarter of 2023 in preparation for reporting a full year of data to importers, if possible, as early as possible at the start of January 2024.

In light of the above, operators should therefore start preparing their monitoring methodology as soon as possible and aim to start actual monitoring as soon as possible after 1 October 2023. They should share their embedded emissions data with importers as soon as this is possible after the end of each quarter.

Importers

During the transitional period, the reporting period for importers ("reporting declarants") is quarterly, with reports due within one month.

- The first quarterly report is for the period October to December 2023, with the report due to be submitted on the CBAM Transitional Registry by 31 January 2024.

- The last quarterly report will be for the period October to December 2025, with the report due to submitted on the CBAM Transitional Registry by 31 January 2026.

The quarterly report should summarise the embedded emissions in goods imported during the previous quarter of the calendar year, splitting out direct and indirect emissions, as well as any carbon price due abroad. For deciding at what date a good was imported, the "**release to the market**" (i.e. the clearance by the customs authorities) is relevant. This is important in particular for goods put under the "**inward processing**" procedure (see section 4.3.6).

Note that a CBAM report which has already been submitted may still be corrected[21] until two months after the end of the reporting quarter. This may be the case, for example, when more accurate data on embedded emissions becomes available to the importer after the reporting deadline. Acknowledging the difficulty to set up MRV systems in time, the Implementing Regulation allows a longer period for corrections for the first two quarterly reports, which is until the deadline for the third quarterly report. This means that the reports due by 31 January and 30 April 2024 may be subsequently corrected until 31 July 2024.

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[20] This will be the most frequent case, except where an eligible MRV system is already in place.

[21] Article 9 of the Implementing Regulation

4.3.5 Governance of the CBAM

Figure 4-1: Overview of the reporting responsibilities in the transitional period of the CBAM
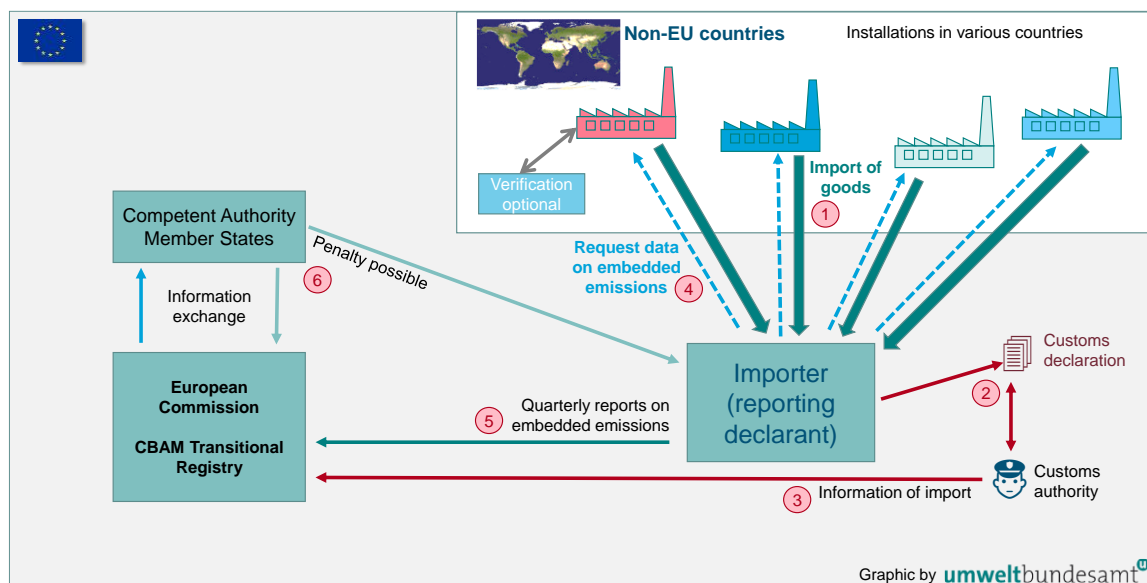
For explanation of the numbers (relating to the workflow), please see main text below.

As shown schematically in Figure 4-1, the governance system and workflows in the transitional period of the CBAM follow the sequential steps below (paragraph numbering follows the red numbers in the figure):

1. The importer (reporting declarant) receives CBAM goods from various installations, possibly from different countries outside the EU.

2. For each import, the importer lodges the usual customs declaration. The customs authority of the relevant EU Member State checks and clears the import, as usual.

3. The customs authority (or the IT system used) informs the European Commission (using the CBAM Transitional Registry) of this import. This information can then be used to check the completeness and accuracy of quarterly CBAM reports.

4. The reporting declarant requests the relevant data on specific embedded emissions of the imported CBAM goods from the operators (in practice, this may involve intermediary traders, who would have to forward the request to the operator of the installation which produced the CBAM goods). The latter reply by sending the requested data, if possible using the template provided for this purpose by the Commission. The data may be voluntarily verified by a third-party verifier.

5. The reporting declarant is then able to submit the quarterly CBAM report to the CBAM Transitional Registry.

6. An information exchange between the Commission and the competent authorities in the EU Member States takes place. The Commission informs (based on the customs data), which reporting declarants are expected to submit CBAM reports. Furthermore, the Commission can perform spot checks of actual reports and check their completeness with regards to the customs data. Where irregularities are identified, the Commission informs the competent authority of this. The competent authority will then follow up, usually by getting in contact with the importer and

requesting rectification of the irregularity, or submission of the missing CBAM report. If the reporting declarant does not correct the mistakes, the competent authority can ultimately impose a (financial) penalty.

7. (Not shown in the figure and not required by legislation, but in the own interest of the importer): to avoid similar problems in the future, the importer who received a penalty should inform the operator of the problem(s) identified by the Commission or the competent authority in order to address the issue(s) for future submissions.

4.3.6   *Inward processing*

The Union Customs Code defines several special procedures. "Inward processing"[22] means that a good is imported into the EU for processing with suspension of import duties and VAT. After the processing operations, the processed products or the original imported goods can then be either re-exported or released for free circulation in the EU. The latter would imply the obligation to pay import duty and taxes, as well as the application of commercial policy measures.

This principle is extended to the CBAM, i.e. no obligation for reporting under the CBAM arises in this case. However, if the CBAM good is released to the EU market after inward processing, either as the original good or modified, a CBAM reporting obligation arises.

For goods actually imported after having been put under inward processing, the period under which they must be included in the CBAM report starts on the date of release to the internal market (discharge from the customs procedures). For this reason, in some cases goods may have to be reported under the CBAM although they were put under inward processing before 1 October 2023.

Article 6 of the Implementing Regulation provides some special reporting requirements for goods released for free circulation after inward processing for the purposes of the quarterly CBAM reports:

- If the good was not modified during the inward processing, the quantities of the good and the embedded emissions of those quantities put under inward processing are to be reported. The report shall also include the country of origin and the installations where the goods where produced, if those are known;

- If the good was modified, the quantities of the original good and the embedded emissions of those quantities put under inward processing are to be reported. The report shall also include the country of origin and the installations where the goods where produced, if those are known;

- Where the origin of the good used for inward processing cannot be defined, the embedded emissions shall be calculated on the basis of the weighted average embedded emissions of the totality of the goods placed under the inward processing procedure for the same aggregated good category.

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[22] See: https://taxation-customs.ec.europa.eu/customs-4/customs-procedures-import-and-export-0/what-importation/inward-processing_en

5 CBAM GOODS AND PRODUCTION ROUTES

5.1 Foreword to sector specific sections

The following sections provide an overview of the different production routes for the goods listed in Annex I to the CBAM Regulation for the cement, hydrogen, fertilizers, iron and steel, and aluminium sectors. This section deals with the specification of products covered by the CBAM and the relevant production routes. This is intended to help you, as the reporting declarant, to identify the CBAM goods imported and to understand the basis for the specific embedded emissions for these goods that are reported to you by the producer.

Diagrams used in the following sections.

For the system boundary graphics presented in the sections below, the **following conventions** are applied:

- Production processes (for which monitoring of the direct emissions would take place) are shown as rectangles; Materials are shown in boxes with rounded corners.
- Optional processes (e.g. CCS/CCU) are shown in blue boxes. In particular, CCS/CCU would not be taken into account for developing default values, but where you, as an operator, uses them, the related emissions or emission savings should be taken into account for determining actual embedded emissions.
- Materials which are considered to have no embedded emissions are shown in red boxes, materials with embedded emissions (relevant precursor materials and final products, i.e. goods under the CBAM) in green boxes. Simple goods are shown in normal font, complex goods in bold font.
- Input materials are presented without trying to be complete. This means that the focus is on materials which are relevant for demonstrating the differences between different production routes. As a consequence, less important input materials and in particular fuels are usually omitted in order to keep graphs simple.
- Note: CCS/CCU processes are indicated in the following Figure 5-1 for the cement value chain as an example. For keeping graphs reasonably simple, this is not shown in other sectors, but equally applicable there.

Electricity as input is shown only in cases where it is the main "precursor" of the process (i.e. in particular for electric arc furnaces and electrolysis processes).

5.2 Identifying CBAM goods

This section explains how goods covered by the CBAM are defined and identified in the Regulation. The textbox below signposts the key sections for the definition and reporting of CBAM goods, relevant for the CBAM transitional period.

Implementing Regulation references:

Annex II, Section 2, Table 1 Mapping of CN codes to Aggregated goods categories.

Annex III, Section F Rules for attributing emissions of an installation to goods.

5.2.1 Product specifications

The Combined Nomenclature (CN)[23,24] classification system defines the essential characteristics of goods and is used to identify those sector goods in scope for the CBAM.

The CN 'product specification' classification system comprises two parts, firstly a numerical 4, 6 or 8-digit numbering system, reflecting different levels of product disaggregation, and secondly a short text description of each product category giving its essential characteristics. The first 6 digits are identical to the Harmonised System (HS) classification used in international trade and the remaining 2 digits are EU-specific additions.

Both parts of the goods' product specification are given in Annex I to the CBAM Regulation, but elsewhere in the text this may also be abridged to the numerical code only, for ease of reference.

5.2.2 Identifying goods in scope for the CBAM Regulation

You, as the reporting declarant, should first establish which imported goods fall under the scope of the CBAM. You should check and compare the full range of goods imported against the product specifications given in Annex I to the CBAM Regulation to establish which goods are within the scope of the CBAM.

The following sections provide further information to assist you in this process by listing the relevant CBAM goods for each sector. Relevant precursors are also identified to facilitate your checks of the data that is reported to you by the producers of goods you are importing into the EU. If the operator reports information for precursors that are not identified against the CBAM goods as shown in this guidance document, then it is recommended you seek clarification from the operator on whether this has been reported correctly[25].

A more detailed explanation of the relevant production processes and system boundaries of the goods is presented in the guidance documents for operators of non-EU installations producing CBAM goods.

Boundaries for production processes producing goods

In order to determine the embedded greenhouse gas emissions of CBAM goods, the boundaries of the production processes producing these goods must be defined by the operator[26]. To do this the operator must identify what material and energy flows that can have an impact on emissions form part of the CBAM production process. Once the system

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[23]   Council Regulation (EEC) No 2658/87 of 23 July 1987 on the tariff and statistical nomenclature and on the Common Customs Tariff (OJ L 256, 7.9.1987, p. 1).

[24]   For further information on the CN definitions for goods see the Eurostat RAMON database for 2022 at: https://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL&StrNom=CN_2022

[25]   Note that it is possible for the same goods category to be applicable to both the good produced and for the precursor used to produce that good. This is relevant for iron and steel, aluminium and fertilizer sector goods.

[26]   Operator' means any person who operates or controls an installation in a third country

boundaries for the production process have been defined then the emissions associated with the production of the good can be monitored.

It is also important to clarify what upstream processes (e.g. production of precursor goods) and downstream activities (e.g. rolling or casting, cleaning and coating of steel products) take place on the same installation. This is because different monitoring rules may apply to these activities and separate production process may need to be defined.

Where an installation produces more than one category of aggregated CBAM good the operator should split the installation into separate production processes so that the emissions from each production process are monitored separately. Ultimately, the embedded emissions attributed to the goods produced by the different production processes should still sum to 100% of the relevant total emissions of the installation.

5.3   Cement sector

The textbox below signposts sector-specific sections in the Implementing Regulation, relevant for the CBAM transitional period.

Implementing Regulation references:
- **Annex II**, Section 2, Table 1 Mapping of CN codes to aggregated goods categories.
- **Annex II**, Section 3 Production routes, system boundaries, and relevant precursors, as specified in sub-sections: 3.2 – Calcined Clay, 3.3 – Cement clinker, 3.4 – Cement, 3.5 – Aluminous cement.

5.3.1   Unit of production and embedded emissions for industry sector

The quantity of declared cement goods imported into the EU should be expressed in metric tonnes. You, as a reporting declarant, should report the quantity of CBAM good(s) imported into the EU.

Industrial sector	Cement
Production unit of goods	Tonnes (metric), reported separately for each type of CBAM good produced, by the installation or production process in the country of origin.
Associated activities	Producing cement clinkers and calcined clays, grinding and blending cement clinker to produce cement.
Relevant greenhouse gas emissions	Carbon dioxide (CO_2)
Direct Emissions	Tonnes (metric) of CO_2e
Indirect Emissions	Quantity of electricity consumed (MWh), source and emissions factor used to calculate the indirect emissions in tonnes (metric) of CO_2 or CO_2e.

Industrial sector	Cement
	To be reported separately during transitional period.
Unit for embedded emissions	Tonnes CO_2e emissions per tonne of good, reported separately for each type of CBAM good, by the installation or production process in the country of origin.

The cement sector has to account for both direct emissions and indirect emissions in the transitional period. Indirect emissions are to be reported separately. Emissions should be reported in metric tonnes of CO_2 equivalent (tCO_2e) emissions, per tonne of good output. This figure should be calculated for the specific installation or production process in the country of origin.

The following sections identify elements of the production process that should be included for the purposes of monitoring and reporting.

5.3.2   Definition and explanation of goods covered

The table below lists the relevant goods in scope for the CBAM transitional period in the cement industry sector. The aggregated goods category in the left hand column defines groups for which joint 'production processes' are to be defined for the purpose of monitoring.

Table 5-1: CBAM goods in the cement sector

Aggregated goods category	CN Code	Description
Calcined clay	2507 00 80	Other kaolinic clays
Cement clinker	2523 10 00	Cement clinkers[27]
Cement	2523 21 00	White Portland cement, whether or not artificially coloured
	2523 29 00	Other Portland cement
	2523 90 00	Other hydraulic cements
Aluminous cement	2523 30 00	Aluminous cement[28]

Source: The CBAM Regulation, Annex I; Implementing Regulation, Annex II.

The aggregated goods categories listed in the table above include both finished cement goods and precursor goods (intermediate products) that are consumed in the production of cement.

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[27]   No distinction is made between different types of clinker, i.e. grey and white cement clinker are the same for the purposes of the CBAM.

[28]   Also referred to as 'Calcium Aluminate Cement'.

Only input materials listed as relevant precursors to the system boundaries of the production process as specified in the Implementing Regulation are to be considered. Table 5-2 below lists the precursors by aggregated goods category and production route.

Table 5-2: Aggregated goods categories, their production routes and relevant precursors

Aggregated Goods Category *Production route*	Relevant precursors
Calcined clay	None
Cement clinker	None
Cement	Cement clinker; calcined clay (if used in the process).
Aluminous cement	None

Precursor goods of relevance are 'cement clinker[29]' (CN code 2523 10 00), which includes both white clinker (used to make white cement) and grey clinker, and 'calcined clay' (CN code 2507 00 80), which is a clinker substitute and may be used to modify the properties of the cement produced.

These precursors are defined as simple goods, as the raw material constituents and fuels (both fossil fuels and any alternative fuels) used in their manufacture are themselves considered to have zero embedded emissions.

The finished cement goods listed in Table 5-1 comprise both white Portland cement, grey Portland cement, other hydraulic cements and aluminous cement. These goods are defined as complex goods (with the exception of aluminous cement) as they include the embedded emissions from precursor goods.

Other constituents used in cement manufacture, in particular granulated blast furnace slag, fly ash and natural pozzolana that are used in the manufacture of other hydraulic cement goods (including blended or 'composite' cements) are not considered to have any embedded emissions and are not in scope for the CBAM.

Cement sector goods are produced by a number of different process routes, outlined below.

5.3.3 *Definition and explanation of relevant production processes and routes*

The system boundaries for precursors and cement goods are distinct and may, under certain conditions, be added together to include all processes directly or indirectly linked

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[29] No distinction is made between grey and white clinker, the operator should apply the relevant embodied emissions of the relevant clinker precursor used.

to the production processes for these goods, including input activities to the process and output activities from the process.

5.3.3.1 Calcined clay production process

Calcined clay may be used as a clinker substitute. Kaolinic clay that is calcined (metakaolin) can be added to cement in place of clinker in varying proportions in order to modify the properties of the cement mixture.

Note that the CN code for calcined clay (CN code 2507 00 80) includes other clays too, which are not calcined and so are not subject to the CBAM; in this case the quantities of non-calcined clay imported are still reported, but with zero embedded emissions and without monitoring requirements for the producer.

There are no relevant precursors for calcined clay.

5.3.3.2 Cement clinker production process

Cement clinker is produced in clinker plants (kilns) by the thermal decomposition of calcium carbonate to form calcium oxide, followed by the clinkering process in which the calcium oxide reacts at high temperatures with silica, alumina and ferrous oxide to form a clinker. Grey and white clinkers may be produced depending on the temperature of the process and purity of raw materials.

There are no relevant precursors for cement clinker.

5.3.3.3 Cement production process

Cement (apart from aluminous cement) is defined as a complex good as it is produced from relevant precursor cement clinker and possibly calcined clay. Cement clinker is ground and blended with certain other constituents to produce the finished cement product. Depending on the mix of different constituents this may be Portland cement, blended cement (containing a mix of Portland cement and other hydraulic constituents), or other hydraulic cements.

The following Figure 5-1 shows how the cement clinker and cement production processes relate to each other.

Figure 5-1: System boundaries of cement clinker and cement production processes.
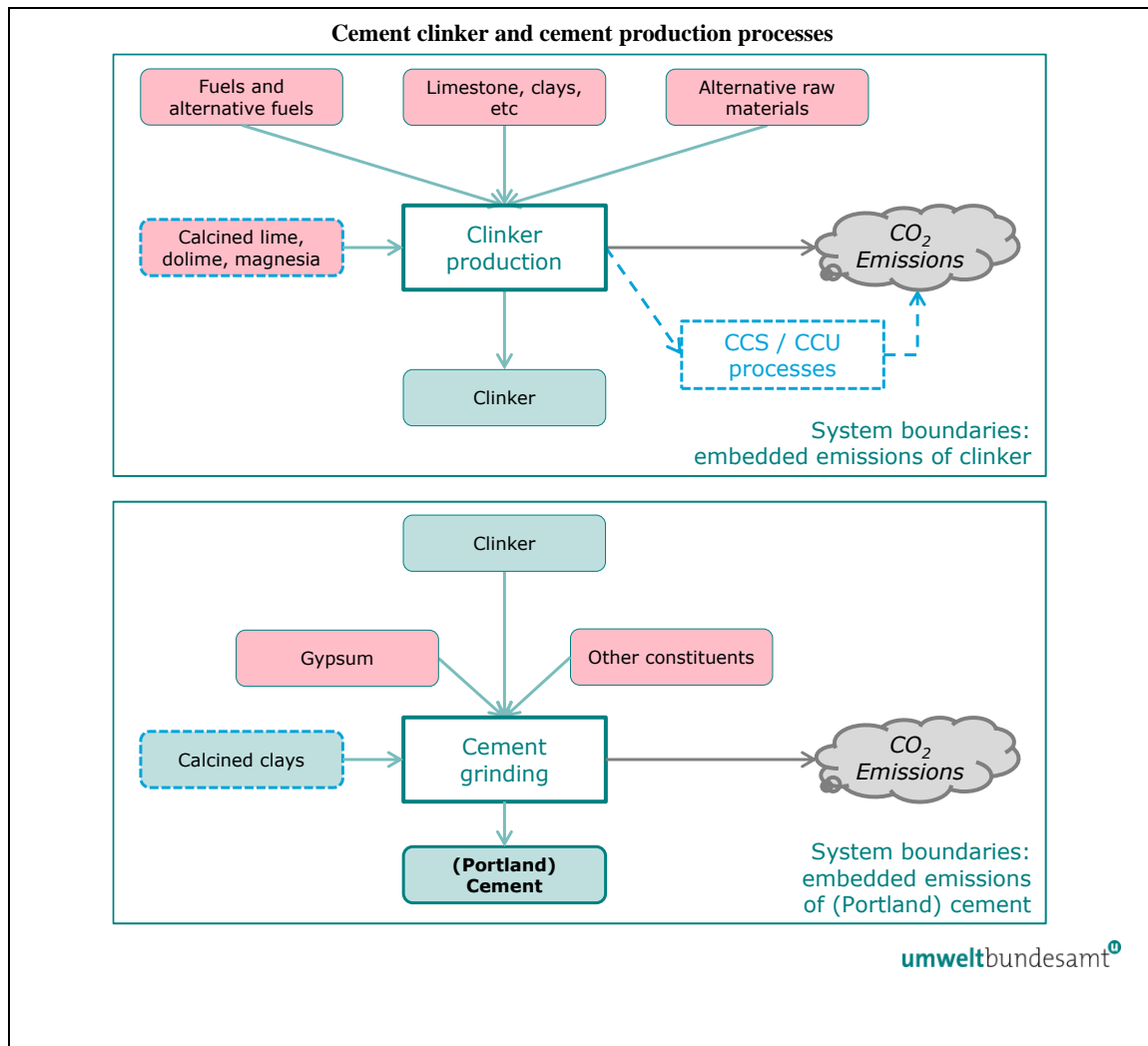
Direct emissions of the clinker production process result from the combustion of fuels, and from raw materials used in the process such as limestone. Direct emissions may also result from fuels used for drying materials used to make the final cement product. Indirect emissions result from electricity consumed by the processes.

5.3.3.4 Aluminous cement production process

Aluminous cement is regarded as a simple good as it is produced directly from aluminous clinker by a continuous production process, and is ground without the addition of further additives. Any emissions associated with the production of aluminous cement constituents such as alumina (from bauxite) are deemed to be out of scope for the CBAM.

There are no relevant precursors for aluminous cement.

Figure 5-2: System boundaries of the aluminous cement production process
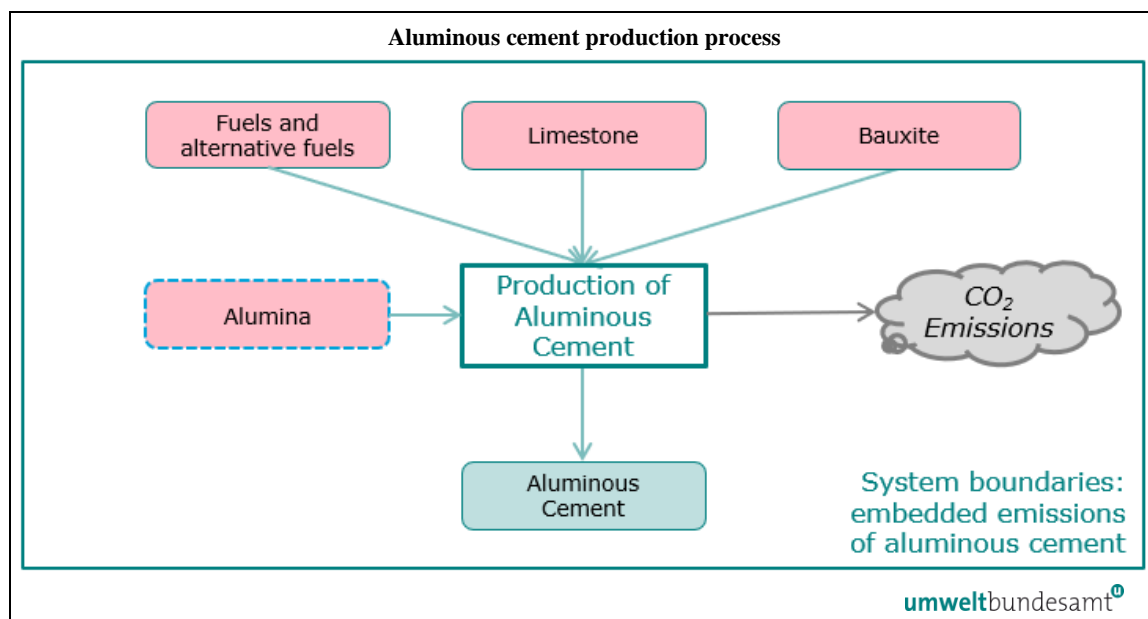
Direct emissions result from the combustion of fossil fuels and alternative fuels and from raw materials such as limestone. Indirect emissions result from electricity consumed by the process.

5.3.4 Additional reporting parameters

The following table lists the additional information that should be provided by the operator, along with data on embedded emissions, in their emissions data communication to you the importer.

Table 5-3: Additional cement sector parameters requested in the CBAM report**Aggregated goods category**	**Reporting parameter**
Calcined clay[30]	– Whether or not the clay is calcined.
Cement clinker	– None.
Cement	– Clinker content of cement expressed as percentage.
Aluminous cement	– None.

These additional parameters depend on the goods produced. For example, for cements imported, the total clinker content needs to be reported.

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[30] Note that clays falling under CN code 2507 00 80 that are not calcined, are assigned embedded emissions of zero. They are still to be reported, but no additional information from the producer of the clay needs to be obtained.

You will need to report the additional parameters in your CBAM Report when the final good is imported to the EU under the CBAM.

Note that clays falling under CN code 2507 00 80 that are not calcined (that are assigned embedded emissions of zero) still to be reported, but no additional information from the producer of the clay needs to be obtained.

5.4 Chemicals sector – Hydrogen

The textbox below signposts sector-specific sections in the Implementing Regulation, relevant for the CBAM transitional period.

Implementing Regulation references:
- **Annex II**, Section 2, Table 1 Mapping of CN codes to aggregated goods categories.
- **Annex II**, Section 3 Production routes, system boundaries, and relevant precursors, as specified in sub-section: 3.6 – Hydrogen

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5.4.1 Unit of production and embedded emissions

The quantity of hydrogen imported into the EU should be expressed in metric tonnes (as pure hydrogen). As a reporting declarant, you should record the quantity of hydrogen imported into the EU.

Industrial sector	Chemicals – Hydrogen
Production unit of goods	Tonnes (metric) pure hydrogen, reported separately by installation or production process in the country of origin
Associated activities	Producing hydrogen by steam reforming or partial oxidation of hydrocarbons, water electrolysis, Chlor-Alkali electrolysis or production of sodium chlorate.
Relevant greenhouse gases	Carbon dioxide (CO_2)
Direct Emissions	Tonnes (metric) of CO_2e
Indirect Emissions	Quantity of electricity consumed (MWh), source and emissions factor used to calculate the indirect emissions in Tonnes (metric) of CO_2 or CO_2e. *To be reported separately during transitional period.*
Unit for embedded emissions	Tonnes CO_2e emissions per tonne of good, reported separately for each type of good, by installation in the country of origin

The hydrogen sector has to account for both direct emissions and indirect emissions in the transitional period. Indirect emissions are to be reported separately[31]. Emissions should be reported in metric tonnes CO_2 equivalent (tCO$_2$e) emissions per tonne of output. This figure should be calculated for the specific installation or production process in your country of origin.

The following sections identify elements of the production process that should be included for the purposes of monitoring and reporting.

5.4.2   Definition and explanation of sector CBAM goods covered

The table below lists the relevant goods in scope for the CBAM transitional period in the hydrogen industry sector. The aggregated goods category in the left hand column defines groups for which joint 'production processes' are to be defined for the purpose of monitoring.

Table 5-4: CBAM goods in the chemicals sector – hydrogen

Aggregated goods category	Product CN Code	Description
Hydrogen	2804 10 000	Hydrogen

Source: The CBAM Regulation, Annex I; Implementing Regulation, Annex II.

Hydrogen is defined as simple good as the raw materials and fuels used in its manufacture are considered to have zero embedded emissions.

There are **no relevant precursors** for hydrogen. However, hydrogen may itself be a relevant precursor for other processes, where it is separately produced for use as a chemical feedstock to produce ammonia, or to produce pig iron or direct reduced iron (DRI).

The production of hydrogen is by a number of different process routes, outlined below.

5.4.3   Definition and explanation of relevant production processes and routes

Hydrogen can be produced from various feedstocks including plastic wastes, but currently it is derived mostly from fossil fuels. Hydrogen production units are typically integrated into larger industrial processes e.g. as for an installation producing ammonia.

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[31]   Note that for this sector indirect emissions are only reported during the transitional period (and not during the definitive period).

Figure 5-3: System boundaries of different production routes for hydrogen – overview
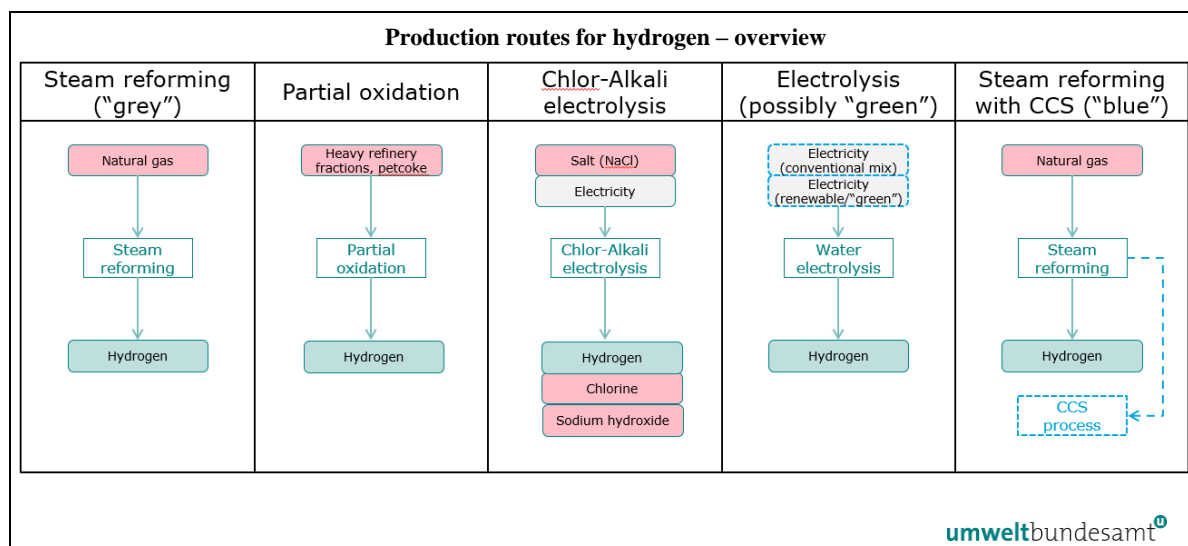
The system boundaries for direct emissions monitoring for hydrogen includes all processes directly or indirectly linked to hydrogen production, and all fuels used in the production of hydrogen.

Note that only the production of pure hydrogen or mixtures of hydrogen with nitrogen usable in ammonia production shall be considered. Not covered are the production of synthesis gas or of hydrogen within refineries or organic chemical installations, where the hydrogen is exclusively used within those plants and not used for the production of goods under the CBAM Regulation.

5.4.3.1 Hydrogen - Steam reforming production route

The natural gas feedstock for this process is converted to carbon dioxide and hydrogen through primary and secondary steam reformation. The overall reaction is highly endothermic and process heat is supplied by the combustion of natural gas or other gaseous fuel. Carbon monoxide produced is almost all converted to carbon dioxide by the process.

The stream of carbon dioxide produced by the steam reforming process is very pure and is separated and captured for further use, e.g. for urea production. A variation on this process is steam reformation with carbon capture and sequestration (CCS).

5.4.3.2 Hydrogen - Partial oxidation of hydrocarbons (gasification) production route

Hydrogen is produced by the partial oxidation (gasification) of hydrocarbons, typically from heavy feedstocks such as residual heavy oils or coal and even waste plastics. Carbon monoxide produced by the process is almost all converted to carbon dioxide.

Direct emissions for the steam reforming and partial oxidation production routes result from fuel combustion and from the process materials used for flue gas cleaning. The stream of carbon dioxide produced from the process is of high purity and is separated and captured for further use. Indirect emissions result from electricity consumed by the process.

5.4.3.3 Hydrogen - Electrolysis of water production route

Water electrolysis is a standalone, non-integrated production process that produces a very pure stream of hydrogen gas. Direct emissions of carbon dioxide from this process are minimal. Indirect emissions result from electricity consumed by the process. Hydrogen produced by renewable electricity may become relevant in the future.

5.4.3.4 Hydrogen - Chlor-alkali electrolysis (and production of chlorates) production route

Hydrogen is produced as a by-product of the electrolysis of brine, alongside the simultaneous production of chlorine and sodium hydroxide. There are three basic chlor-alkali process techniques: mercury cell, diaphragm cell and the membrane cell. All three cell techniques produce hydrogen, which is formed at the cell cathode and which leaves the cell at very high purity. The hydrogen gas produced is cooled, dried and purified to remove water vapour and other impurities including in some cases oxygen, and is then compressed and stored or exported off site.

Direct emissions from the Chlor-Alkali production route result from fuel use directly or indirectly linked to the production process and from the process materials used for flue gas cleaning. Indirect emissions result from electricity consumed by the process.

5.4.4 Additional reporting parameters

The following table lists the additional information that should be provided by the operator, along with data on embedded emissions, in their emissions data communication to you the importer.

You will need to report the additional parameters in your CBAM Report when the final good is imported to the EU under the CBAM.

Table 5-5: Additional chemicals sector parameters covered in the CBAM report

Aggregated good category	Reporting requirement in the quarterly report
Hydrogen	– None

There is no additional reporting required for hydrogen produced.

5.5 Fertilizers sector

The textbox below signposts sector-specific sections in the Implementing Regulation, relevant for the CBAM transitional period.

Implementing Regulation references:
- **Annex II** Section 2, Table 1 Mapping of CN codes to aggregated goods categories.

- **Annex II**, Section 3 Production routes, system boundaries, and relevant precursors, as specified in sub-sections: 3.7 – Ammonia; 3.8 – Nitric acid; 3.9 – Urea; 3.10 – Mixed fertilizers.

5.5.1 Unit of production and embedded emissions

The quantity of declared nitrogen containing fertilizer sector goods imported into the EU should be expressed in metric tonnes. As a reporting declarant, you should report the quantity of CBAM goods imported into the EU.

Industrial sector	Fertilizers
Production unit of goods	Tonnes (metric)[32], reported separately for each type of sector goods, by installation or production process in the country of origin
Associated activities	Producing chemical precursors for nitrogenous fertilizer production, producing nitrogenous fertilizers by physical mixing or chemical reaction, and processing into their final form.
Relevant greenhouse gas emissions	Carbon dioxide (CO_2) and nitrous oxide (N_2O)
Direct Emissions	Tonnes (metric) of CO_2e
Indirect emissions	Quantity of electricity consumed (MWh), source and emissions factor used to calculate the indirect emissions in Tonnes (metric) of CO_2 or CO_2e. *To be reported separately during transitional period.*
Unit for embedded emissions	Tonnes CO_2e emissions per tonne of goods, reported separately for each type of goods, by installation in the country of origin.

The fertilizer industry sector has to account for both direct emissions and indirect emissions in the transitional period. Indirect emissions are to be reported separately. Emissions should be reported in metric tonnes CO_2 equivalent (tCO_2e) emissions per tonne of output. This figure should be calculated for the specific installation or production process in the country of origin.

The following sections identify elements of the production process that should be included for the purposes of monitoring and reporting.

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[32] For certain goods, the imported quantities need to be converted to standardised tonnes that are subsequently used for calculating the CBAM obligation. For example, for nitric acid, hydrous solutions of ammonia and nitrogen-containing fertilizers, there will be a need to explicitly state the reference concentration / nitrogen content (and form of nitrogen).

5.5.2 Definition and explanation of sector CBAM goods covered

The table below lists the relevant goods in scope for the CBAM transitional period in the fertilizer industry sector. The aggregated goods category in the left hand column defines groups for which joint 'production processes' are to be defined for the purpose of monitoring.

Table 5-6: CBAM goods in the fertilizer sector

Aggregated goods category	Product CN Code	Description
Nitric acid	2808 00 00	Nitric acid; sulphonitric acids
Urea	3102 10	Urea, whether or not in aqueous solution
Ammonia	2814	Ammonia, anhydrous or in aqueous solution
Mixed fertilizers	2834 21 00, 3102, 3105 - Except 3102 10 (Urea) and 3105 60 00	2834 21 00 – Nitrates of potassium 3102 – Mineral or chemical fertilizers, nitrogenous - Except 3102 10 (Urea) 3105 – Mineral or chemical fertilizers containing two or three of the fertilizing elements nitrogen, phosphorus, and potassium; other fertilizers - Except: 3105 60 00 – Mineral or chemical fertilizers containing the two fertilizing elements phosphorus and potassium[33]

Source: The CBAM Regulation, Annex I; Implementing Regulation, Annex II.

The aggregated goods categories listed in the table above include both finished nitrogenous fertilizer goods and relevant chemical precursor goods (intermediate products) that are consumed in the production of nitrogenous fertilizer.

Only input materials listed as relevant precursors to the system boundaries of the production process as specified in the Implementing Regulation, that are produced for use in chemical fertilizer production, are to be considered[34]. Table 5-7 below lists the possible precursors by aggregated goods category and production route.

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[33] Only nitrogen (N) containing fertilizers have significant embedded emissions, therefore their precursors are included in the CBAM.

[34] Around 80% of all ammonia production is used as a chemical precursor for fertilizer production and circa 97% of nitrogen fertilizers are derived from ammonia.

Table 5-7: Aggregated goods categories, their production routes and possibly relevant precursors

Aggregated Goods Category *Production route*	Relevant precursors
Ammonia *Haber Bosch with steam reforming* *Haber Bosch with gasification*	Hydrogen, if separately produced for use in the process[35].
Nitric Acid	Ammonia (as 100% ammonia).
Urea	Ammonia (as 100% ammonia).
Mixed fertilizer	If used in the process: ammonia (as 100% ammonia), nitric acid (as 100% nitric acid), urea, mixed fertilizers (in particular salts containing ammonium or nitrate).

For the production of mixed fertilizer, not all precursors will apply in every case. Also, mixed fertilizer itself may be used as a precursor for its own category, depending on the final formulation of the mixed fertilizer product required.

The final nitrogenous chemical fertilizer goods produced from the relevant precursors (in bulk in integrated plants) are defined as complex goods as they include the embedded emissions from relevant precursor goods.

The production of fertilizer sector goods is by a number of different process routes, outlined below.

5.5.3   Definition and explanation of relevant production processes and routes

The system boundaries for chemical precursors and fertilizers are distinct and may, under certain conditions, be added together to include all processes directly or indirectly linked to the production processes for these goods, including input activities to the process, and output activities from the process.

The following Figure 5-4 provides an overview of the different processes and process routes for the production of nitrogenous fertilizer and its relevant precursors.

Figure 5-4: System boundaries and value chain for the production of nitrogenous fertilizer and its precursors – overview

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[35]   Where hydrogen from other production routes is added to the process, it shall be treated as a precursor with its own embedded emissions.
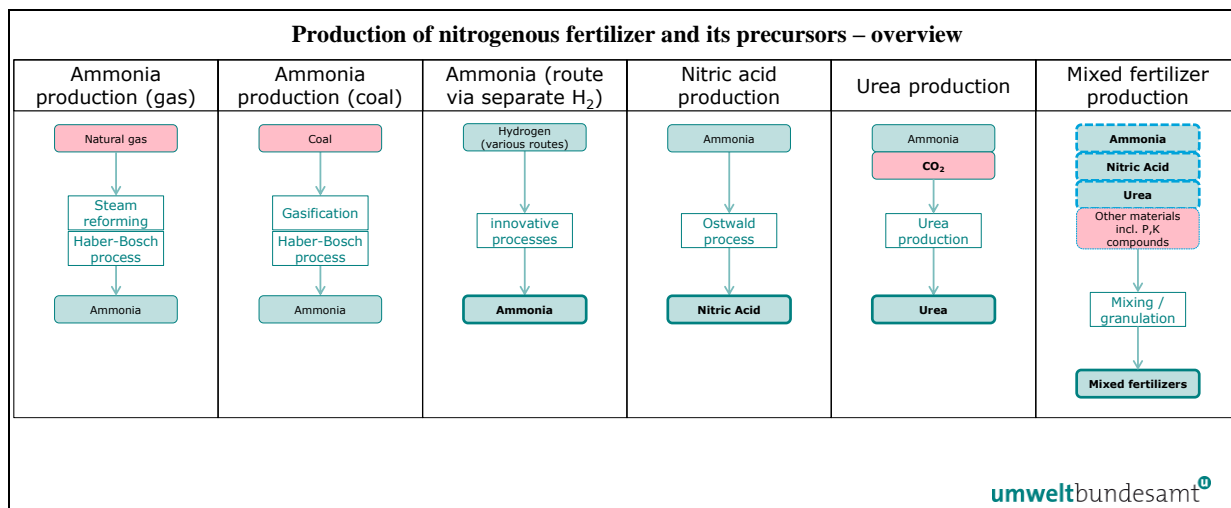
Urea is used as a precursor in mixed fertilizer production but may also be used as a convenient fertilizer on its own due to its high nitrogen content.

Mixed fertilizers comprise all kinds of nitrogen (N) containing fertilizers, including ammonium nitrate, calcium ammonium nitrate, ammonium sulphate, ammonium phosphates, urea ammonium nitrate solutions, as well as nitrogen-phosphorus (NP), nitrogen-potassium (NK) and nitrogen-phosphorus-potassium (NPK) fertilizers.

5.5.3.1 *Ammonia production process*

Ammonia is synthesised from nitrogen and hydrogen via the Haber-Bosch process. Hydrogen for the process is obtained by one of two production routes, by steam reforming natural gas (or biogas), or by partial oxidation (gasification) of heavier hydrocarbons such as coal or heavy fuel oil. With steam reformation natural gas is converted to hydrogen and carbon dioxide (through primary and secondary steam reformation). The overall reaction is highly endothermic and process heat is supplied by the combustion of natural gas or other gaseous fuel. With partial oxidation (gasification) a synthesis gas containing hydrogen is produced, which has to be purified before the it can be used for the next production step. Ammonia is then synthesised from the hydrogen produced by either production route and from nitrogen obtained from the air, at high temperature and pressure in the presence of a catalyst. Any carbon monoxide produced by steam reforming or gasification is almost all converted to carbon dioxide.

If hydrogen that is separately produced (i.e. by a different production process) is used in the process, it is treated as a precursor, with its own embedded direct and indirect emissions.

Direct emissions for both production routes result from the combustion of fuels, from the use of fuels as a chemical feedstock for the process, or from process materials used for flue gas cleaning. Indirect emissions result from electricity consumed by the process.

Note that ammonia produced is reported as 100% ammonia, whether in hydrous or anhydrous form.

Also note that the stream of carbon dioxide from the production of ammonia is of high purity and under certain conditions can be separated, captured and transferred elsewhere for other uses e.g. for urea production.

5.5.3.2 Nitric acid (and sulphonitric acids) production process

Nitric acid is mostly produced via the oxidation of ammonia by Ostwald process. Ammonia is first oxidised in the presence of a catalyst to form nitrogen oxide, which is then further oxidised to nitrogen dioxide, followed by absorption in water in an absorption tower to form nitric acid. The reaction is exothermic and heat and power may be recovered to the process.

Ammonia (as 100% ammonia) is a relevant precursor, with its own embedded direct and indirect emissions.

Direct emissions result from the combustion of fossil fuels, from materials used for flue gas cleaning, and from N_2O emissions from the production process (N_2O emissions from combustion are excluded). Indirect emissions result from electricity consumed by the process.

Note that nitric acid produced is reported as 100% nitric acid.

5.5.3.3 Urea production process

Urea is synthesised by reacting ammonia and carbon dioxide together at high pressure, to form ammonium carbamate, which is then dehydrated to form urea.

Ammonia (as 100% ammonia) is a relevant precursor, with its own embedded direct and indirect emissions.

The ammonia and CO_2 consumed by this production process are usually delivered from other production processes on the same site.

5.5.3.4 Mixed fertilizers production process

A wide range of operations are included in the production of all kinds of nitrogen containing mixed fertilizers (especially ammonium salts and NP, NK and NPK), such as mixing, neutralisation[36], particle formation (such as by granulation or prilling), irrespective of whether only physical mixing or chemical reactions take place.

Relevant precursors for the manufacture of mixed fertilizer are ammonia (as 100% ammonia), nitric acid (as 100% nitric acid), urea and other mixed fertilizers (in particular salts containing ammonium or nitrate), if used in the process.

Direct emissions result from the combustion of fossil fuels used in the process (such as for driers, for heating input materials) or from process materials used for flue gas cleaning. Indirect emissions result from electricity consumed by the process.

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[36] Nitrogen containing chemical fertilizers are produced by the neutralisation of an acid with ammonia to form the corresponding ammonium salt. Fertilizers produced in this way include ammonium nitrate, calcium ammonium nitrate, ammonium sulphate, ammonium phosphates, urea ammonium nitrate.

5.5.4 Additional reporting parameters

The following table lists the additional information that should be provided by the operator, along with data on embedded emissions, in their emissions data communication to you the importer.

Table 5-8: Additional fertilizer sector parameters covered in the CBAM report

Aggregated good category	Reporting requirement in the quarterly report
Ammonia[37]	– Concentration, if hydrous solution.
Nitric acid[38]	– Concentration (mass %).
Urea	- Purity (mass % urea contained, % N contained).
Mixed fertilizers[39,40]	Content of different forms of nitrogen in mixed fertilizer: - Content of N as ammonium (NH_4^+); - Content of N as nitrate (NO_3^-); - Content of N as Urea; - Content of N in other (organic) forms.

These additional parameters should be reported where relevant for the goods produced. You will need to report the additional parameters in your CBAM Report when the final good is imported to the EU under the CBAM.

5.6 Iron and Steel sector

The textbox below signposts sector-specific sections in the Implementing Regulation, relevant for the CBAM transitional period.

Implementing Regulation references:

- **Annex II**, Section 2, Table 1 Mapping of CN codes to aggregated goods categories.

- **Annex II**, Section 3 Production routes, system boundaries, and relevant precursors, as specified in sub-section: 3.11 – Sintered ore; 3.12 – Ferro-manganese, Ferro-chromium, Ferro-nickel; 3.13 – Pig iron; 3.14 – DRI; 3.15 – Crude steel; 3.16 – Iron or steel products.

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[37] Both hydrous and anhydrous ammonia shall be reported jointly as 100% ammonia.

[38] Amounts of nitric acid produced shall be monitored and reported as 100% nitric acid

[39] The amounts of different nitrogen compounds contained in the final product should be recorded in accordance with Regulation (EU) 2019/1009 laying down rules on the making available on the market of EU fertilizing products

[40] Regulation (EU) 2019/1009 of the European Parliament and of the Council laying down rules on the making available on the market of EU fertilizing products.
See: http://data.europa.eu/eli/reg/2019/1009/2023-03-16

5.6.1 Unit of production and embedded emissions

The quantity of declared iron and steel sector good imported into the EU should be expressed in metric tonnes. As a reporting declarant, you should report the quantity of CBAM goods imported into the EU.

Industrial sector	Iron and steel
Production unit of goods	Tonnes (metric), reported separately for each type of sector goods, by installation or production process in the country of origin
Associated activities	Producing, melting or refining iron or steel or ferrous alloys; manufacture of semi-finished and basic steel products.
Relevant greenhouse gas	Carbon dioxide (CO_2)
Direct Emissions	Tonnes (metric) of CO_2e
Indirect Emissions	Quantity of electricity consumed (MWh), source and emissions factor used to calculate the indirect emissions in Tonnes (metric) of CO_2 or CO_2e. *To be reported separately during transitional period.*
Unit for embedded emissions	Tonnes CO_2e emissions per tonne of goods, reported separately for each type of goods, by installation in the country of origin

The iron and steel sector has to account for both direct emissions and indirect emissions in the transitional period. Indirect emissions are to be reported separately[41]. Emissions should be reported in metric tonnes CO_2 equivalent (tCO_2e) emissions per tonne of output. This figure should be calculated for the specific installation or production process in the country of origin.

The following sections identify elements of the production process that should be included for the purposes of monitoring and reporting.

5.6.2 Definition and explanation of sector CBAM goods covered

The table below lists the relevant goods in scope for the CBAM transitional period in the iron and steel industry sector. The aggregated goods category in the left hand column defines groups for which joint 'production processes' are to be defined for the purpose of monitoring.

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[41] Note that for this sector indirect emissions are only reported during the transitional period (and not during the definitive period).

Table 5-9: CBAM goods in the iron and steel sector

Aggregated goods category	Product CN Code	Description
Sintered Ore[42]	2601 12 00	Agglomerated iron ores and concentrates, other than roasted iron pyrites
Pig iron	7201	Pig iron and spiegeleisen[43] in pigs, blocks or other primary forms
	7205[44]	Some products under 7205 (Granules and powders, of pig iron, spiegeleisen, iron, or steel) may be covered here
Ferro-alloy: FeMn	7202 1	Ferro-manganese (FeMn)
Ferro-alloy: FeCr	7202 4	Ferro-chromium (FeCr)
Ferro-alloy: FeNi	7202 6	Ferro-nickel (FeNi)
DRI	7203	Ferrous products obtained by direct reduction of iron ore and other spongy ferrous products
Crude steel	7206, 7207, 7218 and 7224	7206 – Iron and non-alloy steel in ingots or other primary forms (excluding iron of heading 7203) 7207 – Semi-finished products of iron or non-alloy steel 7218 – Stainless steel in ingots or other primary forms; semi-finished products of stainless steel 7224 – Other alloy steel in ingots or other primary forms; semi-finished products of other alloy steel
Iron or steel products[45]	Includes: 7205, 7208-7217, 7219-7223, 7225-7229, 7301-7311, 7318 and 7326	7205 – Granules and powders, of pig iron, spiegeleisen, iron or steel (if not covered under category pig iron) 7208 – Flat-rolled products of iron or non-alloy steel, of a width of 600 mm or more, hot-rolled, not clad, plated or coated

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[42] This aggregated goods category includes all kinds of iron ore pellet production (for sale of pellets as well as for direct use in the same installation) and sinter production.

[43] Pig iron containing alloy ferro-manganese.

[44] Only some products of this CN code will qualify as "pig iron", while other goods of this code are classified as "iron or steel products"

[45] This aggregated goods category includes semi-finished and finished products.

Aggregated goods category	Product CN Code	Description
		7209 – Flat-rolled products of iron or non-alloy steel, of a width of 600 mm or more, cold-rolled (cold-reduced), not clad, plated or coated
		7210 – Flat-rolled products of iron or non-alloy steel, of a width of 600 mm or more, clad, plated or coated
		7211 – Flat-rolled products of iron or non-alloy steel, of a width of less than 600 mm, not clad, plated or coated
		7212 – Flat-rolled products of iron or non-alloy steel, of a width of less than 600 mm, clad, plated or coated
		7213 – Bars and rods, hot-rolled, in irregularly wound coils, of iron or non-alloy steel
		7214 – Other bars and rods of iron or non-alloy steel, not further worked than forged, hot-rolled, hot-drawn or hot-extruded, but including those twisted after rolling
		7215 – Other bars and rods of iron or non-alloy steel
		7216 – Angles, shapes and sections of iron or non-alloy steel
		7217 – Wire of iron or non-alloy steel
		7219 – Flat-rolled products of stainless steel, of a width of 600 mm or more
		7220 – Flat-rolled products of stainless steel, of a width of less than 600 mm
		7221 – Bars and rods, hot-rolled, in irregularly wound coils, of stainless steel
		7222 – Other bars and rods of stainless steel; angles, shapes and sections of stainless steel
		7223 – Wire of stainless steel
		7225 – Flat-rolled products of other alloy steel, of a width of 600 mm or more
		7226 – Flat-rolled products of other alloy steel, of a width of less than 600 mm
		7227 – Bars and rods, hot-rolled, in irregularly wound coils, of other alloy steel

Aggregated goods category	Product CN Code	Description
		7228 – Other bars and rods of other alloy steel; angles, shapes and sections, of other alloy steel; hollow drill bars and rods, of alloy or non-alloy steel
		7229 – Wire of other alloy steel
		7301 – Sheet piling of iron or steel, whether or not drilled, punched or made from assembled elements; welded angles, shapes and sections, of iron or steel
		7302 – Railway or tramway track construction material of iron or steel, the following: rails, check-rails and rack rails, switch blades, crossing frogs, point rods and other crossing pieces, sleepers (cross-ties), fish- plates, chairs, chair wedges, sole plates (base plates), rail clips, bedplates, ties and other material specialised for jointing or fixing rails
		7303 – Tubes, pipes and hollow profiles, of cast iron
		7304 – Tubes, pipes and hollow profiles, seamless, of iron (other than cast iron) or steel
		7305 – Other tubes and pipes (for example, welded, riveted or similarly closed), having circular cross-sections, the external diameter of which exceeds 406,4 mm, of iron or steel
		7306 – Other tubes, pipes and hollow profiles (for example, open seam or welded, riveted or similarly closed), of iron or steel
		7307 – Tube or pipe fittings (for example, couplings, elbows, sleeves), of iron or steel
		7308 – Structures (excluding prefabricated buildings of heading 9406) and parts of structures (for example, bridges and bridge-sections, lock- gates, towers, lattice masts, roofs, roofing frameworks, doors and windows and their frames and thresholds for doors, shutters, balustrades, pillars and columns), of iron or steel; plates, rods, angles, shapes, sections, tubes and the like, prepared for use in structures, of iron or steel

Aggregated goods category	Product CN Code	Description
		7309 – Reservoirs, tanks, vats and similar containers for any material (other than compressed or liquefied gas), of iron or steel, of a capacity exceeding 300 l, whether or not lined or heat-insulated, but not fitted with mechanical or thermal equipment
		7310 – Tanks, casks, drums, cans, boxes and similar containers, for any material (other than compressed or liquefied gas), of iron or steel, of a capacity not exceeding 300 l, whether or not lined or heat-insulated, but not fitted with mechanical or thermal equipment
		7311 – Containers for compressed or liquefied gas, of iron or steel
		7318 – Screws, bolts, nuts, coach screws, screw hooks, rivets, cotters, cotter pins, washers (including spring washers) and similar articles, of iron or steel
		7326 – Other articles of iron or steel

Source: The CBAM Regulation, Annex I; Implementing Regulation, Annex II.

The aggregated goods categories listed in the table above include both finished goods and precursor goods (intermediate products) that are consumed in the production of iron or steel products.

Only input materials listed as relevant precursors to the system boundaries of the production process as specified in the Implementing Regulation are to be considered. Table 5-10 below lists the possible precursors by aggregated goods category and production route.

Table 5-10: Aggregated goods categories, their production routes and possibly relevant precursors

Aggregated Goods Category *Production route*	Relevant precursors
Sintered Ore	None
Ferro alloys (FeMn, FeCr, FeNi)	Sintered ore, if used in the process.
Pig iron *Blast furnace route* *Smelting reduction*	Hydrogen, sintered ore, ferro alloys, pig iron/DRI (the later if obtained from other installations or production processes and used in the process).

Aggregated Goods Category	Relevant precursors
Production route	
DRI (Direct Reduced Iron)	Hydrogen, sintered ore, ferro alloys, pig iron/DRI (the latter if obtained from other installations or production processes and used in the process).
Crude steel	Ferro alloys, pig iron, DRI, crude steel (the latter if obtained from other installations or production processes and used in the process).
Basic oxygen steelmaking	
Electric arc furnace	
Iron or steel products	Ferro alloys, pig iron, DRI, crude steel, iron or steel products (if used in the process).

Not all precursors will apply in every case. For example, hydrogen may only become relevant in the future. Note in particular that in some cases an aggregated goods category may be precursor for its own category. This is best explained by an example:

Example: If an installation produces screws and nuts from steel rods, then the rods are the precursor, but both rods and screws and nuts are included in the same aggregated goods category.

The embedded emissions of the screws and nuts will be composed of the emissions of the production process (heat applied for making the rods workable, and for annealing of the final product) plus the embedded emissions of the steel rods. Note that this is important because the mass of the precursor rods and the mass of the final product screws and nuts will not be the same – if e.g. 20% of the original mass are cut away (and disposed of as scrap), 100 t precursor are required for 80 t of final product.

Some types of iron and steel product have been excluded from the scope of the CBAM. These include in particular certain other types of ferro alloys under CN 7202 and CN 7204 - ferro scrap.

The production of iron and steel sector goods is by a number of different process routes, outlined below.

5.6.3   *Definition and explanation of relevant production processes and emissions covered*

The system boundaries for precursors and iron or steel finished products are distinct and may, under certain conditions, be added together to include all processes directly or indirectly linked to the production processes for these goods, including input activities to the process, and output activities from the process.

The following diagram illustrates the variety of different routes by which iron or steel products may be produced.

Figure 5-5: System boundaries and value chain for the production of iron or steel products
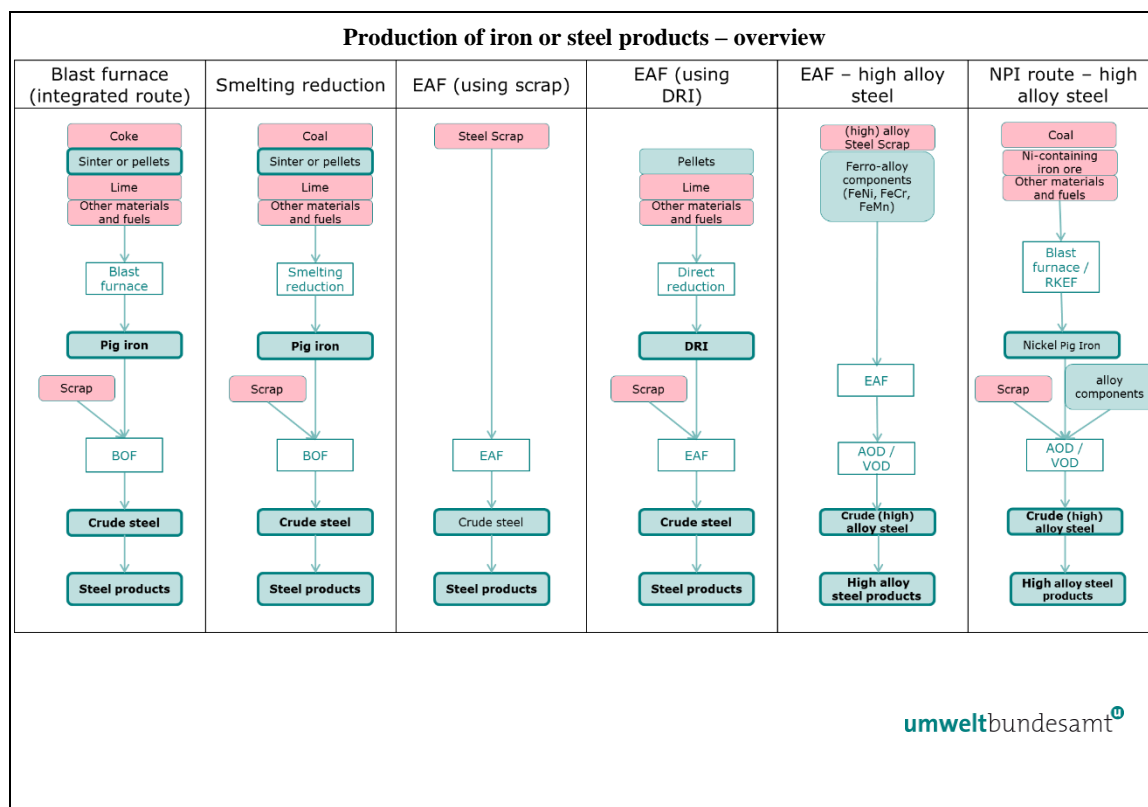
The production of precursor and finished goods is by a number of different process routes, outlined in the following sections.

### 5.6.3.1 Sintered ore production process

This aggregated goods category includes all kinds of iron ore pellet production (for sale of pellets as well as for direct use in the same installation) and sinter production. Pelletisation and sintering are complementary process routes for preparing and agglomerating iron oxide raw materials for use in iron and steel making. In pelletisation, iron oxide raw materials are ground and combined with additives to form pellets, which are then thermally treated. In sintered ore production, iron oxide raw materials are mixed with coke breeze and other additives before the mixture is sintered together in a kiln, forming a porous material similar to clinker, called 'sinter'. Sinter is typically produced and used at the steelworks. Pellets may be produced at the steelworks or at a distance at mine sites.

There are no relevant precursors for this production process.

Note that ferro-alloy pellets and sinter produced from iron ores may also be covered by this production process (for CN code 2601 12 00).

The following *Figure 5-6* shows the system boundaries for the embedded emissions of sinter or iron ore pellets.

Figure 5-6: System boundaries of the sintered ore production process
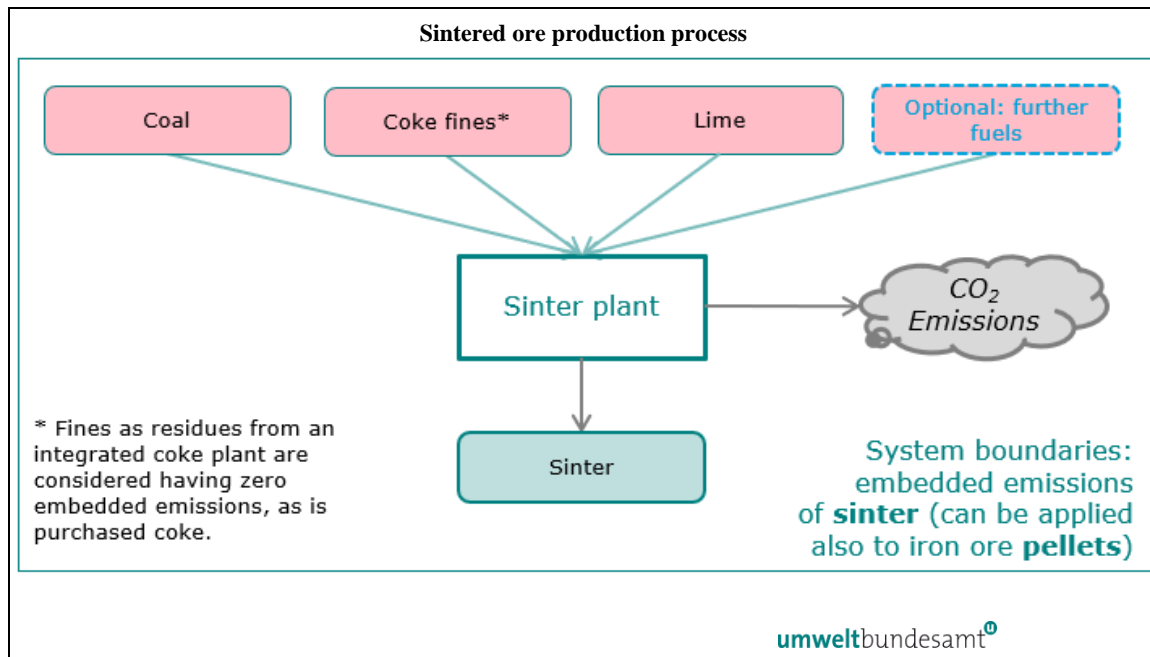
Direct emissions result from the combustion of fuels including coke, waste gases (directly from the process or indirectly from other sources of waste gases in the steelworks). Indirect emissions result from electricity consumed by the process.

5.6.3.2   Ferro-alloy for FeMn, FeCr,and FeNi production processes

This process covers the production of the alloys ferro-manganese (FeMn), ferro-chromium (FeCr), ferro-nickel (FeNi), identified under CN codes 7202 1, 7202 4 and 7202 6. Other iron materials with significant alloy content such as spiegeleisen are not covered here (see section 5.6.3.3). However, nickel pig iron (NPI) is included if the nickel content is greater than 10%; otherwise, if less than 10% NPI is covered by the 'Pig iron – blast furnace production route'.

The different ferro-alloys are produced by reductive smelting with the addition of a reducing agent such as coke to the EAF, along with other additives. Several different types of EAF are used, depending on the ferro-alloy being produced. Following EAF smelting, liquid metal alloy is tapped and cast in moulds and the solidified metal is then crushed or granulated depending on customer requirements.

A relevant precursor is sintered ore (if used in the process).

Note that raw material inputs for ferro-alloys includes pellets and sinter that are produced under the separate production process (for CN code 2601 12 00) for 'Sintered ore'.

The following Figure 5-7 shows the system boundaries of the relevant processes for ferro-alloy production.

Figure 5-7: System boundaries of the Ferro-alloy production process.
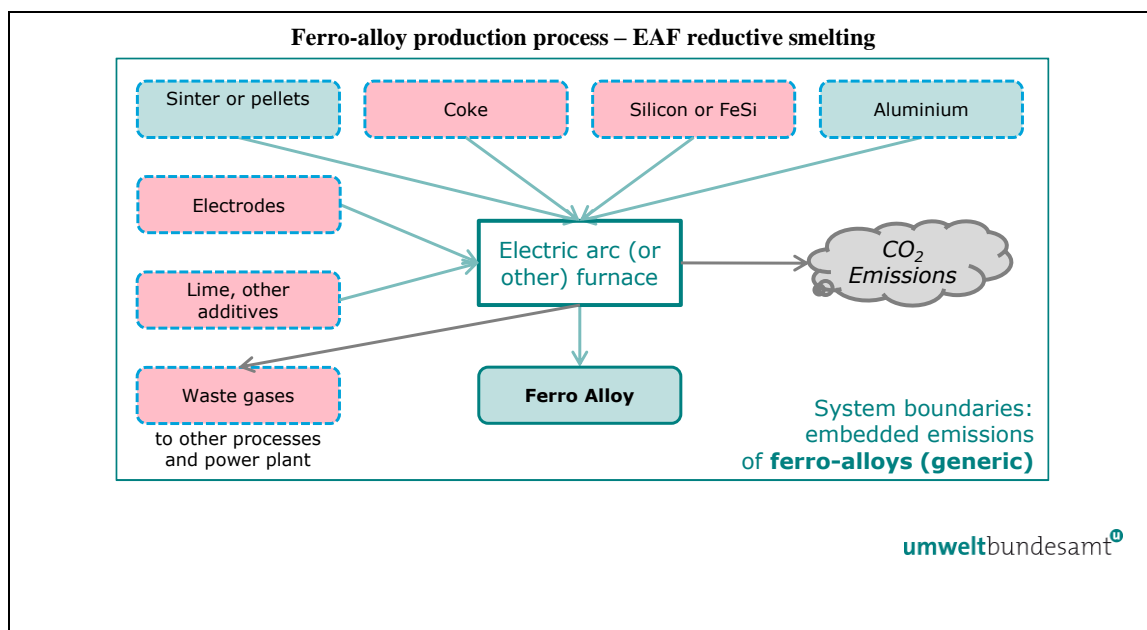
Direct emissions result from fossil fuel inputs (coal, coke) used both for combustion and as a reducing agent, from process emissions including from the graphite electrodes and electrode pastes, from process materials such as lime, limestone and other additives. Indirect emissions are from electricity.

5.6.3.3 Pig iron - Blast furnace production route

The blast furnace production route produces liquid pig iron ("hot metal") that may be alloyed (e.g. spiegeleisen and nickel pig iron or NPI[46]) or non-alloyed. The main production unit for this production process is the blast furnace. Inputs into the blast furnace include iron ore pellets or sintered ore, fuels and other raw materials. Inside the blast furnace iron oxide is reduced to iron metal. The hot metal produced is then tapped and is either cast, or is directly converted to crude steel in a sequential step by the basic oxygen converter. This step is covered under a different production process, the crude steel – basic oxygen steelmaking production route.

Relevant precursors (if used in the process) are: sintered ore; pig iron or DRI from other installations or production processes; ferro-alloys FeMn, FeCr, FeNi; and hydrogen.

The following Figure 5-8 shows the different system boundaries of each of the relevant processes for the blast furnace steel making route including:

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[46] NPI is covered by this production process if the nickel content is lower than 10%, otherwise if more than 10% it is covered under the ferro-alloy production process.
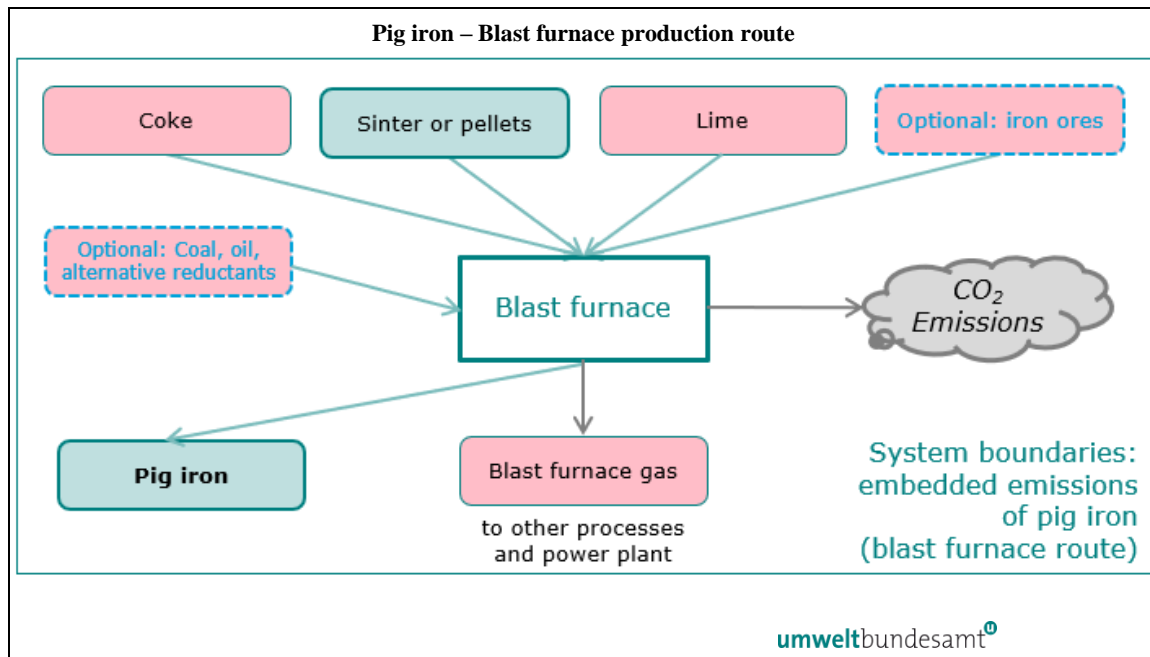
Figure 5-8: System boundaries of the Pig iron - blast furnace production route

Direct emissions result from fossil fuel inputs (coke, coal, fuels oils, natural gas, coal), used both for combustion and as a reducing agent, from other fuels (biomass), from process emissions including from process materials such as limestone and other carbonates. Indirect emissions are from electricity.

5.6.3.4   Pig iron - Smelting reduction production route

Smelting reduction produces pig iron from precursor sintered ore, iron ore pellets, (or ironmaking residues), using coal (not coke) as a reductant. The process comprises two steps, the reduction of iron ore followed by melting to produce pig iron / hot metal.

Relevant precursors (if used in the process) are: sintered ore; pig iron or DRI from other installations or production processes; ferro-alloys FeMn, FeCr, FeNi; and hydrogen.

The following Table 5-9 shows the system boundaries of the smelting reduction production route for producing pig iron-.

Figure 5-9: System boundaries of the Pig iron - smelting reduction production route

Direct emissions result from fossil fuel inputs (natural gas, coal), used both for combustion and as a reducing agent, from other fuels (biomass, or biogas), from process emissions including from process materials such as limestone. Indirect emissions are from electricity.

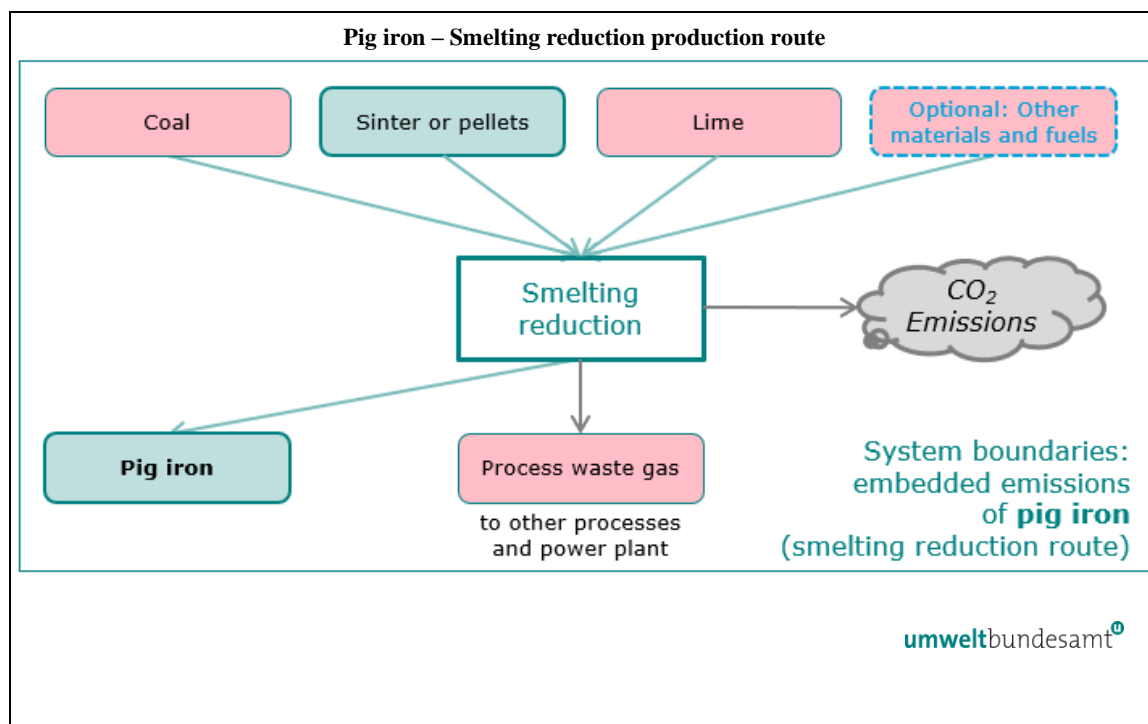### 5.6.3.5 Direct Reduced Iron (DRI) production process

Direct reduction involves the production of solid primary iron from high grade iron ores (pellets, sinter or concentrates), using natural gas, coal or hydrogen as a reducing agent. The solid product is called direct reduced iron (DRI), of different types, for example, 'iron sponge' and hot briquetted iron (HBI). Some DRI is used as a feedstock directly in EAFs or other downstream processes. It is expected that production routes using hydrogen will play a major role in decarbonising the steel industry in coming years.

Relevant precursors (if used in the process) are: sintered ore; hydrogen; pig iron or DRI from other installations or production processes; and ferro-alloys FeMn, FeCr, FeNi.

Although there are several different processes used in practice, the high-level system boundaries are very similar and can therefore be represented on a single diagram.

The following Table 5-10 shows the system boundaries of the relevant processes for DRI production.

Figure 5-10: System boundaries of the DRI production process
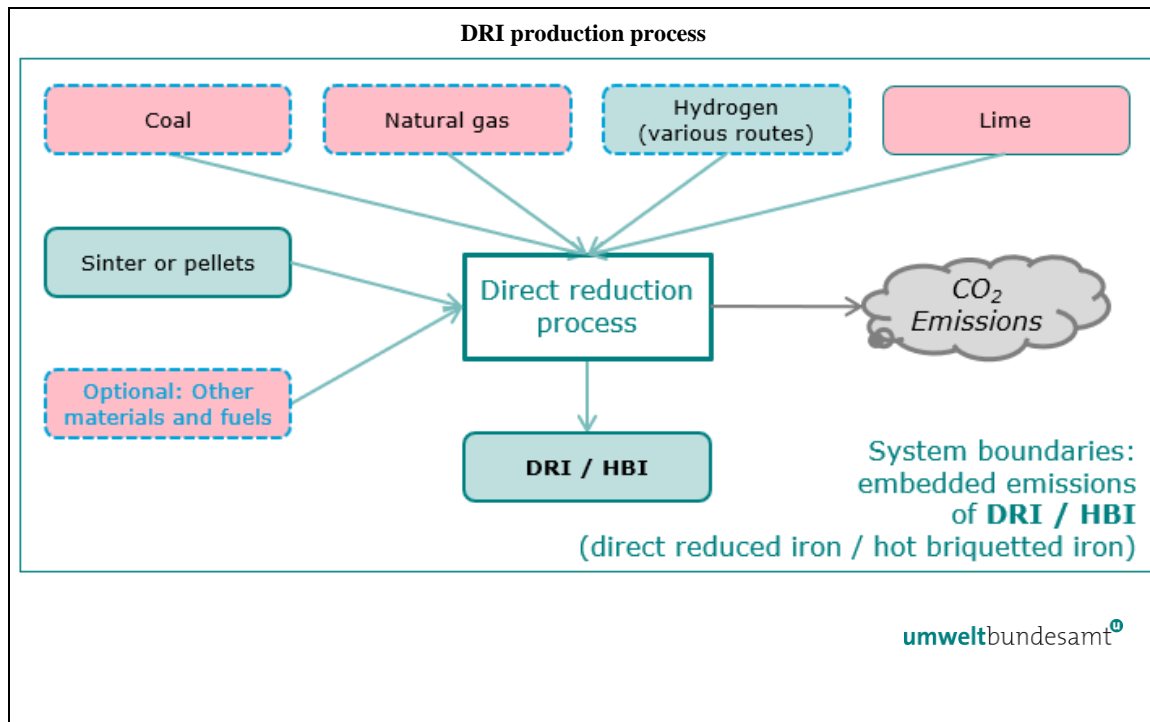
Direct emissions result from fossil fuel inputs (natural gas, coal), used both for combustion and as a reducing agent, from other fuels (biomass, or biogas), from process emissions including from process materials such as limestone. Indirect emissions are from electricity.

5.6.3.6 *Crude steel - Basic oxygen steelmaking production route*

If the basic oxygen steelmaking production route starts with hot metal (liquid pig iron), the hot metal is directly converted to crude steel by the basic oxygen converter or furnace (BOF) as part of a continuous process. Following the converter, a steel decarburisation process by argon oxygen decarburisation (AOD) or vacuum oxygen decarburisation (VOD) may be performed, followed by various secondary metallurgical processes such as vacuum degassing to remove dissolved gases. Crude steel is then cast into its primary forms by continuous casting or ingot casting, which may be followed by hot-rolling or forging to obtain the semi-finished crude steel products (under CN codes 7207, 7218 and 7224).

Relevant precursors (if used in the process) are: pig iron, DRI; ferro-alloys FeMn, FeCr, FeNi; and crude steel from other installations or production processes, if used.

Figure 5-11: System boundaries of the basic oxygen steelmaking process – shown alongside those for the Blast furnace – liquid pig iron production route, and other related processes
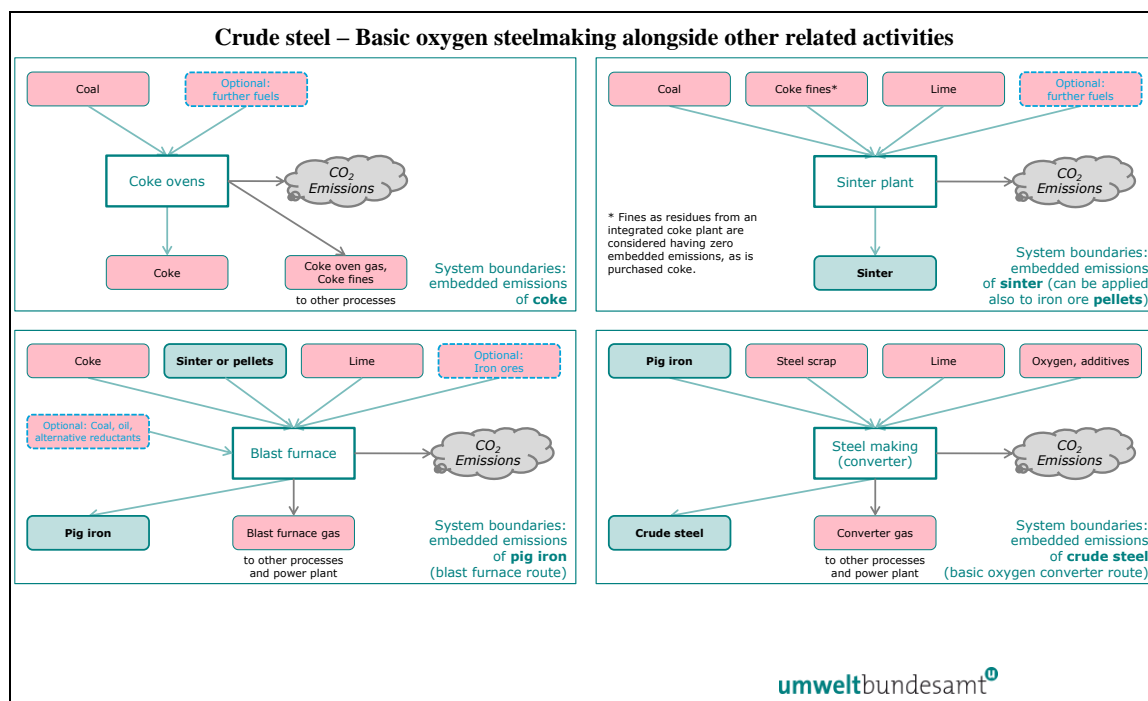
In integrated steel plants, liquid pig iron that is directly charged to the oxygen converter is the product which separates the production process for pig iron (bottom left in the above *Figure 5-11*) from the production process of crude steel (bottom right, above).

The integrated blast furnace / basic oxygen furnace (BF/BOF) steelmaking process is by far the most complex steel making process and is characterised by networks of interdependent material and energy flows between the various production units. Note that coke (top left) is treated as a raw material with no embedded emissions.

5.6.3.7   Crude steel - EAF steelmaking production route

The direct smelting of materials which contain iron is usually performed in an electric arc furnace (EAF). Feedstocks for EAF routes are metallic iron in particular ferrous scrap[47] and/or Direct Reduced Iron (DRI). Where significant amounts of DRI are used, one of the various EAF-DRI routes applies. Following EAF smelting, a steel decarburisation process by argon oxygen decarburisation (AOD) or vacuum oxygen decarburisation (VOD) may be performed, followed by various secondary metallurgical processes such as desulphurisation and degassing to remove dissolved gases. Electricity is the main energy input to the EAF.

Relevant precursors (if used in the process) are: pig iron, DRI; ferro-alloys FeMn, FeCr, FeNi; and crude steel from other installations or production processes, if used

Note that only primary hot-rolling and rough shaping by forging to obtain the semi-finished products under CN codes 7207, 7218 and 7224 are included in this aggregated goods

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[47]   Where only post-consumer scrap is used, it is assumed to have zero embedded emissions

category. All other rolling and forging processes are included in the aggregated goods category 'iron or steel products.

There are several different EAF production routes, for crude steel and crude alloy steel, which are broadly similar and are shown jointly in Figure 5-12 below.

Figure 5-12: System boundaries of the Crude steel - EAF steelmaking production route.
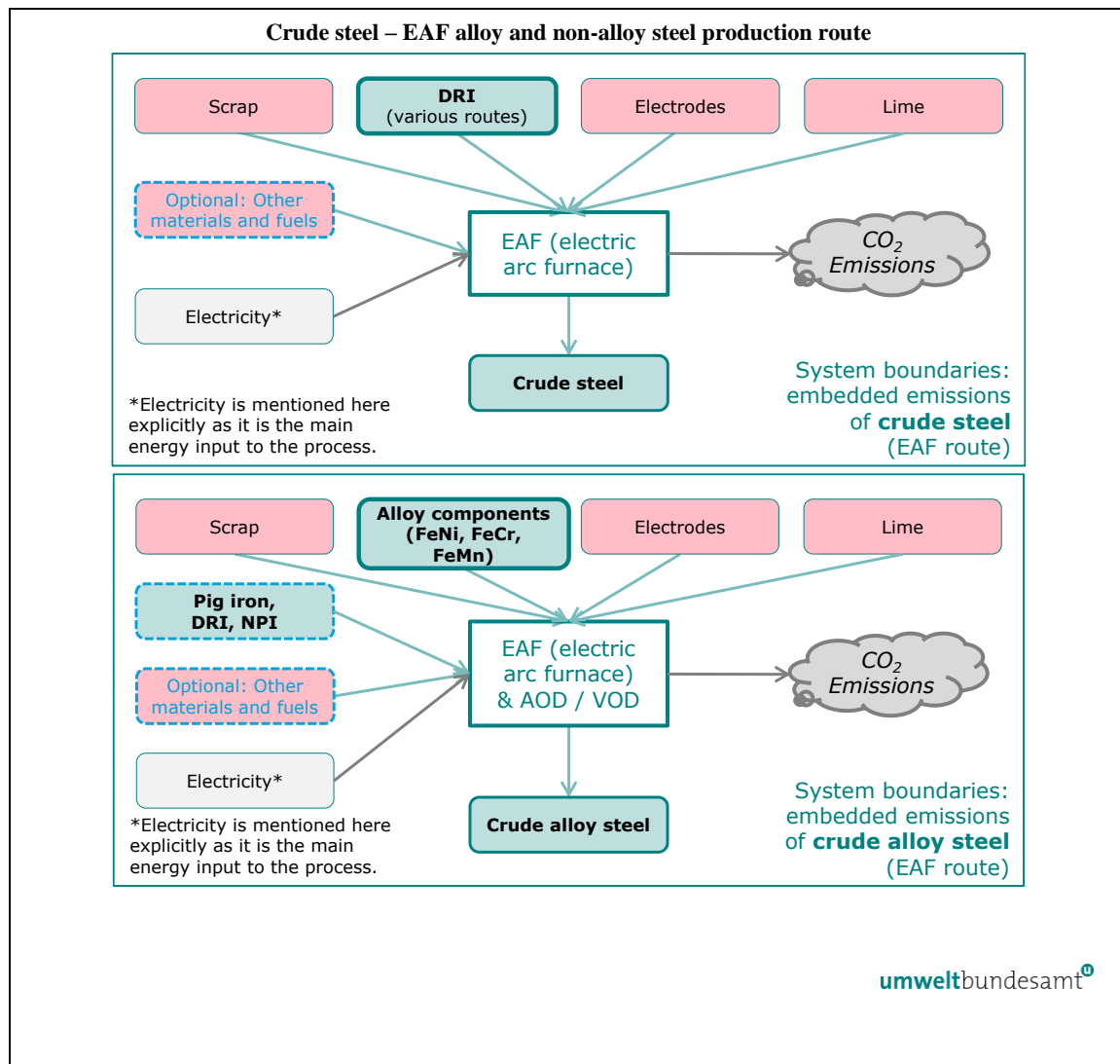
Direct emissions result from fossil fuels (natural gas, coal, fuel oil), waste gases from other processes, and from process emissions including from the graphite electrodes and electrode pastes, from process materials such as lime, and from carbon contained with the ferrous scrap and alloys entering the process. Indirect emissions are from electricity.

5.6.3.8   Iron or steel products production process

Iron or steel products are produced from the further processing of crude steel, semi-finished products, as well as other final steel products by all kinds of forming and finishing steps including: re-heating, re-melting, casting, hot rolling, cold rolling, forging, pickling, annealing, plating, coating, galvanizing, wire drawing, cutting, welding, finishing.

Relevant precursors (if used in the process) are: crude steel; pig iron, DRI; ferro-alloys FeMn, FeCr, FeNi; and other iron or steel products.

The following Figure 5-13 shows the system boundaries for iron or steel products.

Figure 5-13: System boundaries of the iron or steel products production process
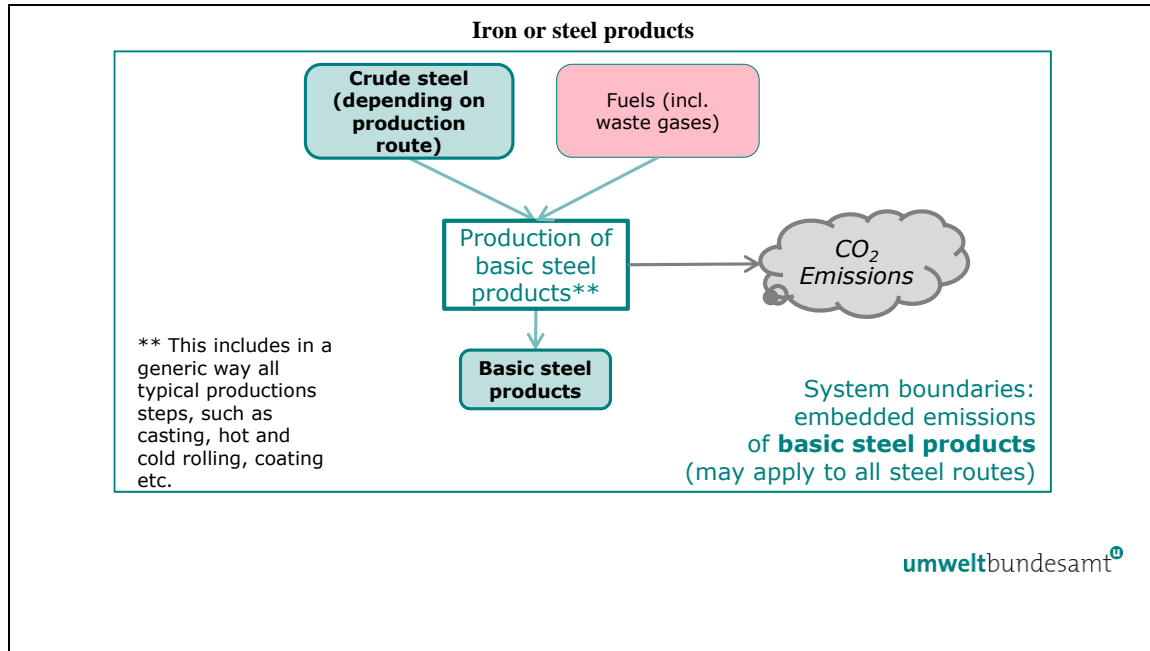
Direct emissions result from combustion of fuels and process emissions from flue gas cleaning, depending on the different combination of production steps carried out in producing the final iron or steel goods. Indirect emissions are from electricity.

Note that for final iron and steel products that contain more than 5% by mass of other materials, e.g. insulation materials in CN code 7309 00 30 (reservoirs, tanks, vats and similar containers for any material (other than compressed or liquefied gas), of iron or steel, of a capacity exceeding 300 l, lined or heat-insulated), only the mass of iron or steel shall be reported as the mass of the goods produced.

5.6.4 Additional reporting parameters

The following table lists out the additional information for CBAM goods that should be provided by the operator, along with data on embedded emissions, in their emissions data communication to you the importer.

Table 5-11: Additional iron and steel sector parameters covered in the CBAM report

Aggregated good category	Reporting requirement
Sintered Ore	– None.
Pig Iron	– The main reducing agent used. – Mass % of Mn, Cr, Ni, total of other alloy elements.
FeMn Ferro-Manganese	– Mass % of Mn and carbon.
FeCr – Ferro-Chromium	– Mass % of Cr and carbon.
FeNi – Ferro-Nickel	– Mass % of Ni and carbon.
DRI (Direct Reduced Iron)	– The main reducing agent used. – Mass % of Mn, Cr, Ni, total of other alloy elements.
Crude steel	– The main reducing agent of the precursor, if known. – Content of alloys in steel – expressed as: – Mass % of Mn, Cr, Ni, total of other alloy elements. – Tonnes scrap used for producing one tonne crude steel. – % of scrap that is pre-consumer scrap.
Iron and steel products	– The main reducing agent used in precursor production, if known. – Content of alloys in steel – expressed as: – Mass % of Mn, Cr, Ni, total of other alloy elements. – Mass % of materials contained which are not iron or steel, if their mass is more than 1% to 5% of the total good's mass. – Tonnes scrap used for producing one tonne of the product. – % of scrap that is pre-consumer scrap.

You will need to report the additional parameters in your CBAM Report when the iron or steel good is imported to the EU under the CBAM.

5.7 Aluminium sector

The textbox below signposts the sector-specific sections in the Implementing Regulation, relevant for the CBAM transitional period.

Implementing Regulation references:
- **Annex II**, Section 2, Table 1 Mapping of CN codes to aggregated goods categories.
- **Annex II**, Section 3 Production routes, system boundaries, and relevant precursors, as specified in sub-section: 3.17 – Unwrought aluminium and 3.18 – Aluminium products.

5.7.1 Unit of production and embedded emissions

The quantity of declared aluminium goods imported into the EU should be expressed in metric tonnes. As an operator, you should record the quantity of CBAM good(s) produced by the installation or production process, for the purposes of reporting.

Industrial sector	Aluminium
Production unit of goods	Tonnes (metric), reported separately for each type of sector goods, by installation or production process in the country of origin.
Associated activities	Producing unwrought aluminium from alumina, or secondary raw materials (aluminium scrap), by metallurgical, chemical or electrolytic means; manufacture of semi-processed and basic aluminium products.
Relevant greenhouse gases	Carbon dioxide (CO_2) and perfluorocarbons (CF_4 and C_2F_6)
Direct Emissions	Tonnes (metric) of CO_2e
Indirect Emissions	Quantity of electricity consumed (MWh), source and emissions factor used to calculate the indirect emissions in Tonnes (metric) of CO_2 or CO_2e. *To be reported separately during transitional period.*
Unit for embedded emissions	Tonnes CO_2e emissions per tonne of goods, reported separately for each type of good, by installation in the country of origin.

The aluminum sector should account for both direct emissions and indirect emissions in the transitional period. Indirect emissions are to be reported separately[48]. Emissions should be reported in metric tonnes CO_2 equivalent (tCO_2e) emissions per tonne of output. This

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[48] Note that for this sector indirect emissions are only reported during the transitional period (and not during the definitive period).

figure should be calculated for the specific installation or production process in your country of origin.

The following sections identify elements of the production process that should be included for the purposes of monitoring and reporting.

5.7.2 Definition and explanation of sector goods covered

The table below lists the relevant goods in scope for the CBAM transitional period in the aluminium industry sector. The aggregated goods category in the left hand column defines groups for which joint 'production processes' are to be defined for the purpose of monitoring.

Table 5-12: CBAM goods in the aluminium sector

Aggregated goods category	Product CN Code	Description
Unwrought aluminium	7601	Unwrought aluminium
Aluminium products	7603 – 7608, 7609 00 00, 7610, 7611 00 00, 7612, 7613 00 00, 7614, 7616	7603 – Aluminium powders and flakes
		7604 – Aluminium bars, rods and profiles
		7605 – Aluminium wire
		7606 – Aluminium plates, sheets and strip, of a thickness exceeding 0,2 mm
		7607 – Aluminium foil (whether or not printed or backed with paper, paper-board, plastics or similar backing materials) of a thickness (excluding any backing) not exceeding 0,2 mm
		7608 – Aluminium tubes and pipes
		7609 00 00 – Aluminium tube or pipe fittings (for example, couplings, elbows, sleeves)
		7610 – Aluminium structures (excluding prefabricated buildings of heading 9406) and parts of structures (for example, bridges and bridge-sections, towers, lattice masts, roofs, roofing frameworks, doors and windows and their frames and thresholds for doors, balustrades, pillars and columns); aluminium plates, rods, profiles, tubes and the like, prepared for use in structures
		7611 00 00 – Aluminium reservoirs, tanks, vats and similar containers, for any material (other than compressed or liquefied gas), of a capacity exceeding 300 litres, whether or not lined or heat-insulated, but not fitted with mechanical or thermal equipment

Aggregated goods category	Product CN Code	Description
		7612 – Aluminium casks, drums, cans, boxes and similar containers (including rigid or collapsible tubular containers), for any material (other than compressed or liquefied gas), of a capacity not exceeding 300 litres, whether or not lined or heat-insulated, but not fitted with mechanical or thermal equipment
		7613 00 00 – Aluminium containers for compressed or liquefied gas
		7614 – Stranded wire, cables, plaited bands and the like, of aluminium, not electrically insulated
		7616 – Other articles of aluminium

Source: The CBAM Regulation, Annex I; Implementing Regulation, Annex II.

The aggregated goods categories listed in the table above include both finished aluminium products and a precursor 'unwrought aluminium' that is consumed in the production of aluminium products.

Only input materials listed as relevant precursors to the system boundaries of the production process as specified in the Implementing Regulation are to be considered. Table 5-13 lists the possible precursors by aggregated goods category and production route below.

Table 5-13: Aggregated goods categories, their production routes and possibly relevant precursors

Aggregated Goods Category *Production route*	Relevant precursors
Unwrought aluminium *Primary aluminium* *Secondary aluminium*	None for primary aluminium For secondary aluminium – unwrought aluminium from other sources, if used in the process[49]
Aluminium products	Unwrought aluminium (differentiated between primary and secondary aluminium, if known), other aluminium products (if used in the production process).

Unwrought aluminium is produced by several production routes ('primary aluminium' for electrolytic smelting, 'secondary aluminium' for the melting/recycling of scrap) as metal ingots, blocks, billets, slabs or similar. It is defined as a 'simple good', as the raw materials

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[49]   Note that if the product from secondary aluminium production route contains more than 5% alloying elements, the embedded emissions of the product shall be calculated as if the mass of alloying elements were unwrought aluminium from primary smelting.

(carbon anodes and alumina for primary aluminium, scrap for secondary aluminium) and fuels used in its manufacture are themselves considered to have zero embedded emissions.

The aluminium goods listed above include most types of aluminium product manufactured[50]. Aluminium products are defined as complex goods as they include the embedded emissions from the precursor unwrought aluminium.

Figure 5-14: System boundaries and value chain of aluminium products.
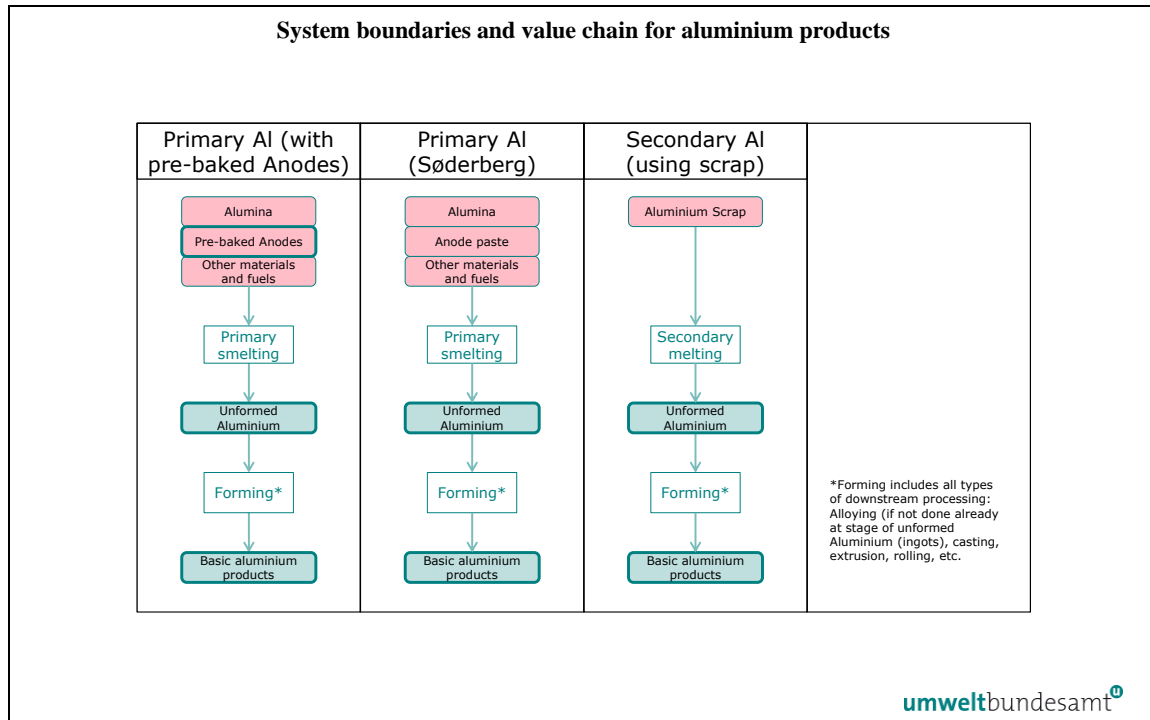
The difference in primary aluminium smelting route in the above diagram is due to the different electrode materials used, i.e. pre-baked or Søderberg anodes.

5.7.3 *Definition and explanation of relevant production processes and routes*

The system boundaries for the precursor unwrought aluminium and for aluminium products are distinct and may, under certain conditions, be added together to include all processes directly or indirectly linked to the production processes for these goods, including input activities to, and output activities from the process.

5.7.3.1 *Unwrought aluminium - Primary (electrolytic) smelting production route*

Primary aluminium is produced by the electrolysis of alumina[51] in electrolytic cells. During electrolysis, aluminium is reduced and oxygen from the alumina is liberated and combines

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[50] Excludes categories CN 7615 for certain household articles and CN 7602 00 aluminium scrap.

[51] Alumina is purified aluminium oxide produced by beneficiation of bauxite ore via the Bayer process. Production of alumina usually takes place at a different site to primary aluminium production for logistical and power supply reasons

with the carbon anode to form carbon dioxide and carbon monoxide – the carbon anodes in the primary aluminium process are therefore continuously consumed during the process.

Primary aluminium cell systems vary according to the type of anode used. The 'Pre-baked' electrolytic cell uses multiple pre-baked carbon anodes that must be regularly replaced. The 'Søderberg' electrolytic cell uses a single continuous carbon anode, which is self-baked in situ within the cell by means of the heat released during the electrolytic process within the smelter; 'green' anode paste briquettes are added at the top while the anode is consumed at the bottom. Molten aluminium is deposited at the cathode and collects at the bottom of the cell, where it is periodically withdrawn by vacuum siphons into crucibles before being transported to the casting plant. At the casting plant molten aluminium is held in holding furnaces for further processing prior to casting metal ingots, blocks, billets, slabs or similar; small quantities of clean commercial scrap may also be added at this stage.

There are no relevant precursors for primary aluminium, as the raw material constituents used by both types of cell – alumina, pre-baked carbon anodes, green anode paste briquettes, cryolite and other additives – are considered to be raw materials and so have zero embedded emissions.

Figure 5-15: System boundaries of the Unwrought aluminium - primary smelting production route
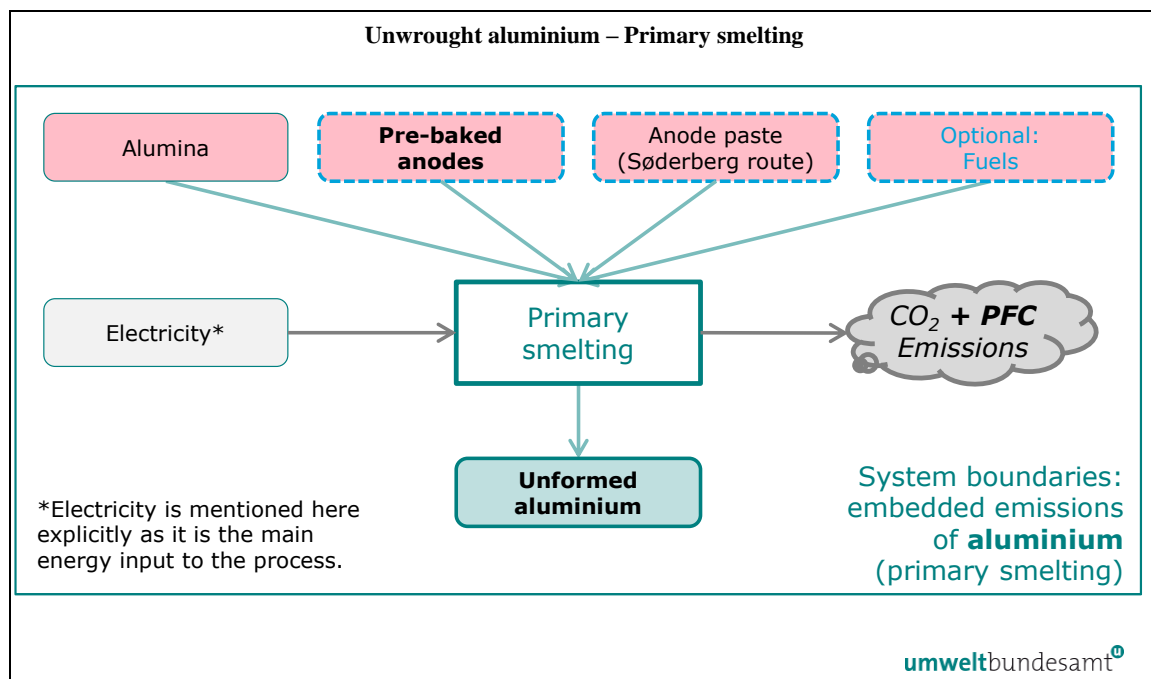
Direct emissions result from any fossil fuels used for drying or pre-heating of the raw material inputs, from any fuels used by the casting plant, or from process materials such as from the consumption of electrodes or electrode paste, or from flue gas cleaning (from soda ash or limestone, if used). Indirect emissions result from electricity consumed by the process. There are also PFC emissions that must be accounted for.

5.7.3.2   Unwrought aluminium - Secondary melting (recycling) production route

Secondary aluminium is produced mainly from post-consumer aluminium scrap collected for recycling (although unwrought aluminium may also be separately added). Scrap is sorted according to type (cast or wrought alloy) and the sort of pre-treatment measures required (e.g. de-coating, de-oiling), and is then re-melted in the appropriate type of furnace (typically rotary or reverberatory, but induction furnaces may also be used) before further processing including: alloying, melt treatment (addition of salt or chlorination) and finally casting metal ingots, blocks, billets, slabs or similar. Typical fuels used are natural gas, LPG or fuel oil.

Secondary melting (recycling) of aluminium uses aluminium scrap as main input.

A relevant precursor is unwrought aluminium from other sources, if used in the process.

The following Figure 5-16 shows the system boundaries of the relevant processes for secondary aluminium production.

Figure 5-16: System boundaries of the Unwrought aluminium - secondary melting production route
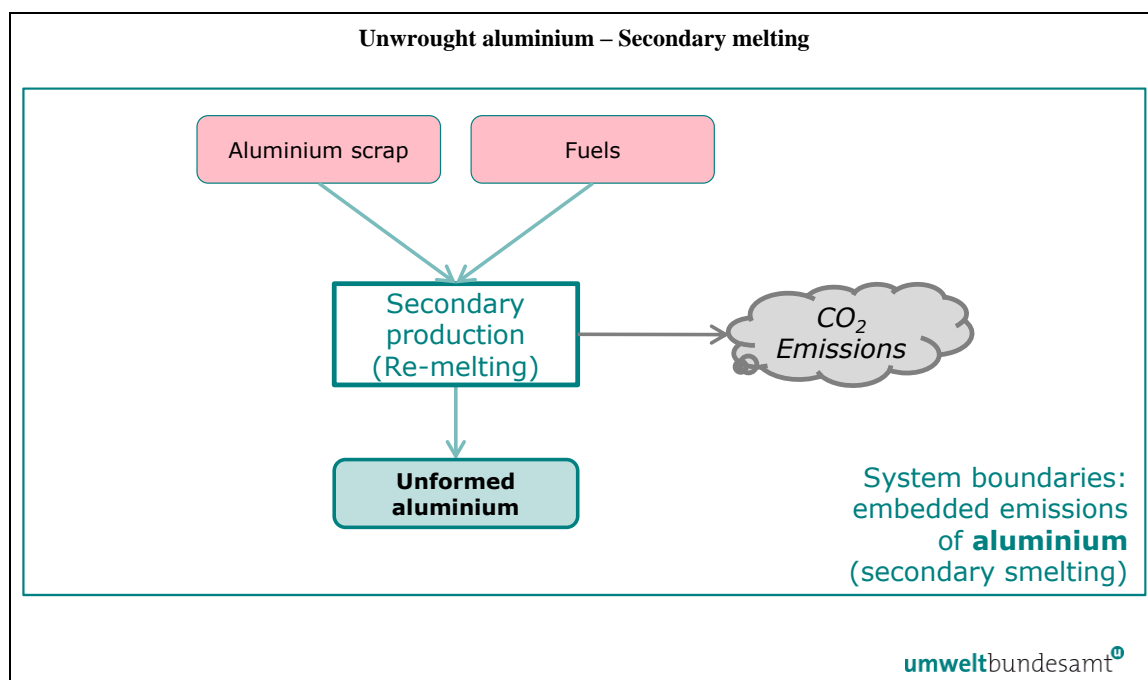
Direct emissions result from any fossil fuels used for drying, pre-heating or pre-treatment (combustion of the related residues e.g. if scrap is painted) of the scrap raw materials; from any fuels used by the casting plant; and from fuels used in processing skimmings and slag recovered from the process. Direct emissions may also result from flue gas cleaning (from soda ash or limestone, if used). Indirect emissions result from electricity consumed by the process including electricity consumed by induction furnaces. There are no PFC emissions from the secondary aluminium process.

Note that where the product of this process contains more than 5% alloying elements, the embedded emissions of the product shall be calculated as if the mass of alloying elements were unwrought aluminium from primary smelting.

5.7.3.3   Aluminium products production process

Aluminium products are produced by the further processing of precursor unwrought aluminium (alloyed or un-alloyed). Aluminium products are produced by a variety of forming processes including extrusion, casting, hot and cold rolling, forging and drawing. Extrusion is a common process used to produce aluminium profiles. Hot and cold rolling may be used to produce plate, sheet and foil. Casting may be used to produce complex forms.

Relevant precursors are unwrought aluminium, if used in the production process (primary and secondary aluminium should be treated separately, if data is known, as each has different embedded emissions), and aluminium products, if used in the production process.

The following Figure 5-17 shows the system boundaries of the relevant processes for aluminium products.

Figure 5-17: System boundaries of aluminium products production process
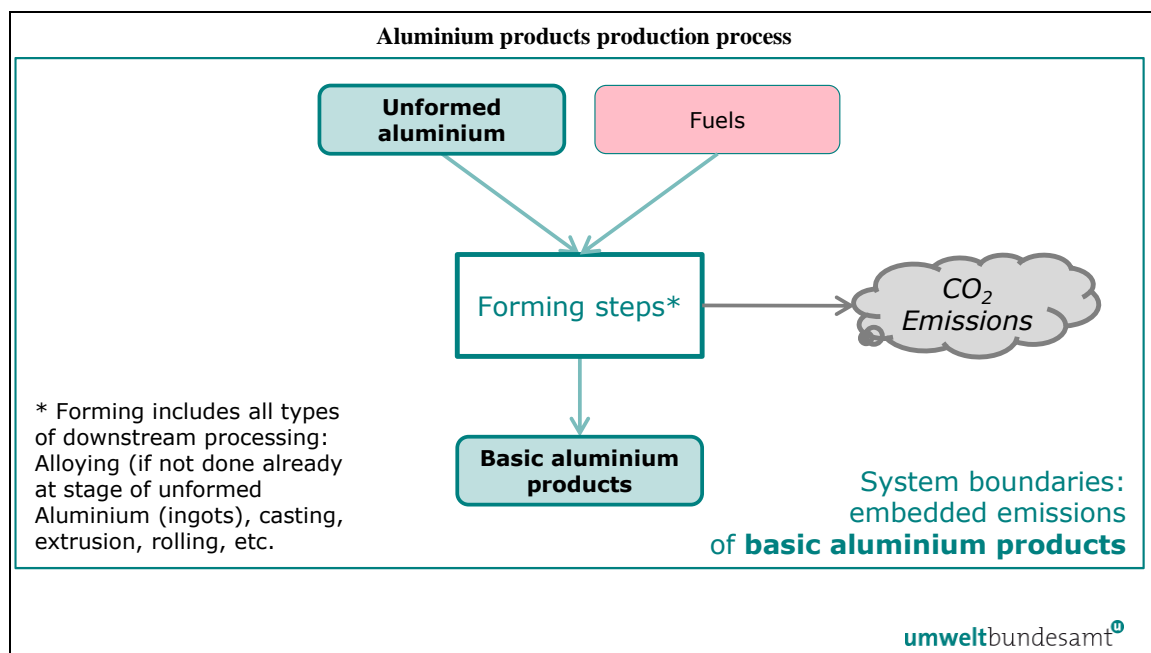
Direct emissions result from any fossil fuels used in the forming processes carried out (e.g natural gas used for pre-heating aluminium billets in holding furnaces, prior for forging). Direct emissions may also result from flue gas cleaning. Indirect emissions result from electricity consumed by the process. There are no PFC emissions resulting from aluminium products forming processes.

Note that where the product of this process contains more than 5% alloying elements, the embedded emissions of the product should be calculated as if the mass of alloying elements were unwrought aluminium from primary smelting.

Also note that for products that contain more than 5% by mass of other materials, e.g. insulation materials in CN code 7611 00 00 only the mass of aluminium shall be reported as the mass of the goods produced.

5.7.4   Additional reporting parameters

The following table lists out the additional information for CBAM goods that should be provided by the operator, along with data on embedded emissions, in their emissions data communication to you the importer.

Table 5-14: Additional aluminium sector parameters covered in the CBAM report

Aggregated good category	Reporting requirement in the quarterly report
Unwrought aluminium	– Tonnes of scrap used for producing one tonne of the unwrought aluminium product. – % of scrap that is pre-consumer scrap. – Content of alloys in aluminium: If the total content of elements other than aluminium exceeds 1%, the total percentage of such elements.
Aluminium products	– Tonnes of scrap used for producing one tonne of the unwrought aluminium product. – % of scrap that is pre-consumer scrap. – Content of alloys in aluminium: If the total content of elements other than aluminium exceeds 1%, the total percentage of such elements.

You will need to report the additional parameters in your CBAM Report when the final good is imported to the EU under the CBAM.

6 REPORTING OBLIGATIONS

6.1.1 Reporting direct and indirect embedded emissions

During the transitional period you need to report both 'direct emissions'[52] and 'indirect emissions'[53].

Direct embedded emissions are the emissions attributed to the relevant production process producing the good, based on the producing installation's direct emissions, emissions from relevant heat flows, material flows, waste gases (if relevant) and direct embedded emissions from any relevant precursor.

Indirect embedded emissions are the indirect emissions attributed to the relevant production process producing goods at the producing installation, and indirect embedded emissions from any relevant precursors.

A cross-sectoral rule is that where several production routes are used at the same installation for producing goods falling under the same CN code, and these routes are assigned to separate production processes, the embedded emissions of those goods should be calculated separately for each production route.

Embedded emissions in precursor goods

The operator should include the embedded emissions in precursor goods (both direct and indirect emissions, as above) in the calculation of total embedded emissions for a final good, making this a 'complex good'. The embedded emissions of the relevant precursor goods[54] are added to embedded emissions of the complex good.

6.1.2 Units for reporting embedded emissions

The unit used for reporting embedded greenhouse gas is 'tonne of CO_2e[55]', which means one metric tonne of carbon dioxide ('CO_2'), or an amount of any other greenhouse gas listed in Annex I with an equivalent ('e') global warming potential; i.e. where relevant, N_2O and PFCs emissions should be converted to their 'tCO_2e' value.

For reporting purposes embedded emissions data should be rounded to whole tonnes CO_2e over the reporting period. Parameters used to calculate the reported embedded emissions should be rounded to include all significant digits, to a maximum of 5 decimal places. The level of rounding required for parameters used in such calculations will depend on the accuracy and precision of the measurement equipment used.

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[52] 'direct emissions' mean emissions from the production processes of goods including emissions from the production of heating and cooling consumed during the production processes, regardless of the location of the production of the heating and cooling;

[53] 'indirect emissions' mean emissions from the production of electricity, which is consumed during the production processes of goods, regardless of the location of the production of the consumed electricity.

[54] Where a precursor is itself a complex good, this process is repeated recursively until no more precursors are relevant.

[55] 'tonne of CO2e' means one metric tonne of carbon dioxide ('CO2'), or an amount of any other greenhouse gas listed in Annex I with an equivalent global warming potential
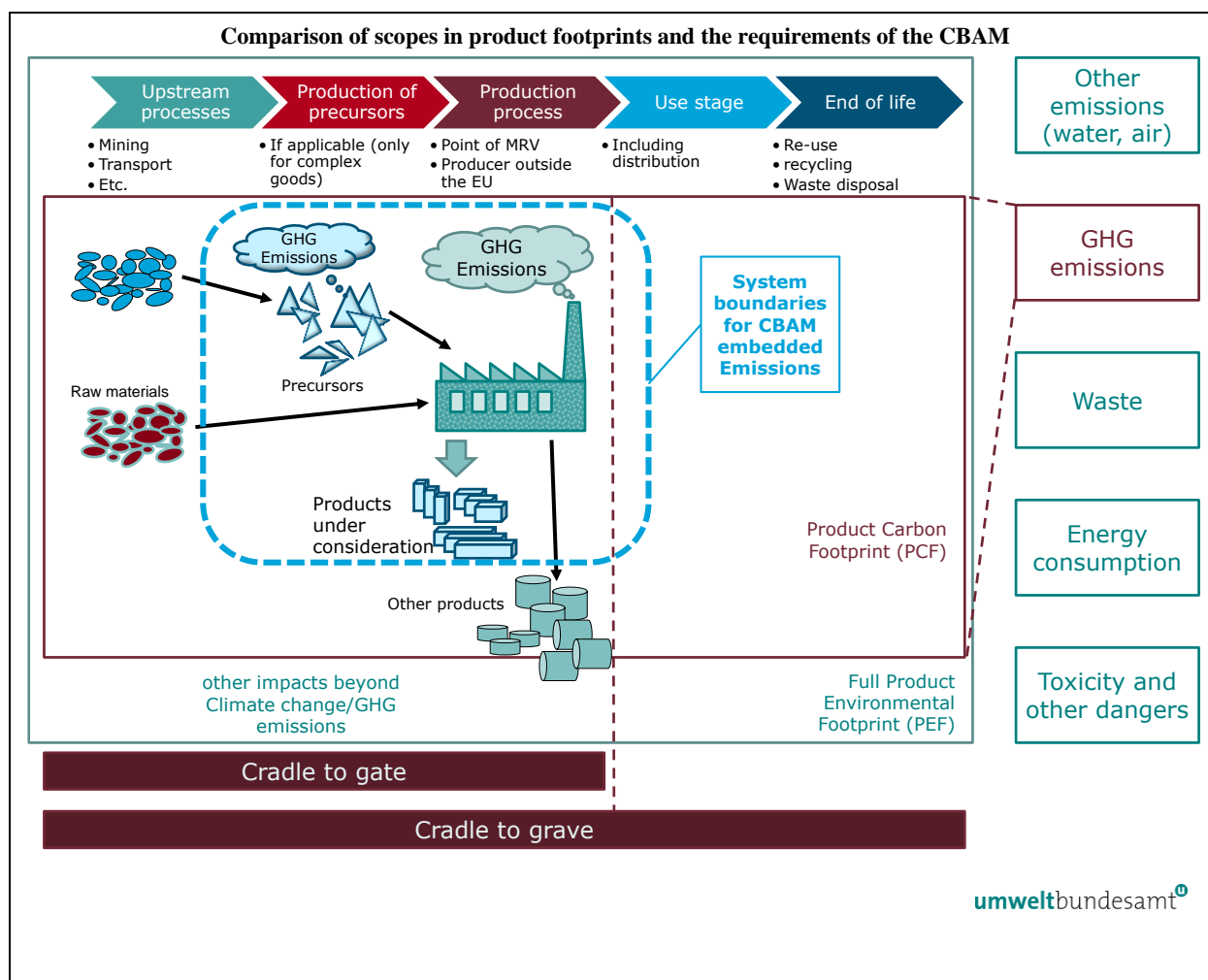
6.1.3   Embedded emissions

The concept of embedded emissions, for the purposes of the CBAM, is based on, **but** not fully aligned with the principles and requirements for a carbon footprint of products (CFP). A CFP is usually understood as an amount of GHG-emissions (expressed as kg or t CO_2e) per *declared unit*, (e.g. a tonne of good) based on a life cycle perspective covering, all significant emissions from upstream and downstream processes (called life cycle stages), from mining and production to transport, use and end-of-life.

The difference from the CFP scope is because the CBAM is intended to cover the same emissions as would be covered by the EU ETS if the production were situated in the EU. The system boundaries of emissions covered by the EU ETS, and therefore the CBAM, are **narrower than those in a CFP**. Downstream emissions (emissions from the use and end-of-life) of the products are outside the scope of the EU ETS and the CBAM. Emissions included from transport of materials between sites and from processes further upstream are also not included. Table 6-1 summarizes this graphically.

For the purpose of determining CBAM embedded emissions at a product level, the starting point are emissions of an installation. The installation's emissions are split ('attributed') to emissions of its production processes. Then any relevant embedded emissions of precursor materials are added, and the result is divided by the activity level of each production process, thereby resulting in 'specific embedded emissions' of the goods resulting from the production process.

These considerations are reflected in the definitions of direct and indirect emissions, as set out in the CBAM Regulation, and in its Annex IV which lays down the basic calculation approach, which in particular requires taking into account precursor materials.

Figure 6-1: Comparison of product environmental footprint, product carbon footprint, and the specific partial carbon footprint that are to be used for determining embedded emissions in the CBAM.

6.1.4 Indirect emissions

For the purpose of the transitional period of the CBAM, indirect embedded emissions have to be reported separately from the direct embedded emissions, for all goods covered.

Indirect emissions of an installation or of a production process are equivalent to the emissions caused by the production of the electricity consumed in the installation or production process of goods, respectively, multiplied with the applicable emission factor for electricity:

$$AttrEm_{indir} = Em_{el} = E_{el} \cdot EF_{el}$$

Where:

$AttrEm_{indir}$ are the indirect attributed emissions of a production process expressed in t CO_2;

Em_{el} are the emissions related to electricity produced or consumed, expressed in t CO_2;

E_{el} is the electricity consumed expressed in MWh or TJ; and

EF_{el} is the emission factor for electricity applied, expressed in t CO_2/MWh or t CO_2/TJ.

The general rule for the emission factor is to use a default value provided by the European Commission for that purpose. However, Annex IV section 6 defines conditions under which actual data can be used for the emission factor:

- If there is a direct technical link between the installation in which the imported good is produced and the electricity generation source; or

- If the operator of that installation has concluded a power purchase agreement with a producer of electricity located in a third country for an amount of electricity that is equivalent to the amount for which the use of a specific [emission factor] value is claimed.

Therefore, if the operator generates electricity within their own installation, the **emission factor used for the calculation and reporting of indirect emissions may be determined by the operator**. If the operator receives electricity from a directly technically connected installation and if that installation uses the same monitoring approaches as outlined in the CBAM Implementing Regulation, the operator should use the emission factor provided by that installation's operator. Furthermore, if your installation has a power purchase agreement[56] with an installation more remote, again the emission factor provided by that electricity supplier should be used. In all other cases, i.e. for electricity received from the grid, the **default emission factor for electricity in the country or region** as provided by the European Commission shall be used. Those default values are based on data by the IEA and are made accessible through the Commission's CBAM Transitional Registry.

6.1.5   *Adding precursor emissions*

During the transitional period, standard values for the embedded emissions, as presented in the Implementing Regulation, may be used where the precursor is a CBAM good.

Default values can be used to calculate the embedded emissions of precursor goods that are used as inputs and consumed in the production process for other CBAM goods, where the actual emissions intensities for these precursor goods are not available.

Default emission factors values have been calculated by the European Commission (for both direct and indirect emissions where appropriate) by CN code. These are published on the European Commission's dedicated website for the CBAM and a taxonomy is given in sector tables in **Annex C** of this document:

- Default values given at a 4-digit CN code level apply to all goods falling within this 4-digit CN code category (i.e. independent of the digits following these first 4 digits).

- Default values supplied at a 6-digit CN code level apply to all goods falling within this 6-digit CN code category.

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[56]   Annex IV to the CBAM Regulation defines: *'power purchase agreement' means a contract under which a person agrees to purchase electricity directly from an electricity producer;*

- Default values supplied at an 8-digit CN code level only apply to this specific 8-digit CN code good – in most case these 8-digit codes are for the steel industry, reflecting the range of different production routes and alloying elements used.

- In many cases the same default value applies to several CN codes, as listed in Annex C.

Participants wishing to use the default values on the European Commission's dedicated CBAM website should note that these are set at a relatively high emissions intensity level and, therefore, it may be more advantageous to use the actual values for precursor goods where these are available.

6.1.6   Default emission factors for precursors

Default emissions factors may be used to calculate the embedded direct and indirect emissions of precursor goods, where these precursor goods are used as inputs and are consumed in the production process of other CBAM goods.

The factors are published on the European Commission's dedicated CBAM website and are listed by aggregated goods category, production route and relevant precursor. These default values are separate direct and indirect specific embedded emissions (SEE) factors **($tCO_{2(e)}$/t good)** for each precursor good.

Limits on the use of default values:

EU importers are allowed to use these values to ensure your compliance with the CBAM requirements', in case you do not receive relevant data in time from operators of installations producing CBAM goods. They may be used:

- Without quantitative limit until **31 July 2024** i.e. for use in the first three quarterly CBAM reports.

- Without time limit, but quantitatively limited: for complex goods, up to 20% of the total embedded emissions may be determined using estimations. Using default values provided by the Commission would qualify as 'estimation'.

For reporting declarants, the default values can serve as a tool for you to check the plausibility of the embedded emissions data provided by the operators, as the default values are determined as global average values based on publicly available sources. If the values reported by the operator are substantially different from the default values, then it is recommended you check with the operator that there is no error in the data or calculation of the embedded emissions.

Default emission factors for grid electricity

Where grid electricity is consumed by a production process, you <u>may</u> use a default value based on either:

- The average emission factor for grid electricity (in the electricity's country of origin), based on data from the International Energy Agency (IEA) provided by the European Commission in the CBAM Transitional Registry; or

- Any other emission factor of the country of origin's electricity grid based on **publicly available data** representing either the average emission factor[57] or the CO_2 emission factor

You should note that market-based specific emission factors, determined e.g. by "guarantees of origin" or "green certificates" etc. are not allowed.

6.2 Reporting requirements

This section outlines how you should report production and embedded emissions during the CBAM transitional period. The textbox below signposts the key sections in the Implementing Regulation for reporting, relevant for the CBAM transitional period.

Implementing Regulation references:

Annex II, Section 1 Definitions.

Annex III, Section F Rules for attributing emissions from an installation to goods.

Annex III, Section I Communication by the operator of the data for the use by the reporting declarant in the CBAM report.

Default values for the calculation of embedded emissions, provided by the European Commission and published on their dedicated website for the CBAM.

6.2.1 Reporting the quantity of goods imported

In a given reporting period, the total quantity of goods imported that meets a particular CN product specification for that good is to be reported, and expressed in tonnes or MWh for electricity.

6.2.2 Reporting the quality of certain goods imported

There are some additional qualifying parameters that you as the EU importer needs to report under the CBAM. These depend on the goods imported. For example, for cements imported, the total clinker content needs to be reported, for mixed fertilizers the contents of the different forms of nitrogen, etc. The relevant parameters are listed in section 2 of Annex IV of the Implementing Regulation.

You need to ensure that you collect all the parameters necessary for your CBAM goods from the producer(s) of the imported good(s).

These additional reporting requirements are listed for each sector in section 57 for each sector. Some of these parameters require quality information of the products, like for example the clinker content of cement, the content of certain alloy elements in steel, the

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[57] The CBAM Regulation defines: *'Emission factor for electricity' means the default value, expressed in CO_2e, representing the emission intensity of electricity consumed in production of goods.*

amount of scrap used for the production of steel and aluminium, the concentration of nitric acid or of hydrous ammonia, and the content of different nitrogen forms in mixed fertilizers.

Note that the differentiation of goods by their quality makes it necessary to report data on a more detailed level than just CN codes. For example, if you import three different grades of mixed fertilizers, you will have to report these as three separate goods with the same CN code with different embedded emissions and composition data.

6.2.3 *Reporting direct and indirect embedded emissions*

During the transitional period you need to account for both 'direct emissions'[58] and 'indirect emissions'[59], in reporting the embedded emissions of the goods imported.

Where several production routes have been used for producing goods falling under the same CN code, and those production routes are assigned to different production processes, the embedded emissions of the goods are calculated and reported separately for each production route.

Embedded emissions in precursor goods

The operator should include the embedded emissions in precursor goods (both direct and indirect emissions) in the calculation of total embedded emissions for a final good, making this a 'complex good'. The embedded emissions of the relevant precursor goods[60] are added to embedded emissions of the complex good.

The inclusion of embedded emissions of precursor goods is necessary to ensure comparability of carbon costs under the EU ETS and the CBAM. The relevant greenhouse gas emissions correspond to those greenhouse gas[61] emissions covered also by Annex I to the EU ETS Directive 2003/87/EC, namely[62] carbon dioxide (CO_2) for all sectors, and additionally nitrous oxide (N_2O) for some fertilizer goods and perfluorocarbons (PFCs) for some aluminium goods.

6.2.4 *Units for reporting embedded emissions*

The unit used for reporting embedded greenhouse gas is 'tonne of CO_2e[63]', which means one metric tonne of carbon dioxide ('CO_2'), or an amount of any other greenhouse gas

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[58] 'direct emissions' mean emissions from the production processes of goods including emissions from the production of heating and cooling consumed during the production processes, regardless of the location of the production of the heating and cooling;

[59] 'indirect emissions' mean emissions from the production of electricity, which is consumed during the production processes of goods, regardless of the location of the production of the consumed electricity.

[60] Where a precursor is itself a complex good, this process is repeated recursively until no more precursors are relevant.

[61] 'greenhouse gases' mean greenhouse gases as specified in Annex I in relation to each of the goods listed in that Annex;

[62] The CBAM Regulation, paragraph 17

[63] 'tonne of CO2e' means one metric tonne of carbon dioxide ('CO2'), or an amount of any other greenhouse gas listed in Annex I with an equivalent global warming potential

listed in Annex I with an equivalent ('e') global warming potential; i.e. where relevant, N_2O and PFCs emissions should be converted to their 'tCO_2e' value.

For reporting purposes embedded emissions data should be rounded to whole tonnes CO_2e over the reporting period. Parameters used to calculate the reported embedded emissions should be rounded to include all significant digits, to a maximum of 5 decimal places. The level of rounding required for parameters used in such calculations will depend on the accuracy and precision of the measurement equipment used.

6.2.5   *Reporting the effective carbon price due*

In order to ensure the fair treatment of goods produced in different installations in different jurisdictions, it is necessary for the importer to report the '**effective carbon price due**[64] for production of the CBAM goods. This may be applied at a national or subnational level.

The '**effective carbon price**' is the actual price per tonne CO_2e due and should take into account:

- The actual price of a tonne CO_2e in the carbon pricing scheme in the jurisdiction;

- The coverage of emissions of the production processes in the carbon pricing scheme (direct, indirect, types of GHG, etc.)

- Any applicable 'rebates'[65], i.e. the amount of free allocation (in the case of an ETS) or any financial support, compensation or other form of rebate received in that jurisdiction, per tonne of the product relevant for the CBAM; and

- In the case of complex goods, the carbon price due (after any rebates received) of any relevant precursor materials consumed in the production process.

In the transitional period this is a reporting obligation for importers; however, in the definitive period disclosure of this information will give importers **a rebate in the amount otherwise due to be paid** by the person liable for the CBAM obligation.

The total carbon price due needs to be attributed to the CBAM goods in a similar way as the specific embedded emissions.

The carbon price due may be attributed to a production process and aggregated good category in a similar way to how specific embedded emissions are calculated, and should be **expressed as euros per tonne of CBAM good**.

For complex goods, where relevant precursors are consumed by the production process, the carbon price due by the supplier should be added to that determined for the complex CBAM good, and the resulting carbon price calculated.

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[64] The CBAM Regulation defines: *'carbon price' means the monetary amount paid in a third country, under a carbon emissions reduction scheme, in the form of a tax, levy or fee or in the form of emission allowances under a greenhouse gas emissions trading system, calculated on greenhouse gases covered by such a measure, and released during the production of good.*

[65] The Implementing Regulation defines: *'rebate' means any amount that reduces the amount due or paid by a person liable for the payment of a carbon price, before its payment or after, in a monetary form or in any other form.*

If the supplier of the precursor does not provide the required information, you have to assume the carbon price due for the precursor to be zero.

The two main types of carbon pricing system in operation are an **emissions trading system** (ETS) or a **carbon price in the form of a tax, levy or fee**. In these cases the type of information that operators should report are as follows:

- **Carbon price under an Emission Trading System (ETS)**:
    - The annual average price of allowances/certificates relating to one metric tonne of CO_2e in the applicable currency;
    - Details of the ETS rules[66], such as whether it applies to direct and/or indirect emissions;
    - The total emissions for which you had to surrender allowances or certificates;
    - The total number of allowances or certificates which you received for free, as a 'free allocation';
    - The resulting difference between emissions and free allocation. If the latter exceeds the emissions, the carbon price due is to be reported as zero.

- **Carbon price in the form of a tax, levy or fee** :
    - The annual average amount of tax, levy or fee relating to one metric tonne of CO_2e in the applicable currency. If the amount is different e.g. for different fuels used, a weighted average rate corresponding to the fuel mix of your installation is to be determined for each reporting period;
    - Details on the rules applicable[66] to the tax, levy or fee, such as whether it applies to direct and/or indirect emissions or specific processes or fuels, etc.;
    - The total emissions for which you had to pay the carbon price under the tax, levy or fee;
    - Any rebate you were allowed to apply to your payment of the carbon tax, levy or fee;
    - The resulting total carbon tax paid. If the rebate exceeds the tax rate before the application of the rebate (or refunding), the carbon price due is to be reported as zero.

Other types of carbon price system may be possible, such as Results-Based Climate Finance (RBCF) but these are not typical of industry sectors, and are not eligible under the CBAM legislation.

The exchange rate between the applicable currency of the carbon price due and euros will be applied automatically in the CBAM Transitional Registry when the CBAM Report is entered by the reporting declarant, using the average yearly exchange rate for the preceding year.

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[66] Importers will have to provide a description and indication of legal act – i.e. provide the regulation reference, ideally as internet link. Therefore, you should also provide this information.

6.2.6 Information relevant for importers

During the transitional period importers report details of both the **carbon price due** (i.e. the carbon price in the country of origin) and also the CBAM **products covered by the carbon price**, although the specific details to be reported will vary according to the type of carbon pricing system in operation (ETS, carbon tax, levy or fee, or other, as above). The details that should be reported on are summarised in the table below.

Table 6-1: Reporting the carbon price due

Quarterly report category	Detailed information required
Carbon price due	– Emissions sequence number (per CBAM Transitional Registry). – Type of carbon price (e.g. ETS or carbon price in the form of a tax, levy or fee), rebate received (which for an ETS may be free allocation) or any other form of compensation (such as a reduced rate of taxation for energy intensive industry). – Description and indication of legal act - i.e. provide a description of the carbon pricing regulation that establishes the ETS system or carbon tax, levy or fee in the country of origin, and provide the regulation reference. – Amount of carbon price due - in the currency of the country of origin where the carbon price is due. This is converted into a euro equivalent, using the average yearly exchange rate for the preceding year. – Details of the currency in the country of origin and applicable exchange rate (see below).
Products covered by carbon price due	– Emissions Sequence number (per CBAM Transitional Registry). – Type of product covered and the corresponding CN code – the carbon price due should be separately listed for precursors obtained from other installations. – Quantity of emissions covered – embedded direct or indirect emissions. – Quantity of emissions covered by any rebate or other form of compensation. – Any supplementary or additional information as required by the CBAM Transitional Registry.

The amount of carbon price due in the currency of the country of origin should be converted to the euro equivalent, using the average yearly exchange rate for the preceding year to the year in which the report is due; the factor is provided in the CBAM Transitional

Registry and in most cases is the yearly conversion factor published by the European Central Bank.

6.3 Reporting template

During the transitional period reporting declarants need submit quarterly reports on the CBAM Transitional Registry. The report structure is given in Annex I to the Implementing Regulation. To complete the report on the Transitional Registry, you, as a reporting declarant, need to obtain information on the embedded emissions of imported goods from the operators of the installations making these goods for export.

6.3.1 Emission data communication from operators

Information on embedded emissions may be provided by operators to reporting declarants using an 'emissions data communication' template report, which has been developed by the European Commissions and which is given in Annex IV of the Implementing Regulation. The use of this template is not obligatory but can greatly facilitate the information exchange.

The template is divided into two parts: the first part of the template contains all necessary embedded emissions information that you, as the reporting declarant, need to compile for your CBAM report; the second part of the template is an optional section that operators are **recommended to complete,** as it will provide **greater transparency** of the data reported under Part 1.

Reporting declarants may use the information in Part 2 to carry out their own data quality checks on the contents of Part 1.

The contents of the operator's emissions communication is outlined in the table below for your information.

Table 6-2: Contents of the operator's emissions data communication to reporting declarants

Template	Summary of information required for the transitional period

Part 1 – General information	**Includes the data to be communicated to the reporting declarant.**
	
	– Installation data, comprising identification and location details for the operator's installation, and contact details for the operator's authorised representative.
	
	– The production processes and routes under each aggregated goods category at the installation.
	
	– For each aggregated goods category or separately for each good by CN code:
	
	  – The direct and indirect specific embedded emissions of each good; and for SEE indirect detail on how the emission factor was determined and the information source used;
	
	  – Information on what data quality and methods (calculation-based, measurement-based, other) were used for determining embedded

Template	Summary of information required for the transitional period
	emissions, and whether this was based fully on monitoring, or if default values were used; – If default values were used, a short description why these were used instead of actual data; – Information on additional sector-specific reporting parameters for goods produced, if required; and – If applicable, information on a carbon price due, and separately for any precursors obtained from other installations, by the precursors' country of origin.

Part 2 – Optional information	**Provides greater transparency of the data under Part 1, and allows the reporting declarant to carry out validation checks on Part 1.**
	
	– The total emissions of the installation, including: activity data and calculation factors for each source stream used; emissions of each emission source monitored using a measurement-based methodology, and emissions determined by other methods; and if applicable, any CO_2 imports or exports to other installations, for the reasons outlined above.
	
	– A 'heat balance' of imported, produced, consumed and exported measurable heat, and similarly balances for waste gases or electricity.
	
	– A list of all relevant goods by CN code produced by the installation, including precursors not covered by separate production processes.
	
	– For precursor goods:
	
	  – The quantity received from elsewhere.
	
	  – Their specific direct and indirect embedded emissions (as reported by other operators).
	
	  – The quantity used in each production process, excluding precursor goods produced in the same installation.
	
	– For attributed direct and indirect emissions: information on how the attributed emissions of each production process were calculated; the activity level and attributed emissions of each production process.
	
	– A short description of the installation, covering: relevant and non-relevant (out of scope) production processes;
	
	  – The main production processes taking place at the installation and any production processes not covered for CBAM purposes;
	
	  – The main elements of the monitoring methodology being used; and

Template	Summary of information required for the transitional period
	– What measures to improve data quality have been taken, in particular whether any form of verification (in the definitive period) was applied.
	– information on the electricity emissions factor in the power purchase agreement, where appropriate.

Source: Annex IV to the Implementing Regulation.

To help operators share their information on embedded emissions with you, as a reporting declarant, the template in Annex IV has been translated into a 'voluntary to use' spreadsheet, providing the information under Parts 1 and 2 in the table above. The following Figure 6-2 shows how this spreadsheet template is structured.

Figure 6-2: Voluntary electronic data communication template – Contents page

Key features of the template include:

- User-friendly navigation and automatic calculation of CBAM embedded emissions data from data inputs, showing how attributed emissions have been calculated for each production process.

- Covers information for both Parts 1 and 2 in the operators' report above, identifies what data is required for the reporting declarants to complete the

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CBAM report and what data is optional, and provides guidance on how to use the template and on the different calculations performed.

- Tools for facilitating reporting, for attributing emissions between heat and electricity for CHP/cogeneration and for calculating the carbon price due.

- Summary sheets providing the main information on production processes and products to be communicated to the reporting declarant for their CBAM Reports.

The spreadsheet is available from the European Commission's dedicated website for the CBAM.

6.3.2   Reporting by declarants

The contents and reporting structure of the CBAM report that reporting declarants must complete is indicated in Annex I of the Implementing Regulation 'Information to be submitted in the CBAM reports'. The CBAM report has been digitally integrated into the Transitional Registry, as summarised in the table below.

Table 6-3: Contents of the CBAM report in the Transitional Registry

Registry CBAM report structure	Summary of the contents of the CBAM report in Annex I
Section 1 - Header	– Report issue date, ID, reporting period and year. – Total quantity of goods imported and total emissions. – Identity and contact details of Reporting declarant, Representative, Importer and Competent Authority, as applicable. – Approval process for report submission.
Section 2 - CBAM goods imported	– Description of goods including details of commodity codes. – Procedures for imported goods including for inward processing. – Quantities of imported goods and corresponding emissions. – Supporting documentation for goods that may be uploaded to the Registry, and additional information as applicable.
Section 3 - CBAM goods emissions	– Details of the installation, including name, location and contact details. – Details of goods produced, by reporting methodology. – Details of installation direct, indirect and total embedded emissions, quantity of emissions and related qualifying parameters. – Details of carbon price due and product and corresponding emissions coverage.

Information on the embedded emissions of goods from operators is used to complete Section 3 of the CBAM report, and also feeds into Section 2. The mapping of key information between the reporting declarant's CBAM report and the operator's emissions communication spreadsheet is given in the table below.

Table 6-4: Mapping the CBAM report in the Registry to the operator's emissions communication spreadsheet

Transitional Registry CBAM report	Annex I to the Implementing Regulation – CBAM Report for declarants	Voluntary Emissions communications spreadsheet
Section	Report structure	Sheet reference for data from operator
CBAM Goods Imported	**--CBAM goods imported**	
	----Representative	
	----Importer	
	----Commodity code	
	Harmonized System sub-heading code	Sheet "Summary_Products"
	Combined nomenclature code	Sheet "Summary_Products"
	------Commodity details	
	Description of goods	Sheet "Summary_Products"
	----Country of origin	
	Country code	Sheet "Summary_Processes"
	-----Imported quantity per customs procedure	
	------Procedure	
	Inward processing information	
	------Area of import	
	------Goods measure (per procedure)	
	------Special references for goods	
	----Goods measure (imported)	
	----Goods imported total emissions	
	----Supporting documents (for Goods)	
	------Attachments	
	----Remarks	
CBAM Goods Emissions	**----CBAM Goods Emissions**	**----CBAM Goods Emissions**
	Country of production	Sheet "Summary_Processes"
	------The company name of the installation	
	--------Address	
	--------Contact Details	
	Name	Sheet "A_InstData"
	Phone number	Sheet "A_InstData"
	e-mail	Sheet "A_InstData"
	------Installation	
	Installation name	Sheet "Summary_Processes"
	Economic activity	Sheet "Summary_Processes"
	--------Address	
	Country of establishment	Sheet "A_InstData"

Transitional Registry CBAM report	Annex I to the Implementing Regulation – CBAM Report for declarants	Voluntary Emissions communications spreadsheet
	City	Sheet "A_InstData"
	Street	Sheet "A_InstData"
	Number	Sheet "A_InstData"
	Postcode	Sheet "A_InstData"
	P.O. Box	Sheet "A_InstData"
	UNLOCODE	Sheet "Summary_Processes"
	Latitude	Sheet "Summary_Processes"
	Longitude	Sheet "Summary_Processes"
	Type of co-ordinates	Sheet "Summary_Processes"
	------Goods measure (Produced)	
	Net mass	Sheet "D_Processes"
	Supplementary units	Sheet "D_Processes"
	Type of measurement unit	Sheet "D_Processes"
	------Installation emissions	
	Installation direct emissions	Sheet "Summary_Processes"
	Installation indirect emissions	Sheet "Summary_Processes"
	Type of measurement unit for emissions	Sheet "Summary_Processes"
	------Direct Embedded Emissions	
	Type of determination	Sheet "B_EmInst"
	Type of applicable reporting methodology	Sheet "B_EmInst"
	Applicable reporting methodology	Sheet "B_EmInst"
	Specific (direct) embedded emissions	Sheet "Summary_Products"
	Total embedded emissions of electricity imported	Sheet "Summary_Processess"
	Type of measurement unit	Sheet "Summary_Products"
	Source of emissions factor value	Sheet "Summary_Products"
	------Indirect Embedded Emissions	
	Emission factor	Sheet "Summary_Products"
	Specific (indirect) embedded emissions	Sheet "Summary_Products"
	Type of measurement unit	Sheet "Summary_Products"
	Electricity consumed	Sheet "Summary_Processes"
	------Production method & Qualifying parameters	
	Method name	Sheet "Summary_Products"
	--------Direct Emissions qualifying parameters	
	--------Indirect Emissions qualifying parameters	
	------Supporting Documents (for emissions definition)	
	--------Attachments	
	------Carbon price due	
	Type of carbon price, rebate or any other form of compensation	Sheet "Summary_Products"
	Amount of carbon price due	Sheet "Summary_Products"
	Currency	Sheet "Summary_Products"
	Country code	Sheet "Summary_Processes"
	--------Products covered under carbon price due	
	Type of product covered	Sheet "Summary_Products"
	CN of goods covered	Sheet "Summary_Products"

Transitional Registry CBAM report	Annex I to the Implementing Regulation – CBAM Report for declarants	Voluntary Emissions communications spreadsheet
	Quantity of emissions covered	Sheet "Summary_Products" & Sheet "F_Tools"
	Quantity covered by any rebate or other form of compensation	Sheet "Summary_Products" & Sheet "F_Tools"
	----------Goods measure (Covered)	
	------Remarks	

The information required to complete the CBAM report is mostly found in the two 'Summary_processes' and 'Summary_products' sheets at the back of the operator's emissions communication spreadsheet.

Figure 6-3: Summary Communication sheet, voluntary electronic data communication template

Relevant parameters calculated for reporting purposes in these summary sheet include:
- Amount of carbon price due
- Electricity consumed
- Specific (direct) embedded emissions
- Specific (indirect) embedded emissions
- Additional sector-specific reporting parameters e.g. % alloy content, tonnes scrap / tonne of aluminium or steel, % pre-consumer scrap, concentration, nitrogen content etc.

Although the spreadsheet is voluntary to use, reporting declarants can request that operators provide their emissions communication using this template.

7 EXEMPTIONS FROM THE CBAM

During the transitional period certain general exemptions apply, which are listed below.

Implementing Regulation references:

- The CBAM Regulation (EU) 2023/956, Section I, Article 2 Scope, paragraphs 3, 4 and 7; Annex III Third countries and territories outside the scope of this Regulation for the purpose of Article 2.

De minimis exemption

Small quantities (de minimis) of imported goods that are in scope for the CBAM may be automatically treated as exempt from the provisions of the CBAM legislation, provided that the value of these goods is negligible, that is to say does not exceed EUR 150 per consignment[67].

Military use exemption[68]

An exemption applies to any goods imported to be used by the military authorities of Member States, or under agreement with those of a non-EU country, under the EU's Common Security and Defence Policy, or under NATO.

EFTA exemption

Countries which apply the EU ETS (Norway, Iceland, Liechtenstein), or which have an ETS fully linked to the EU ETS (Switzerland), are exempted from the CBAM.

Countries exempted for goods other than electricity are listed in Annex III, section 1 of the CBAM Regulation; countries exempted for electricity would be added to section 2 of that Annex, which is currently empty.

Limited exemption for electricity imports

Imports of electricty from non-EU countries are covered by the CBAM, unless the non-EU country is so closely integrated with the EU internal market for electricity that a technical solution to apply the CBAM to these imports cannot be found; this exemption only applies in limited circumstances only and is subject to the conditions outlined in Article 2 of the CBAM Regulation.

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[67] Article 23 of Council Regulation (EC) No 1186/2009. See: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:324:0023:0057:EN:PDF

[68] Commission Delegated Regulation (EU) 2015/2446 of 28 July 2015 supplementing Regulation (EU) No 952/2013 of the European Parliament and of the Council as regards detailed rules concerning certain provisions of the Union Customs Code.

Annex A   List of abbreviations

Abbreviation	Full term
AD	Activity Data
AEM	Anode Effect Minutes
AEO	Anode Effect Overvoltage
AL	Activity Level
AOD	Argon Oxygen Decarburisation.
BAT	Best Available Techniques
BF	Biomass Fraction
BFG	Blast Furnace Gas
BOF	Basic Oxygen Furnace
BOFG	Basic Oxygen Furnace Gas
BREFs	Best Available Techniques reference documents
CA	Competent Authority
CBAM	Carbon Border Adjustment Mechanism
CCR	Clinker to Cement Ratio
CCS	Carbon Capture and Storage
CCU	Carbon Capture and Utilisation
CCUS	Carbon Capture, Utilisation and Storage
CEMS	Continuous Emission Measurement Systems
CF	Conversion Factor
CFP	Carbon footprint of products
CHP	Combined Heat and Power
CKD	Cement Kiln Dust
CN	Combined nomenclature
COG	Coke Oven Gas
DRI	Direct Reduction Iron
EAF	Electric Arc Furnace
EF	Emission Factor
EFTA	European Free Trade Area
ETS	Emissions Trading System
EU ETS	EU Emissions Trading System
EUA	EU Allowances (used in the EU ETS)
EUR	Euro (currency)

Abbreviation	Full term
FAR	Free Allocation Rules (Regulation 2019/331)[69]
GHG	Greenhouse Gas
GWP	Global Warming Potential
HBI	Hot Briquetted Iron
HS	Harmonised System (for international trade)
IEA	International Energy Agency
ISO	International Organization for Standardization
LULUCF	Land-use, land change and forestry (criteria)
MMD	Monitoring Methodology Documentation
MRR	Monitoring and Reporting Regulation (Regulation 2018/2066)[70]
MRV	Monitoring, Reporting and Verification
MS	Member State(s)
MWh	Megawatt-hour
NCV	Net Calorific Value
NPI	Nickel pig iron
OF	Oxidation Factor
PCI	Pulverised Coal Injection
PEMS	Predictive Emission Monitoring System
PFC	Perfluoro-carbon
SEE	Specific embedded emissions
TARIC	Integrated Tariff of the European Union database
TJ	Terajoules
TSO	Transmission System Operator
UCC	Union Custom Code
UN/LOCODE	United Nations Code for Trade and Transport Location

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[69] Free Allocation Rules (Commission Delegated Regulation (EU) 2019/331 of 19 December 2018 determining transitional Union-wide rules for harmonised free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council)

[70] Monitoring and Reporting Regulation (Commission Implementing Regulation (EU) 2018/2066 of 19 December 2018 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council and amending Commission Regulation (EU) No 601/2012

Annex B   List of definitions

Term	Definition
'Accuracy'	means the closeness of the agreement between the result of a measurement and the true value of the particular quantity or a reference value determined empirically using internationally accepted and traceable calibration materials and standard methods, taking into account both random and systematic factors;
'Activity data'	means the amount of fuels or materials consumed or produced by a process relevant for the calculation-based methodology, expressed in terajoules (TJ), mass in tonnes or (for gases) volume in normal cubic metres, as appropriate
'Actual emissions'	means the emissions calculated based on primary data from the production processes of goods and from the production of electricity consumed during those processes as determined in accordance with the methods set out in Annex IV [of the Implementing Regulation Annexes]
'Activity level'	means the quantity of goods produced (expressed in MWh for electricity, or in tonnes for other goods) within the boundaries of a production process
'Agricultural, aquaculture, fisheries and forestry residues'	means residues that are directly generated by agriculture, aquaculture, fisheries and forestry and that do not include residues from related industries or processing
'Authorised CBAM declarant'	means a person authorised by the competent authority in accordance with Article 17 of the CBAM Regulation (EU) 2023/956
'Batch'	means an amount of fuel or material representatively sampled and characterised, and transferred as one shipment or continuously over a specific period of time
'Biomass'	means the biodegradable fraction of products, waste and residues from biological origin from agriculture, including vegetal and animal substances, from forestry and related industries, including fisheries and aquaculture, as well as the biodegradable fraction of waste, including industrial and municipal waste of biological origin
'Calculation factors'	means net calorific value, emission factor, preliminary emission factor, oxidation factor, conversion factor, carbon content or biomass fraction
'Carbon price'	means the monetary amount due in a third country, under a carbon emissions reduction scheme, in the form of a tax, levy or fee or in the form of emission allowances under a greenhouse gas emissions trading system, calculated on greenhouse gases covered by such a measure, and released during the production of goods

Term	Definition
'CBAM certificate'	means a certificate in electronic format corresponding to one tonne of CO_2e of embedded emissions in goods
'CO_2 emission factor'	means the weighted average of the CO_2 intensity of electricity produced from fossil fuels within a geographic area. The CO_2 emission factor is the result of the division of the CO_2 emission data of the electricity sector by the gross electricity generation based on fossil fuels in the relevant geographic area. It is expressed in tonnes of CO_2 per megawatt-hour
'Combined nomenclature' (CN)	means the classification of goods, designed to meet the needs of: i) the Common customs tariff, setting import duties for products imported into the European Union (EU), as well as the Integrated tariff of the European Communities (Taric), incorporating all EU and trade measures applied to goods imported into and exported out of the EU; ii) the international trade statistics of the EU.
	The CN provides the means of collecting, exchanging and publishing data on EU international trade statistics. It is also used for the collection and publication of international trade statistics in intra-EU trade.[71]
'Combustion emissions'	means greenhouse gas emissions occurring during the exothermic reaction of a fuel with oxygen
'Competent authority'	means the authority designated by each Member State in accordance with Article 11 of the CBAM Regulation (EU) 2023/956
'Continuous emission measurement' (CEM)	means a set of operations having the objective of determining the value of a quantity by means of periodic measurements, applying either measurements in the stack or extractive procedures with a measuring instrument located close to the stack, whilst excluding measurement methodologies based on the collection of individual samples from the stack
'Complex goods'	means goods other than simple goods
'Conservative'	means that a set of assumptions is defined in order to ensure that no under-estimation of reported emissions or over-estimation of production of heat, electricity or goods occurs
'Conversion factor'	means the ratio of carbon emitted as CO_2 to the total carbon contained in the source stream before the emitting process takes place, expressed as a fraction, considering CO emitted to the atmosphere as the molar equivalent amount of CO_2

[71] For definition see: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Combined_nomenclature_(CN)

Term	Definition
'Customs declarant'	means the declarant as defined in Article 5(15) of Regulation (EU) No 952/2013 lodging a customs declaration for release for free circulation of goods in its own name or the person in whose name such a declaration is lodged
'CCUS system'	means a group of economic operators with technically connected installations and transport equipment for CO_2 capture, transport, use in production of goods, or geological storage
'Data flow activities'	mean activities related to the acquisition, processing and handling of data that are needed to draft an emissions report from primary source data
'Data set'	means one type of data, either at installation level or production process level as relevant in the circumstances, as any of the following: (a) the amount of fuels or materials consumed or produced by a production process as relevant for the calculation-based methodology, expressed in terajoules, mass in tonnes, or for gases as volume in normal cubic metres, as appropriate, including for waste gases; (b) a calculation factor; (c) net quantity of measurable heat, and the relevant parameters required for determining this quantity, in particular: i) mass flow of heat transfer medium; and ii) enthalpy of transmitted and returned heat transfer medium, as specified by composition, temperature, pressure and saturation; (d) quantities of non-measurable heat, specified by the relevant quantities of fuels used for producing the heat, and the net calorific value (NCV) of the fuel mix; (e) quantities of electricity; (f) quantities of CO_2 transferred between installations; (g) quantities of precursors received from outside the installation, and their relevant parameters, such as country of origin, used production route, specific direct and indirect emissions, carbon price due; (h) parameters relevant for a carbon price due
'Default value'	means a value, which is calculated or drawn from secondary data, which represents the embedded emissions in goods
'Direct emissions'	means emissions from the production processes of goods including emissions from the production of heating and cooling that is consumed during the production processes, irrespective of the location of the production of the heating and cooling

Term	Definition
'Eligible monitoring, reporting and verification (MRV) system'	means the MRV systems where the installation is established[72] for the purpose of a 'carbon pricing scheme', or compulsory emission monitoring schemes, or an emission monitoring scheme at the installation which can include verification by an accredited verifier, in accordance with Article 4(2) of the CBAM Implementing Regulation
'Embedded emissions'	means direct emissions released during the production of goods and indirect emissions from the production of electricity that is consumed during the production processes, calculated in accordance with the methods set out in Annex IV and further specified in the Implementing Regulations adopted pursuant to Article 7(7)
'Emissions'	mean the release of greenhouse gases into the atmosphere from the production of goods
'Emission factor'	means the average emission rate of a greenhouse gas relative to the activity data of a source stream assuming complete oxidation for combustion and complete conversion for all other chemical reactions
'Emission factor' for electricity	means the default value, expressed in CO_2e, representing the emission intensity of electricity consumed in production of goods.
'Emission source'	means a separately identifiable part of an installation or a process within an installation, from which relevant greenhouse gases are emitted
EU ETS	means the system for greenhouse gas emissions allowance trading within the Union in respect of activities listed in Annex I to Directive 2003/87/EC other than aviation activities
'Fossil carbon'	means inorganic and organic carbon that is not biomass
'Fossil fraction'	means the ratio of fossil and inorganic carbon to the total carbon content of a fuel or material, expressed as a fraction
'Fugitive emissions'	means irregular or unintended emissions from sources that are not localised, or too diverse or too small to be monitored individually
'Goods'	means goods listed in Annex I to the CBAM Regulation (EU) 2023/956 [and Annex II to the Implementing Regulations]
'Greenhouse gases'	mean greenhouse gases as specified in Annex I of the CBAM Regulation (EU) 2023/956 [and Annex II of the Implementing Regulation Annexes] in relation to each of the goods listed in that Annex

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[72] Refers to the jurisdiction in which the installation is located.

Term	Definition
'Importer'	means either the person lodging a customs declaration for release for free circulation of goods in its own name and on its own behalf or, where the customs declaration is lodged by an indirect customs representative in accordance with Article 18 of Regulation (EU) No 952/2013, the person on whose behalf such a declaration is lodged
'Importation'	means release for free circulation as provided for in Article 201 of Regulation (EU) No 952/2013
'Indirect emissions'	means emissions from the production of electricity, which is consumed during the production processes of goods, regardless of the location of the production of the consumed electricity.
'Inherent CO_2'	means CO_2 which is part of a source stream.
'Installation'	means a stationary technical unit where a production process is carried out
'Measurable heat'	means a net heat flow transported through identifiable pipelines or ducts using a heat transfer medium, such as, in particular, steam, hot air, water, oil, liquid metals and salts, for which a heat meter is or could be installed
'Measurement point'	means the emission source for which continuous emission measurement systems (CEMS) are used for emission measurement, or the cross-section of a pipeline system for which the CO_2 flow is determined using continuous measurement systems
'Measurement system'	means a complete set of measuring instruments and other equipment, such as sampling and data processing equipment, used to determine variables such as the activity data, the carbon content, the calorific value or the emission factor of the greenhouse gas emissions
'Minimum requirements'	means monitoring methods using the minimum efforts allowed for determining data in order to result in emission data acceptable for the purpose of Regulation (EU) 2023/956.
'Mixed fuel'	means a fuel which contains both biomass and fossil carbon
'Mixed material'	means a material which contains both biomass and fossil carbon
'Net calorific value' (NCV)	means the specific amount of energy released as heat when a fuel or material undergoes complete combustion with oxygen under standard conditions, less the heat of vaporisation of any water formed
'Non-measurable heat'	means all heat other than measurable heat
'Operator'	means any person who operates or controls an installation in a third (i.e. non-EU) country

Term	Definition
'Power purchase agreement'	means a contract under which a person agrees to purchase electricity directly from an electricity producer
'Production process'	means the parts of an installation in which chemical or physical processes are carried out to produce goods under an aggregated goods category defined in Table 1 of Section 2 of Annex II, and its specified system boundaries regarding inputs, outputs and corresponding emissions
'Production route' [73]	means a specific technology used in a production process to produce goods under an aggregated goods category
'Process emissions'	means greenhouse gas emissions other than combustion emissions occurring as a result of intentional and unintentional reactions between substances or their transformation, for a primary purpose other than the generation of heat, including from the following processes: (a) the chemical, electrolytic or pyrometallurgical reduction of metal compounds in ores, concentrates and secondary materials; (b) the removal of impurities from metals and metal compounds; (c) the decomposition of carbonates, including those used for flue gas cleaning; (d) chemical syntheses of products and intermediate products where the carbon bearing material participates in the reaction; (e) the use of carbon containing additives or raw materials; (f) the chemical or electrolytic reduction of metalloid oxides or non-metal oxides such as silicon oxides and phosphates.
'Proxy data'	means annual values which are empirically substantiated or derived from accepted sources and which an operator uses to substitute a data set[74] for the purpose of ensuring complete reporting when it is not possible to generate all the required data or factors in the applicable monitoring methodology
'Rebate'	means any amount that reduces the amount due or paid by a person liable for the payment of a carbon price, before its payment or after, in a monetary form or in any other form.
'Recommended improvements'	means monitoring methods which are proven means to ensure that data are more accurate or less prone to mistakes than by mere application of minimum requirements, and which may be chosen on a voluntary basis
'Reporting declarant'	means any of the following persons: (a) the importer who lodges a customs declaration for release for free circulation of goods in its own name and on its own behalf;

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[73] Note that different production routes can fall within the same production process.

[74] Refers to the activity data or the calculation factors.

Term	Definition
	(b) the importerperson, holding an authorisation to lodge a customs declaration referred to in Article 182(1) of Regulation (EU) No 952/2013l , who declares the importation of goods;
	(c) the indirect customs representative, where the customs declaration is lodged by the indirect customs representative appointed in accordance with Article 18 of Regulation (EU) No 952/2013, when the importer is established outside the Union or where the indirect customs representative has agreed to the reporting obligations in accordance with Article 32 of Regulation (EU) 2023/956.
'Reporting period'	means a period that the operator of an installation has chosen to use as reference for the determination of embedded emissions
'Residue'	means a substance that is not the end product(s) that a production process directly seeks to produce; it is not a primary aim of the production process and the process has not been deliberately modified to produce it
'Recommended improvements'	means monitoring approaches which are proven means to ensure that data are more accurate or less prone to mistakes than by mere application of minimum requirements, and which may be chosen on a voluntary basis
'Simple goods'	means goods produced in a production process requiring exclusively input materials and fuels having zero embedded emissions
'Source stream'	means any of the following: (a) a specific fuel type, raw material or product giving rise to emissions of relevant greenhouse gases at one or more emission sources as a result of its consumption or production; (b) a specific fuel type, raw material or product containing carbon and included in the calculation of greenhouse gas emissions using a mass-balance method
'Specific embedded emissions'	means the embedded emissions of one tonne of goods, expressed as tonnes of CO_2e emissions per tonne of goods
'Third country'	means a country or territory outside the customs territory of the European Union
'Tonne of $CO_2(e)$'	means one metric tonne of carbon dioxide ('CO_2'), or an amount of any other greenhouse gas listed in Annex I with an equivalent global warming potential ('CO_2e')
'Transmission system operator'	means an operator as defined in Article 2(35) of Directive (EU) 2019/944 of the European Parliament and of the Council ([75]).

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[75]   Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU (OJ L 158, 14.6.2019, p. 125).

Term	Definition
'Waste'	means any substance or object which the holder discards or intends or is required to discard, excluding substances that have been intentionally modified or contaminated in order to meet this definition
'Waste gas'	means a gas containing incompletely oxidised carbon in a gaseous state under standard conditions which is a result of any of the processes listed under 'process emissions'

Annex C   Default values

Default emission factor values have been produced by the European Commission to allow operators and importers of complex goods to calculate the embedded emissions of precursor goods, that are used as inputs and consumed in the production process for other CBAM goods, where the actual emissions intensities for these precursor goods are not available.

These default values comprise both direct and indirect emissions (where applicable) and are expressed in units of tonnes CO_2e emissions per tonne of good.

However, default values may only be used in the calculation of embedded emissions for complex goods where precursor emissions contribute **less than 20%** of the **total embedded emissions** of the complex good.

The default values can be found on the European Commission's dedicated website for the CBAM.

Taxonomy of CBAM goods and precursor default values

The following sector tables classify CBAM goods and precursors according to their 4-, 6- and 8-digit CN code level. Default values published on the European Commission's CBAM website follow this hierarchy.

- Default values given at a 4-digit CN code level apply to all goods falling within this 4-digit CN code category.

- Default values supplied at a 6-digit CN code level apply to all goods falling within this 6-digit CN code category.

- Default values supplied at an 8-digit CN code level only apply to this specific 8-digit CN code good – in most case these 8-digit codes are for the steel industry, reflecting the range of different production routes and alloying elements used.

Participants wishing to use default values should note that these are set at a high emissions intensity level, and so in most cases it would be more advantageous to use the actual values for precursor goods where these are available.

Table 7-1 Default values for iron and steel goods by CN code

Aggregated good category	Product CN Code	Description	Default value (tCO₂e/tonne[76]
Sintered Ore	2601 12 00	Agglomerated iron ores and concentrates, other than roasted iron pyrites	
Pig iron	7201	Pig iron and spiegeleisen in pigs, blocks or other primary forms	

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[76]   Default values are provided on the European Commission's dedicated website for the CBAM.

Aggregated good category	Product CN Code	Description	Default value (tCO$_2$e/tonne[76]
	7205[77]	Some products under 7205 (Granules and powders, of pig iron, spiegeleisen, iron, or steel) may be covered here	
Ferro-alloy: FeMn	7202 1	Ferro-manganese (FeMn)	
Ferro-alloy: FeCr	7202 4	Ferro-chromium (FeCr)	
Ferro-alloy: FeNi	7202 6	Ferro-nickel (FeNi)	
DRI	7203	Ferrous products obtained by direct reduction of iron ore and other spongy ferrous products	
Crude steel	7206	Iron and non-alloy steel in ingots or other primary forms (excluding iron of heading 7203)	
	7206 10 00		
	7206 90 00		
	7207	Semi-finished products of iron or non-alloy steel	
	7207 11 11		
	7207 11 14		
	7207 11 16		
	7207 12 10		
	7207 19 12		
	7207 19 80		
	7207 20 11		
	7207 20 15		
	7207 20 17		
	7207 20 32		
	7207 20 52		
	7207 20 80		
	7207 11 90		
	7207 12 90		
	7207 19 19		

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[77] Only some products of this CN code will qualify as "pig iron", while other goods of this code are classified as "iron or steel products"

Aggregated good category	Product CN Code	Description	Default value (tCO$_2$e/tonne[76]
	7207 20 19		
	7207 20 39		
	7207 20 59		
	7218	Stainless steel in ingots or other primary forms; semi-finished products of stainless steel	
	7218 10 00		
	7218 99 19		
	7218 99 80		
	7218 91		
	7218 99 11		
	7218 99 20		
	7224	Other alloy steel in ingots or other primary forms; semi-finished products of other alloy steel	
	7224 10		
	7224 90 18		
	7224 90 90		
	7224 90 02		
	7224 90 03		
	7224 90 05		
	7224 90 07		
	7224 90 14		
	7224 90 31		
	7224 90 38		
Iron or steel products	7205	Granules and powders, of pig iron, spiegeleisen, iron or steel (if not covered under category pig iron)	
	7208	Flat-rolled products of iron or non-alloy steel, of a width of 600 mm or more, hot-rolled, not clad, plated or coated	
	7209	Flat-rolled products of iron or non-alloy steel, of a width of 600 mm or more, cold-rolled (cold-reduced), not clad, plated or coated	

Aggregated good category	Product CN Code	Description	Default value (tCO$_2$e/tonne[76]
	7210	Flat-rolled products of iron or non-alloy steel, of a width of 600 mm or more, clad, plated or coated	
	7211	Flat-rolled products of iron or non-alloy steel, of a width of less than 600 mm, not clad, plated or coated	
	7212	Flat-rolled products of iron or non-alloy steel, of a width of less than 600 mm, clad, plated or coated	
	7213	Bars and rods, hot-rolled, in irregularly wound coils, of iron or non-alloy steel	
	7214	Other bars and rods of iron or non-alloy steel, not further worked than forged, hot-rolled, hot-drawn or hot-extruded, but including those twisted after rolling	
	7215	Other bars and rods of iron or non-alloy steel	
	7216	Angles, shapes and sections of iron or non-alloy steel	
	7217	Wire of iron or non-alloy steel	
	7219	Flat-rolled products of stainless steel, of a width of 600 mm or more	
	7220	Flat-rolled products of stainless steel, of a width of less than 600 mm	
	7221	Bars and rods, hot-rolled, in irregularly wound coils, of stainless steel	
	7222	Other bars and rods of stainless steel; angles, shapes and sections of stainless steel	
	7223	Wire of stainless steel	
	7225	Flat-rolled products of other alloy steel, of a width of 600 mm or more	

Aggregated good category	Product CN Code	Description	Default value (tCO$_2$e/tonne[76]
	7226	Flat-rolled products of other alloy steel, of a width of less than 600 mm	
	7227	Bars and rods, hot-rolled, in irregularly wound coils, of other alloy steel	
	7228	Other bars and rods of other alloy steel; angles, shapes and sections, of other alloy steel; hollow drill bars and rods, of alloy or non-alloy steel	
	7229	Wire of other alloy steel	
	7301	Sheet piling of iron or steel, whether or not drilled, punched or made from assembled elements; welded angles, shapes and sections, of iron or steel	
	7302	Railway or tramway track construction material of iron or steel, the following: rails, check-rails and rack rails, switch blades, crossing frogs, point rods and other crossing pieces, sleepers (cross-ties), fish- plates, chairs, chair wedges, sole plates (base plates), rail clips, bedplates, ties and other material specialised for jointing or fixing rails	
	7303	Tubes, pipes and hollow profiles, of cast iron	
	7304	Tubes, pipes and hollow profiles, seamless, of iron (other than cast iron) or steel	
	7305	Other tubes and pipes (for example, welded, riveted or similarly closed), having circular cross-sections, the external diameter of which exceeds 406,4 mm, of iron or steel	
	7306	Other tubes, pipes and hollow profiles (for example, open seam or welded, riveted or similarly closed), of iron or steel	

Aggregated good category	Product CN Code	Description	Default value (tCO$_2$e/tonne[76]
	7307	Tube or pipe fittings (for example, couplings, elbows, sleeves), of iron or steel	
	7308	Structures (excluding prefabricated buildings of heading 9406) and parts of structures (for example, bridges and bridge-sections, lock- gates, towers, lattice masts, roofs, roofing frameworks, doors and windows and their frames and thresholds for doors, shutters, balustrades, pillars and columns), of iron or steel; plates, rods, angles, shapes, sections, tubes and the like, prepared for use in structures, of iron or steel	
	7309	Reservoirs, tanks, vats and similar containers for any material (other than compressed or liquefied gas), of iron or steel, of a capacity exceeding 300 l, whether or not lined or heat-insulated, but not fitted with mechanical or thermal equipment	
	7310	Tanks, casks, drums, cans, boxes and similar containers, for any material (other than compressed or liquefied gas), of iron or steel, of a capacity not exceeding 300 l, whether or not lined or heat-insulated, but not fitted with mechanical or thermal equipment	
	7311	Containers for compressed or liquefied gas, of iron or steel	
	7318	Screws, bolts, nuts, coach screws, screw hooks, rivets, cotters, cotter pins, washers (including spring washers) and similar articles, of iron or steel	
	7326	Other articles of iron or steel	

Table 7-2 Default values for cement goods by CN code

Aggregated good category	Product CN Code	Description	Default value (tCO$_2$e/tonne
Calcined clay	2507 00 80	Kaolin and other kaolinic clays, calcined	
Cement clinker	2523 10 00	Cement clinkers	
Cement	2523 21 00	White Portland cement, whether or not artificially coloured	
	2523 29 00	Other Portland cement	
	2523 90 00	Other hydraulic cements	
Aluminous cement	2523 30 00	Aluminous cement[78]	

Table 7-3 Default values for fertilizer goods by CN code

Aggregated good category	Product CN Code	Description	Default value (tCO$_2$e/tonne
Nitric acid	2808 00 00	Nitric acid; sulphonitric acids	
Urea	3102 10	Urea, whether or not in aqueous solution	
Ammonia	2814	Ammonia, anhydrous or in aqueous solution	
Mixed fertilizers	2834 21 00	Nitrates of potassium	
	3102[79]	Mineral or chemical fertilizers, nitrogenous except 3102 10 (Urea)	
	3102 21 00	Ammonium sulphate	
	3102 29 00	Double salts and mixtures of ammonium sulphate and ammonium nitrate	

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[78] Also referred to as 'Calcium Aluminate Cement'.

[79] Except 3102 10 (Urea), which is a separate aggregated goods category.

Aggregated good category	Product CN Code	Description	Default value (tCO₂e/tonne
	3102 30	Ammonium nitrate, whether or not in aqueous solution	
	3102 40	Mixtures of ammonium nitrate with calcium carbonate or other inorganic non-fertilizing substances.	
	3102 50 00	Sodium nitrate	
	3102 60 00	Double salts and mixtures of calcium nitrate and ammonium nitrate	
	3102 80 00	Mixtures of urea and ammonium nitrate in aqueous or ammoniacal solution	
	3105[80]	Mineral or chemical fertilizers containing two or three of the fertilizing elements nitrogen, phosphorus, and potassium; other fertilizers - Except: 3105 60 00 – Mineral or chemical fertilizers containing the two fertilizing elements phosphorus and potassium	
	3105 20	Mineral or chemical fertilizers containing the three fertilizing elements nitrogen, phosphorus and potassium	
	3105 30 00	Diammonium hydrogenorthophosphate (diammonium phosphate)	
	3105 40 00	Ammonium dihydrogenorthophosphate (monoammonium phosphate) and mixtures thereof with diammonium hydrogenorthophosphate (diammonium phosphate)	
	3105 51 00	Containing nitrates and phosphates	

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[80] Except 3105 60 00 – Mineral or chemical fertilizers containing the two fertilizing elements phosphorus and potassium. Excluded as not nitrogenous. Only nitrogen (N) containing fertilizers have significant embedded emissions.

Aggregated good category	Product CN Code	Description	Default value (tCO₂e/tonne
	3105 59 00	Mineral or chemical fertilizers containing the two fertilizing elements nitrogen (excl. nitrate) and phosphorus but not nitrates (excl. ammonium dihydrogenorthophosphate "monoammonium phosphate", diammonium hydrogenorthophosphate "diammonium phosphate"	

Table 7-4 Default values for aluminium goods by CN code

Aggregated good category	Product CN Code	Description	Default value (tCO₂e/tonne
Unwrought aluminium	7601	Unwrought aluminium	
Aluminium products	7603	Aluminium powders and flakes	
	7604	Aluminium bars, rods and profiles	
	7604 10 10	Aluminium bars, rods, not alloyed	
	7604 10 90	Aluminium profiles, not alloyed	
	7604 21 00	Aluminium alloy hollow profiles	
	7604 29 10	Aluminium alloy bars, rods	
	7604 29 90	Aluminium alloy profiles	
	7605	Aluminium wire	
	7606	Aluminium plates, sheets and strip, of a thickness exceeding 0,2 mm	
	7607	Aluminium foil (whether or not printed or backed with paper, paper-board, plastics or similar backing materials) of a thickness (excluding any backing) not exceeding 0,2 mm	
	7608	Aluminium tubes and pipes	
	7609 00 00	Aluminium tube or pipe fittings (for example, couplings, elbows, sleeves)	

Aggregated good category	Product CN Code	Description	Default value (tCO₂e/tonne
	7610	Aluminium structures (excluding prefabricated buildings of heading 9406) and parts of structures (for example, bridges and bridge-sections, towers, lattice masts, roofs, roofing frameworks, doors and windows and their frames and thresholds for doors, balustrades, pillars and columns); aluminium plates, rods, profiles, tubes and the like, prepared for use in structures	
	7610 10 00	Doors, windows and their frames and thresholds for doors	
	7610 90	Other structures and parts of structures, of aluminium	
	7610 90 10	Bridges and bridge-sections, towers and lattice masts	
	7610 90 90	Structures and parts of structures, of aluminium	
	7611 00 00	Aluminium reservoirs, tanks, vats and similar containers, for any material (other than compressed or liquefied gas), of a capacity exceeding 300 litres, whether or not lined or heat-insulated, but not fitted with mechanical or thermal equipment	
	7612	Aluminium casks, drums, cans, boxes and similar containers (including rigid or collapsible tubular containers), for any material (other than compressed or liquefied gas), of a capacity not exceeding 300 litres, whether or not lined or heat-insulated, but not fitted with mechanical or thermal equipment	
	7613 00 00	Aluminium containers for compressed or liquefied gas	
	7614	Stranded aluminium wire, cables, plaited bands and the like, of aluminium, not electrically insulated	

Aggregated good category	Product CN Code	Description	Default value (tCO₂e/tonne
	7616	Other articles of aluminium	
	7616 10 00	Nails, tacks, staples, screws, bolts, nuts, screw hooks, rivets, cotters, cotter pins, washers and similar articles	
	7616 91 00	Cloth, grill, netting and fencing, of aluminium wire	
	7616 99 10	Other cast articles of aluminium	
	7616 99 90	Other uncast articles of aluminium	