

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

PCR 2010:20

VERSION 4.0.0

VALID UNTIL 2029-04-25



FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

TABLE OF CONTENTS

1	Introduction.....	3
2	General information	4
2.1	Administrative information	4
2.2	Scope of PCR.....	5
3	Review and background information.....	7
3.1	Open consultation.....	7
3.2	PCR review.....	7
3.3	Existing PCRs for the product category	8
3.4	Reasoning for development of PCR.....	9
3.5	Underlying studies used for PCR development	9
4	LCA method	10
4.1	Modelling approach.....	10
4.2	Declared unit.....	10
4.3	System boundary.....	11
4.4	Process flow diagram	12
4.5	Cut-off rules.....	13
4.6	Allocation rules	13
4.7	Data and data quality rules	13
4.8	Other LCA rules	13
4.9	Specific rules per life-cycle stage	14
4.10	Environmental performance indicators.....	16
4.11	Specflic rules per EPD type.....	16
5	Content of LCA report.....	18
6	Content and format of EPD	19
6.1	EPD languages.....	19
6.2	Units and quantities.....	19
6.3	Use of images in EPD	19
6.4	Sections of the EPD.....	19
7	List of abbreviations.....	21
8	References.....	22
9	Version history of PCR	24

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

1 INTRODUCTION

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

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

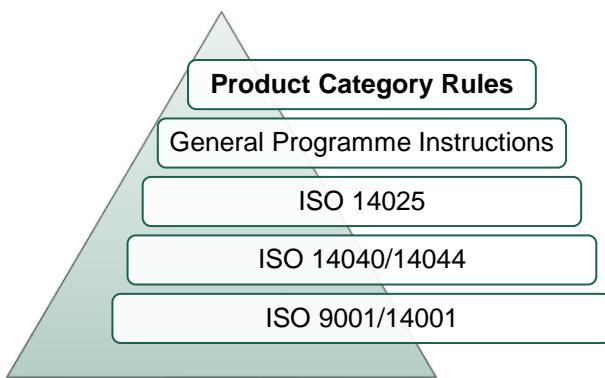


Figure 1. The hierarchy between PCRs, standards, and other documents.

The present PCR uses the following terminology:

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

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

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

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

1 Termed type III environmental declarations in ISO 14025.

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

2 GENERAL INFORMATION

2.1 ADMINISTRATIVE INFORMATION

Name:	Fertilisers
Registration number and version:	PCR 2020:10, version 4.0.0
Programme:	 INTERNATIONAL EPD SYSTEM
Programme operator:	EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden. Website: www.environdec.com E-mail: support@environdec.com
PCR Moderator:	Francesca Falconi, LCA-lab srl, francesca.falconi@lca-lab.com
PCR Committee:	LCA-lab srl, SCAM S.p.A., Roullier, Valagro SPA
Publication date:	2025-04-25 See Section 0 for a version history of the PCR.
Valid until:	2029-04-25 The validity may change. See www.environdec.com for the latest version of the PCR and the latest information on its validity and transition periods between versions.
Development and updates:	<p>The PCR has been developed following ISO 14027, including public consultation and review. The rules for the development and updating processes are described in Section 9 of the GPI.</p> <p>The PCR is valid for a pre-determined time period to ensure that it is updated at regular intervals. When the PCR is about to expire, the PCR Moderator shall initiate a discussion with the Secretariat on if and how to proceed with updating the PCR and renewing its validity. A PCR may be updated before it expires, based on changes in normative standards or provided significant and well-justified proposals for changes or amendments are presented.</p> <p>When there has been an update of the PCR, the new version should be used to develop EPDs. For small updates (change of third-digit version number), the previous version is normally immediately removed from the PCR library on www.environdec.com and there is no transition period. For medium updates (change of second-digit version number), the previous version of the PCR is valid in parallel during a transition period of at least 90 days, but not exceeding its previously set validity period. For large updates (change of first-digit version number), the previous version is valid in parallel during a transition period of at least 180 days, but not exceeding its previously set validity period.</p> <p>Stakeholder feedback on PCRs is very much encouraged. Any comments on this PCR may be sent directly to the PCR Moderator and/or the Secretariat during its development or during its period of validity.</p>

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

Standards and documents conformance:	General Programme Instructions of the International EPD System, version 5.0.1, based on ISO 14025 and ISO 14040/14044. ²
PCR language(s):	At the time of publication, this PCR was available in English. If the PCR is available in several languages, these are available on www.environdec.com . In case of translated versions, the English version takes precedence in case of any discrepancies.

2.2 SCOPE OF PCR

2.2.1 PRODUCT CATEGORY DEFINITION AND DESCRIPTION

This document provides Product Category Rules (PCR) for the assessment of the environmental performance of Fertilisers and the declaration of this performance by an EPD. The product category corresponds to UN CPC 3461, 3462, 3463, 3464 and 3465.

This PCR covers the product group fertilisers, which is defined by UN CPC classes 3461, 3462, 3463, 3464 and 3465 categorized according to the UN CPC version 2.1:

- Division: 34 - Basic chemicals
 - Group: 346 - Fertilisers and pesticides
 - Class 3461 - Mineral or chemical fertilisers, nitrogenous
 - Class 3462 - Mineral or chemical fertilisers, phosphatic
 - Class 3463 - Mineral or chemical fertilisers, potassic
 - Class 3464 - Mineral or chemical fertilisers containing at least two nutrients of nitrogen, phosphate and potash
 - Class 3465 - Other fertilisers.

The following related UN CPC class is not included in the scope of this PCR:

- Class 3466 - Insecticides, fungicides, herbicides, and disinfectants.

The following products categories are not included in the scope of this PCR: microbial inoculants and biostimulants. These are instead included in the scope of PCR 2025:02 Biostimulants.

2.2.2 GEOGRAPHICAL SCOPE

This PCR may be used globally.

2.2.3 EPD VALIDITY

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

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

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

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

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

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

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

3 REVIEW AND BACKGROUND INFORMATION

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

3.1 OPEN CONSULTATION

3.1.1 VERSION 1.0

This PCR was available for open consultation from 2010-07-12 until 2010-09-12, during which any stakeholder was able to provide comments by posting on the PCR forum on www.environdec.com or by contacting the PCR moderator.

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

3.1.2 VERSION 2.0

This PCR was available for open consultation from 2015-08-14 until 2015-10-14, during which any stakeholder was able to provide comments by posting on the PCR forum on www.environdec.com or by contacting the PCR moderator.

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

3.1.3 VERSION 3.0

This PCR was available for open consultation from 2020-02-05 until 2020-04-01, during which any stakeholder was able to provide comments by posting on the PCR forum on www.environdec.com or by contacting the PCR moderator.

Stakeholders were invited via e-mail or other means to take part in the open consultation, and were encouraged to forward the invitation to other relevant stakeholders. No stakeholders that contributed with comments agreed to be listed as contributors in the PCR.

3.1.4 VERSION 4.0.0

This PCR was available for open consultation from 2024-05-22 until 2024-07-22, during which any stakeholder was able to provide comments by contacting the PCR Moderator and/or the Secretariat.

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

No stakeholders provided comments during the open consultation and agreed to be listed as contributors in the PCR and on www.environdec.com.

3.2 PCR REVIEW

3.2.1 VERSION 2.0

PCR review panel:	The Technical Committee of the International EPD® System. A full list of members available on www.environdec.com . The review panel may be contacted via info@environdec.com .
	Members of the Technical Committee were requested to state any potential conflict of interest with the PCR moderator or PCR committee, and were excused from the review.
Chair of the PCR review:	Lars-Gunnar Lindfors

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

Review dates:	2015-11-04 until 2015-12-15
---------------	-----------------------------

3.2.2 VERSION 3.0

PCR review panel:	<p>The Technical Committee of the International EPD® System. A full list of members available on www.environdec.com. The review panel may be contacted via info@.environdec.com.</p> <p>Members of the Technical Committee were requested to state any potential conflict of interest with the PCR moderator or PCR committee, and were excused from the review. Adriana del Borghi was excused from the review.</p>
Chair of the PCR review:	Filippo Sessa
Review dates:	2020-04-02 until 2020-05-08

3.2.3 VERSION 4.0.0

PCR review panel:	<p>The Technical Committee of the International EPD System. A full list of members is available on www.environdec.com. The review panel may be contacted via support@.environdec.com.</p> <p>Members of the Technical Committee were requested to state any potential conflict of interest with the PCR Committee, and if there were conflicts of interest they were excused from the review.</p>
Chair of the PCR review:	Claudia A. Peña
Review dates:	2024-11-01 until 2024-12-10

3.3 EXISTING PCRS FOR THE PRODUCT CATEGORY

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

- International EPD System. www.environdec.com.
- IBU. <https://ibu-epd.com>.
- EPD Norge. <https://www.epd-norge.no>
- BRE Global. <https://bregroup.com>
- EPD Danmark. <https://www.epddanmark.dk>
- EPD Italy. <https://www.epditaly.it>
- Global EPD. <https://www.aenor.com>
- Global GreenTag EPD. <https://www.globalgreentag.com/epd-program.html>

No existing PCRs with overlapping scope were identified.

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

3.4 REASONING FOR DEVELOPMENT OF PCR

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

3.5 UNDERLYING STUDIES USED FOR PCR DEVELOPMENT

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

- Coppola E (1994) Effetto di differenti matrici organiche sul flusso di N-P-K nel sistema suolo/pianta. Sperimentazione su coltura di mais in impianto su Vertic Xerofluvent. PhD thesis. Università di Napoli Federico II.
- Tassan Mazzocco G, Contin M (2000) Organo-mineral fertilisers for corn. Conference proceedings, year 2000.
- Hasler K, Broring S, Omta SWF, Olfs H-W (2015) Life Cycle Assessment (LCA) of different fertiliser product types. European Journal of Agronomy 69, 41–51.
- Pasotti PP, Pelliconi M, Tisselli V, Tagliavini S (2017) Colture Protette N° 4 aprile 2017 Melone e pomodoro da industria: efficienza della concimazione con Organo Minerali liquidi Colture Protette N° 4 aprile 2017, 2-6.
- Quiros R, Villalba G, Gabarrell X, Munoz P (2015) Life Cycle Assessment of organic and mineral fertilisers in a crop sequence of cauliflower and tomato. International Journal of Environmental Science and Technology 12(10), 3299–3316.

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

4 LCA METHOD

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

4.1 MODELLING APPROACH

See Section A.1 of the GPI.

4.2 DECLARED UNIT

The declared unit shall be defined as 1000 kg of product with its packaging (the weight of the packaging is not included in this 1000 kg).

The reference flow in the LCA shall be defined at the point where the product arrives at the customer gate, i.e., any losses occurring before then shall be accounted for.

The declared unit shall be stated in the EPD. The environmental impact shall be given per declared unit. In the EPD a statement should be added to specify that the declared unit may have different functionality depending on the composition of the product that is declared.

4.2.1 TECHNICAL SPECIFICATION

The following technical specification of the product shall be declared in the EPD: Agronomic Efficiency Index (AEI) and Uptake Index (UI).

Agronomic Efficiency Index (AEI)

The AEI expresses the increase of the production of useful dry substance for each given Fertilizing Unit (FU). The AEI is used to evaluate the efficiency of the fertilization of the ground/plant system in order to define the right input of nutrients for the specific ground/plant system. AEI is calculated as follows:

$$AEI = (yield nC - yield 0C)/nFU$$

where:

nC = yields obtained in fertilized parcels
0C = yields obtained in unfertilized parcels
nFU = applied Fertilizing Units

Uptake Index (UI)

The Uptake Index constitutes the easiest methodology to face the evaluation of the nutritive capacities of a fertiliser. It is based on the calculation of the plant uptakes, for the specific nutrient, with relation to what is established in the unfertilized witness.

UI is calculated as follows:

$$UI = [nutrient element up-taken from the cultivation in the fertilized option (kg/ha) - nutrient element up-taken from the cultivated crop in the unfertilized option (kg/ha)]/nutrient unit (kg/ha) * 100$$

"Nutrient unit (kg/ha)" refers to the amount of a specific nutrient (e.g., N, P, K), measured in kilograms, that is applied per hectare (10,000 square meters) of land.

Additional technical specifications of the products to declare in the EPD are outlined in Section 6.4.4.

Additional technical specifications of the product may also be declared in the EPD, if relevant and applicable for the product.

Reference service life (RSL) and lifespan are not applicable for this product category.

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

4.3 SYSTEM BOUNDARY

The scope of this PCR and EPDs based on it is cradle to grave.

4.3.1 LIFE-CYCLE STAGES AND INFORMATION MODULES

Because of different data quality rules and the presentation of results, the product life cycle shall be divided into the following life-cycle stages and information modules:

- Product stage, modules A1-A3:
 - A1: Raw material extraction and processing (e.g., mining, agricultural and forestry operations), production of intermediate materials and components (e.g., including transformation processes such as rolling, drawing and extrusion), processing of secondary material input (e.g., recycling processes), production of distribution and consumer packaging, etc.
 - A2: Transports to the manufacturer of the product
 - A3: Manufacturing of the product³
- Distribution/installation stage, module A4-A5:
 - A4: Transport of the product to the user, including storage of product (e.g., warehouse and retail operations)
 - A5: Application of the product (e.g., including transports and waste processing of material, packaging and product losses arising in A5 and water consumed in its application))
- Use stage, modules B1:
 - B1: Use of the product (e.g., including direct emissions associated with its use)

Omitted modules (B2-B7, C1-C4, D) are not applicable for this product category.

Module A5 is optional but applicable according to GPI 5.0.

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

Section A.3.1 of the GPI outlines rules for how to assign generation of electricity and production of fuels, steam and other energy carriers used, and losses arising, in each information module.

Sections **Error! Reference source not found.-Error! Reference source not found.** further describe the processes to include or exclude for each life-cycle stage.

4.3.1.1 Modules A1-A3: Product stage

- Module A1:
 - Extraction and processing of raw materials.
 - Recycling processes of secondary materials from other product life cycles.
 - Relevant services, such as transport of raw materials and components along the upstream supply chain to a distribution point (e.g., a stockroom or warehouse).
 - Generation of electricity and production of fuels, steam and other energy carriers used in upstream processes.
- Module A2:
 - Transport of materials and components to the manufacturing of the product under study.
- Module A3:
 - Manufacturing of the product under study.

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

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

- End-of-life treatment of manufacturing waste, even if carried out by third parties, including transportation.
- Generation of electricity and production of fuels, steam and other energy carriers used in core processes.

The following processes shall not be included:

- Business travel of personnel.
- Travel to and from work by personnel.
- Research and development activities.

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

4.3.1.2 Modules A4-A5: Distribution and installation stage

- Module A4:
 - Transportation of the product to retailer/consumer.
- Module A5:
 - Application of the product on the field (e.g., fuel used by farm machinery and water used during application) and the product packaging waste disposal (including processing for reuse, recovery and/or recycling and the transport to end-of-life treatment).

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

4.3.1.3 Modules B1: Use stage

- Module B1:
 - Use activities causing direct and indirect emissions: emissions related to the nitrogen or phosphorus content of fertilisers.

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

4.3.1.4 Excluded processes

4.3.2 OTHER BOUNDARY SETTING RULES

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

4.4 PROCESS FLOW DIAGRAM

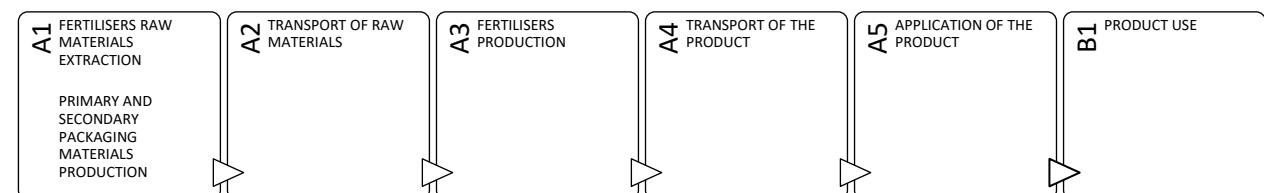


Figure 2. Process flow diagram illustrating the processes that shall be included in the product system, divided into the life-cycle stages. The illustration of processes to include may not be exhaustive.

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

4.5 CUT-OFF RULES

See Section A.3.3 of the GPI.

4.6 ALLOCATION RULES

See Section A.4 of the GPI.

4.6.1 ALLOCATION OF CO-PRODUCTS

See Section A.4.1 of the GPI.

4.6.2 ALLOCATION OF WASTE

See Section A.4.2 of the GPI.

4.7 DATA AND DATA QUALITY RULES

See Section A.5 of the GPI.

See Section 4.8 for further rules related to data and data quality per life-cycle stage and module D.

4.7.1 DATA CATEGORIES

See Section A.5.1 of the GPI.

4.7.2 DATA QUALITY REQUIREMENTS FOR PRIMARY DATA

See Section A.5.2 of the GPI.

4.7.3 DATA QUALITY REQUIREMENTS FOR REPRESENTATIVE SECONDARY DATA

See Section A.5.3 of the GPI.

4.7.4 DATA QUALITY ASSESSMENT AND DECLARATION

See Section A.5.4 of the GPI.

4.7.5 EXAMPLES OF DATABASES FOR SECONDARY DATA

No specific databases are recommended for secondary data. Admissible data shall respect the system boundaries set in the PCR and meet the requirements of the International EPD System for data quality, representativeness, review and scope of documentation. If primary data or representative secondary data that meets the requirements of the International EPD System is not available as the necessary input data, proxy data may be used and documented. The environmental impacts associated to proxy data must not exceed 10% of the overall environmental impact from the product system.

4.8 OTHER LCA RULES

See Section A.6 of the GPI.

For specific LCA rules per life-cycle stage, see Section 4.9.

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

4.8.1 MASS BALANCE

See Section A.6.1 of the GPI.

4.8.2 ELECTRICITY MODELLING

See Section A.6.2 of the GPI.

4.8.3 BIOGAS MODELLING

See Section A.6.3 of the GPI.

4.9 SPECIFIC RULES PER LIFE-CYCLE STAGE

See Section A.7 of the GPI.

Below are further data quality requirements and other LCA rules per life-cycle stage, of relevance for the product category.

4.9.1 PRODUCT STAGE, A1-A3

See Section A.7.1 of the GPI. This PCR does not provide any additions to the rules and guidance in the GPI on the modelling of the product stage.

4.9.2 DISTRIBUTION/INSTALLATION STAGE, MODULE A4-A5

See Section A.7.2 of the GPI. This PCR does not provide any additions to the rules and guidance in the GPI on the modelling of the distribution/installation stage.

4.9.3 USE STAGE, MODULE B1

See A.7.3 of the GPI.

Modelling of the use stage consists of quantifying emissions (to air and water) from managed soils, due to fertiliser application.

When primary data is used, it shall be generated following the Tier 3 approach in IPCC (2019). Annex A1 summarises the method of the approach.

If primary data cannot be derived using the above required approach, the emissions shall be modelled according to the following sections.

Emissions concern: direct emissions of NH₃ and NO, indirect emissions of N₂O and nitrates, and phosphorus emissions.

NH₃ and NO emissions

If site or region-specific data are available, these shall be used. Otherwise, the default data in Table 1 shall be used. The (NH₃ and NO) emission factors used, including their source, shall be declared in the EPD.

Table 1. Default data for direct and indirect emissions of NH₃ and NO in case primary data is not used. Total NH₃ emissions from cultures due to fertiliser volatilisation: values are kg NH₃-N volatilised per kg of N in fertilisers applied. Total NO emissions from cultures due to fertiliser volatilisation: values are kg NO-N volatilised per kg of N in fertilisers applied.

FERTILISERS TYPE	EMISSION FACTOR FOR NH ₃	EMISSION FACTOR FOR NO	TOTAL N VOLATILISED [Frac _{GASF}]
Ammonium nitrate (AN)	0.030	0.029	0.059
Anhydrous ammonia (AA)	0.029	0.001	0.03
Diammonium phosphate (DAP)	0.091	0.007	0.098

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

Monoammonium phosphate (MAP)	0.053	0.007	0.06
Ammonium sulphate (AS)	0.095	0.007	0.102
Calcium ammonium nitrate (CAN)	0.016	0.016	0.032
Sodium nitrate	0.002	0.001	0.003
Urea	0.142	0.011	0.153

Blended and compound NP/NK/NPK fertilisers based on the fertiliser listed above shall be modelled as the separate contribution of each fertiliser present in the formulation.

For fertilisers not covered in Table 1, the mix Table 2 in shall be used unless primary data is available.

Table 2. Default assumption for the mix of different fertilisers products not covered in Table 3.

FERTILISER PRODUCT	FERTILISER MIX
Nitrogen solutions	Urea (50%), AN (25%), CAN (25%)
Other N straight	AN (50%), CAN (50%)
AP	MAP (50%), DAP (50%)

Where AN = Ammonium nitrate, CAN = calcium ammonium nitrate, AP = ammonium phosphate, MAP = monoammonium phosphate and DAP = diammonium phosphate.

Direct and indirect emissions of N₂O

If site or region-specific primary data are not available, direct and indirect N₂O emissions shall be estimated using the Tier 2 methodology provided by IPCC (2019) according to the following equations and the emission factors in Table 3:

$$N_2O_{Total} = (N_2O_{Direct} - N + N_2O_{(ATD)} - N + N_2O_{(L)} - N) \times 44/28$$

$$N_2O_{Direct} - N = F_{SN} \times EF_1$$

$$N_2O_{(ATD)} - N = (F_{SN} \times Frac_{GASF}) \times EF_4$$

$$N_2O_{(L)} - N = (F_{SN} \times Frac_{LEACH-(H)}) \times EF_5$$

F_{SN} = annual amount of synthetic fertiliser N applied to soils, kg N yr⁻¹

EF₁ = emission factor for N₂O emissions from N inputs, kg N₂O–N (kg N input)⁻¹⁴

Frac_{GASF} = fraction of synthetic fertiliser N that volatilises as NH₃ and NO_x, kg N volatilised (kg of N applied)⁻¹

EF₄ = emission factor for N₂O emissions from atmospheric deposition of N on soils and water surfaces, [kg N–N₂O (kg NH₃–N + NO_x–N volatilised)⁻¹]⁵

Frac_{LEACH-(H)} = fraction of all N added to/mineralised in managed soils in regions where leaching/runoff occurs that is lost through leaching and runoff, kg N (kg of N additions)⁻¹⁶

EF₅ = emission factor for N₂O emissions from N leaching and runoff, kg N₂O–N (kg N leached and runoff)⁻¹

⁴ Table 11.1 in Chapter 11 of the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories

⁵ Table 11.3 in Chapter 11 of the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories

⁶ Table 11.3 in Chapter 11 of the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

Table 3. Default data for indirect emissions of N₂O in case primary data is not used.

FACTOR	EMISSION FACTOR FOR N ₂ O
EF ₁ for N additions from synthetic fertilisers, organic amendments and crop residues, and N mineralised from mineral soil as a result of loss of soil carbon [kg N ₂ O-N (kg N) ⁻¹]	0.010
EF ₄ [N volatilisation and re-deposition], kg N ₂ O-N (kg NH ₃ -N + NO _x -N volatilised) ⁻¹	0.010
EF ₅ [leaching/runoff], kg N ₂ O-N (kg N leaching/runoff) ⁻¹	0.011
Frac _{GASF} [Volatilisation from synthetic fertiliser], (kg NH ₃ -N + NO _x -N) (kg N applied) ⁻¹	See Tables 1 and 2
Frac _{LEACH-(H)} [N losses by leaching/runoff in wet climates], kg N (kg N additions or deposition by grazing animals) ⁻¹	0.24

Emission of nitrates

If site or region-specific primary data are available, emissions from nitrates leaching and runoff shall be estimated using the emission factors proposed by the IPCC (2019), see Table 4.

Table 4. Default data for indirect emissions of NO₃⁻ in case primary data is not used. Total NO₃⁻ emissions due to leaching and runoff. Values are kg NO₃⁻-N emitted per kg of N in fertilisers applied.

EMISSION FACTOR NO ₃ ⁻ INDIRECT EMISSIONS
per kg of N in fertilisers applied

Emission of phosphorus

When region-specific data are not available, phosphorus emissions to water shall be modelled using a default emission factor of 0.05 kg P per kg of P fertiliser applied (Zampori & Pant 2019). Alternatively, more detailed modelling based on the SALCA-P method (Prahsun 2006) may be used if sufficiently robust and justified agronomic data are available. If the SALCA-P method is used, the detailed method must be fully documented in the LCA report.

4.9.4 CONSEQUENCES FOR RECOVERED MATERIAL/ENERGY BEYOND THE PRODUCT LIFE CYCLE (MODULE D)

This PCR does not allow declaration of module D.

4.10 ENVIRONMENTAL PERFORMANCE INDICATORS

See Section A.8 of the GPI.

4.11 SPECIFIC RULES PER EPD TYPE

4.11.1 MULTIPLE PRODUCTS FROM THE SAME COMPANY

See Section A.9.1 of the GPI.

4.11.2 SECTOR EPD

See Section A.9.2 of the GPI.

4.11.3 EPD OWNED BY A TRADER

See Section A.9.3 of the GPI.

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

4.11.4 EPD OF PRODUCT NOT YET ON THE MARKET

See Section A.9.4 of the GPI.

4.11.5 EPD OF PRODUCT RECENTLY ON THE MARKET

See Section A.9.5 of the GPI.

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

5 CONTENT OF LCA REPORT

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

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

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

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

6 CONTENT AND FORMAT OF EPD

See Section 7 of the GPI.

6.1 EPD LANGUAGES

See Section 7.1 of the GPI.

6.2 UNITS AND QUANTITIES

See Section 7.2 of the GPI.

6.3 USE OF IMAGES IN EPD

See Section 7.3 of the GPI.

6.4 SECTIONS OF THE EPD

See Section 7.4 of the GPI.

6.4.1 COVER PAGE

See Section 7.4.1 of the GPI.

6.4.2 GENERAL INFORMATION

See Section 7.4.2 of the GPI.

6.4.3 INFORMATION ABOUT EPD OWNER

See Section 7.4.3 of the GPI.

6.4.4 PRODUCT INFORMATION

See Section 7.4.4 of the GPI.

Furthermore, the following parameters shall be declared:

- Formulation matrix
- Total Organic Carbon standard TOC %
- Humus acid standard (C HA+FA)
- Humus rate (HR)
- For fertilisers with polymers, all the mandatory parameters considered in the applicable national legislation shall be declared. If a national legislation is not available, Regulation (EU) 2019/1009 of the European Parliament and of the Council of 5 June 2019 shall be used (EU 2019).
- For organo-mineral fertilisers (OMF), all the mandatory parameters considered in the national legislation shall be declared. If a national legislation is not available, Regulation (EU) 2019/1009 of the European Parliament and of the Council of 5 June 2019 shall be used (EU 2019).

Also, the Agronomic Efficiency Index (AEI) and the Uptake Index (UI) shall be declared (see Section 4.2.1).

Any claims made about the product shall be verifiable.

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

6.4.5 CONTENT DECLARATION

See Section 7.4.5 of the GPI.

6.4.6 LCA INFORMATION

See Section 7.4.6 of the GPI.

6.4.7 ENVIRONMENTAL PERFORMANCE

See Section 7.4.7 of the GPI.

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

6.4.8 ADDITIONAL ENVIRONMENTAL INFORMATION

See Section 7.4.8 of the GPI.

6.4.9 ADDITIONAL SOCIAL AND ECONOMIC INFORMATION

See Section 7.4.9 of the GPI.

6.4.10 INFORMATION RELATED TO SECTOR EPDS

See Section 7.4.10 of the GPI.

6.4.11 VERSION HISTORY

See Section 7.4.11 of the GPI.

6.4.12 ABBREVIATIONS

See Section 7.4.12 of the GPI.

6.4.13 REFERENCES

See Section 7.4.13 of the GPI.

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

7 LIST OF ABBREVIATIONS

ANZSIC	Australian and New Zealand Standard Industrial Classification
CPC	Central product classification
CPV	Common procurement vocabulary
EPD	Environmental product declaration
GPI	General Programme Instructions
ISO	International Organization for Standardization
LCA	Life cycle assessment
LCI	Life cycle inventory
NACE/CPA	Classification of products by activity
PCR	Product category rules
REACH	Restriction of chemicals
RSL	Reference service life
SI	The International System of Units
UN	United Nations
UNSPSC	United Nations standard products and services code

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

8 REFERENCES

CEN (2013) EN 15804:2012+A1:2013, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

CEN (2021) EN 15804:2012+A2:2019/AC:2021, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

Coppola E (1994) Effect of different organic matrices on the flow of N, P, K in the soil-plant system. Experimentation on maize crop planted on Vertic Xerofluvent. PhD thesis. University of Naples Federico II.

Cordell D, Drangert J-O, White S (2009). The story of phosphorus: global food security and food for thought. *Global Environmental Change* 19, 292–305.

Cordell D, Rosemarin A, Schröder JJ & Smit AL (2011) Towards global phosphorus security: A systems framework for phosphorus recovery and reuse options. *Chemosphere* 84, 747–758.

Hasler K, Broring S, Omta SWF, Olfs H-W (2015) Life Cycle Assessment (LCA) of different fertiliser product types. *European Journal of Agronomy* 69, 41–51.

EPD International (2025) General Programme Instructions for the International EPD System. Version 5.0.1, dated 2025-02-27. Available on www.environdec.com.

EPD International (2025) PCR 2025:02 Biostimulants. Available on www.environdec.com.

EU (2019) Regulation (EU) 2019/1009 of the European Parliament and of the Council of 5 June 2019 laying down rules on the making available on the market of EU fertilising products and amending Regulations (EC) No 1069/2009 and (EC) No 1107/2009 and repealing Regulation (EC) No 2003/2003 (Text with EEA relevance). Available on <https://eur-lex.europa.eu/eli/reg/2019/1009/oj/eng>, accessed April 2025.

ISO (2000) ISO 14020:2000, Environmental labels and declarations – General principles.

ISO (2004) ISO 8601:2004 Data elements and interchange formats – Information interchange – Representation of dates and times.

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

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

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

ISO (2014) ISO 14046:2014, Environmental management – Water footprint – Principles, requirements and guidelines.

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

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

ISO (2016a) ISO 21067-1:2016, Packaging – Vocabulary – Part 1: General terms.

ISO (2016b) ISO 14021:2016, Environmental labels and declarations - Self-declared environmental claim (Type II environmental labelling).

ISO (2017) ISO 21930:2017, Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services.

ISO (2018a) ISO 14024:2018, Environmental labels and declaration – Type I environmental labelling – Principles and procedures.

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

IPCC (2019) Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Available on: <https://www.ipcc.ch/report/2019-refinement-to-the-2006-ipcc-guidelines-for-national-greenhouse-gas-inventories/>, accessed March 2024.

Nannipiere P, Falchini L, Landi L, Benedetti A, Canali S, et al. (1999) Nitrogen uptake by crops soil distribution and recovery of urea-N in a sorghum whit rotation in different soils under Mediterranean conditions. *Plant and soil* 208, 43-56.

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

Pasotti PP, Pelliconi M, Tisselli V, Tagliavini S (2017) Coltura Protette N° 4 aprile 2017 Melone e pomodoro da industria: efficienza della concimazione con Organo Minerali liquidi Coltura Protette N° 4 aprile 2017, 2-6.

Prahsun V (2006) Erfassung der PO4-Austrage fur die Okobilanzierung SALCA Phosphor. Agroscope Reckenholz – Tanikon ART, 20p.

Quiros R, Villalba G, Gabarrell X, Munoz P (2015) Life Cycle Assessment of organic and mineral fertilisers in a crop sequence of cauliflower and tomato. International Journal of Environmental Science and Technology 12(10), 3299–3316.

Tassan Mazzocco G, Contin M (2000) Organo-mineral fertilisers for corn. Conference proceedings.

Zampori L, Pant R (2019) Suggestions for updating the Product Environmental Footprint (PEF) method. Luxembourg, Publications Office of the European Union. JRC115959 / EUR 29682 EN. DOI: 10.2760/424613.

<https://ec.europa.eu/jrc/en/publication/suggestions-updating-product-environmental-footprint-pef-method>.

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

9 VERSION HISTORY OF PCR

VERSION 1.0, 2010-12-10

Original document replacing the expired PCR 2006:08 Fertilisers.

VERSION 2013-07-23

- Update of UN CPC classification to version 2.0 (UN CPC 3461, 3462, 3463, 3464 & 3465).
- Minor editorial changes.
- Use of the PCR template.

VERSION 2.0, 2016-01-11

- Compliance with to the PCR Basic module UN CPC 34, Basic Chemicals version 2.0 dated 2013-10-24.
- Compliance with to the General Programme Instructions, Version 2.5.
- Use of the latest template.

VERSION 2.1, 2019-01-30

Updated in accordance with GPI 3.0 and new PCR basic module.

VERSION 2.11, 2019-09-06

- Clarified terms of use.
- Editorial changes.

VERSION 3.0, 2020-06-02

- Compliance with to the PCR Basic module UN CPC 34, Basic Chemicals version 3.02.
- Compliance with to the General Programme Instructions, Version 3.01.
- Editorial changes.
- Added some references.

VERSION 3.0.1, 2022-04-06

- Editorial changes in Sections 5.4.5.1 to 5.4.5.3, to clarify the indicator list at www.environdec.com applies also for the indicators of resource use, waste production and other output flows.

VERSION 3.0.2, 2023-09-06

- Editorial changes in Sections 5.4.5.2 and 5.4.5.3 and updated E-mail address of the PCR Moderator in Section 2.1.

VERSION 4.0.0, 2025-04-25

Main changes include:

- Expanded scope of the PCR.

FERTILISERS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 3461, 3462, 3463 & 3465

- Compliance with the General Programme Instructions, Version 5.0.1, including a change in how the product life cycle stage is divided.
- Changes in the rules for modelling the use stage, see Section 4.9.3.
- Changes in the rules on product information to declare, see Section 6.4.4.

© EPD INTERNATIONAL AB 2025

YOUR USE OF THIS MATERIAL IS SUBJECT TO THE GENERAL TERMS OF USE PUBLISHED ON BY EPD INTERNATIONAL AB:S HOMEPAGE ON WWW.ENVIRODEC.COM. IF YOU HAVE NOT REGISTERED AND ACCEPTED EPD INTERNATIONAL AB:S THE GENERAL TERMS OF USE, YOU ARE NOT AUTHORIZED TO EXPLOIT THIS WORK IN ANY MANNER.

COVER IMAGE © ISTOCKPHOTO.COM / HEYDENKAYE