



European Sustainable Phosphorus Platform

www.phosphorusplatform.eu

*European policies and definitions for
“Bio-based” nutrients*

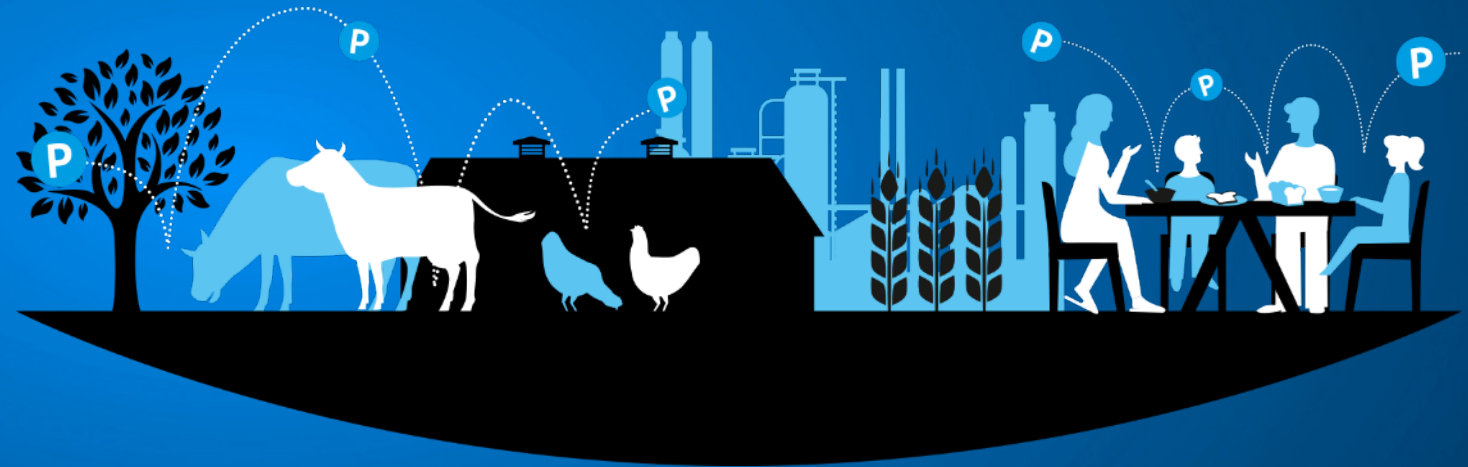
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European Sustainable Phosphorus Platform

What is ESPP ?



European Sustainable Phosphorus Platform (ESPP)





European Sustainable Phosphorus Platform

Legal entity,

→ **transparency**

→ **clear decision making**

→ **representation**

- established 2014
- not-for-profit association
- statutes are [public](#)
- EU Transparency Register no. 260483415852-40

100% membership funded

→ **credibility, independence**

50+ paying members :

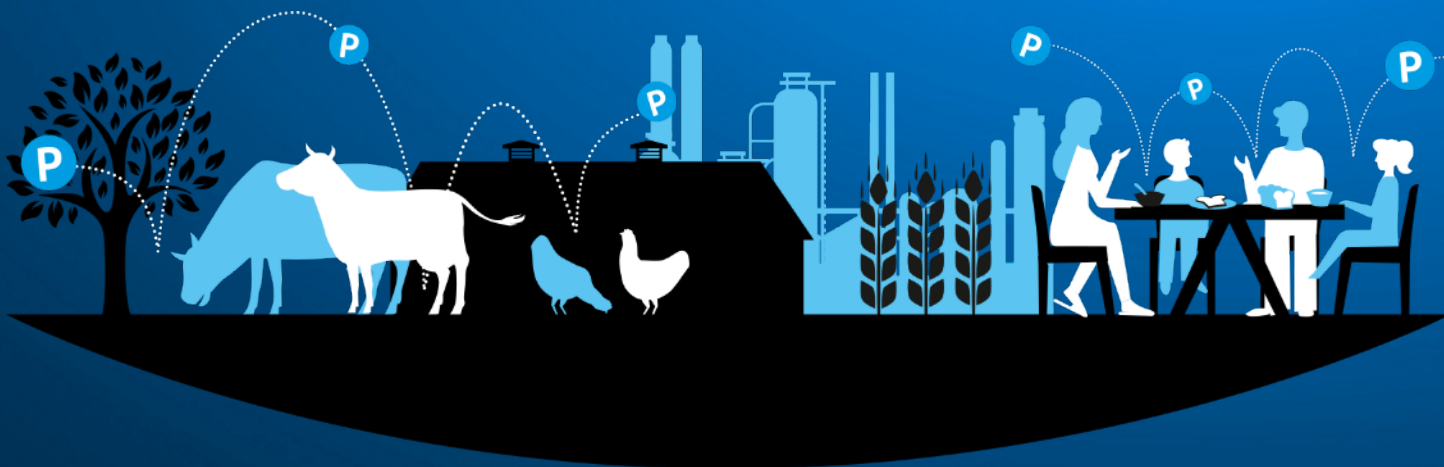
industries, SMEs, R&D institutes & projects,
national platforms, cities & regions

→ **balance between interests and industries**

What they said ...

	Reduction in fertiliser P use is certainly possible, but it will require decades to reduce soil P and, therefore, P losses. <i>Fien Amery, ILVO Flanders</i>
	The 50% nitrogen loss reduction target by the green deal is on average required in the EU to protect air and water quality but it varies strongly with location. <i>Wim de Vries, Wageningen University & Research</i>
	The waste water sector is already removing nutrients and supporting reuse of nutrients. We want to extend this in order to contribute to sustainable nutrient management and the Circular Economy, <i>Sarah Gillman, EurEau</i>
	DG R&I is working on new, systemic approaches to combat nutrient pollution from all sources and bring nitrogen and phosphorus flows back within Planetary Boundaries, <i>Katja Klasing, European Commission DG Research & Innovation</i>
	It is great to see the Colombo Declaration goal embraced by the EU Farm to Fork Strategy. 'Halving Nitrogen Waste' from all sources will help meet multiple SDGs, saving billions of Euro in fresh nitrogen inputs. <i>Mark Sutton, UKCEH & INMS</i>
	In line with the zero pollution ambition of the EU Green Deal, the Commission will propose an integrated nutrient management action plan to address nutrient pollution at source and a better management of N and P throughout their lifecycle. <i>Andrea Vettori, European Commission DG Environment</i>
	European policies, such as the CAP, need to be clearly aligned with the targets of the Farm-to-Fork strategy. Major pollutants, particularly intensive livestock farming, have to be addressed. <i>Jessica Stokker, University of Rostock</i>
	Nature and the health of ecosystems on which all life depends are under threat. One major reason is agricultural pollution. We must take transformative action to address this crisis. <i>James Byrne, Wildlife Trusts Wales</i>
	The workshop provided an excellent overview of the latest policy and science, and showed how the nutrient 'community' must work together to achieve extremely ambitious goals. <i>Rachel Dils, Environment Agency (England)</i>
	We accept the F2F ambition to reduce nutrient losses by 50%. Supporting farmers with innovative solutions is a precondition. Nevertheless, 2030 seems unrealistic for this huge challenge and requires a full impact assessment. <i>Tiffanie Stephani, Fertilizers Europe</i>
	Finnish agriculture has already decreased P use by -70% and N use -30%. MTK considers that Farm-to-Fork targets should not fix the same nutrient reduction percentages for all Member States. <i>Liisa Pietola, Finland farmers and forests organisation</i>
	Nitrogen and phosphorus boundaries are all too often forgotten as a major environmental

EU “Greenwashing” Directive



Directive 2024/825 (March 2024)

(modifying 2005//29/EC)

defines 'environmental claims'



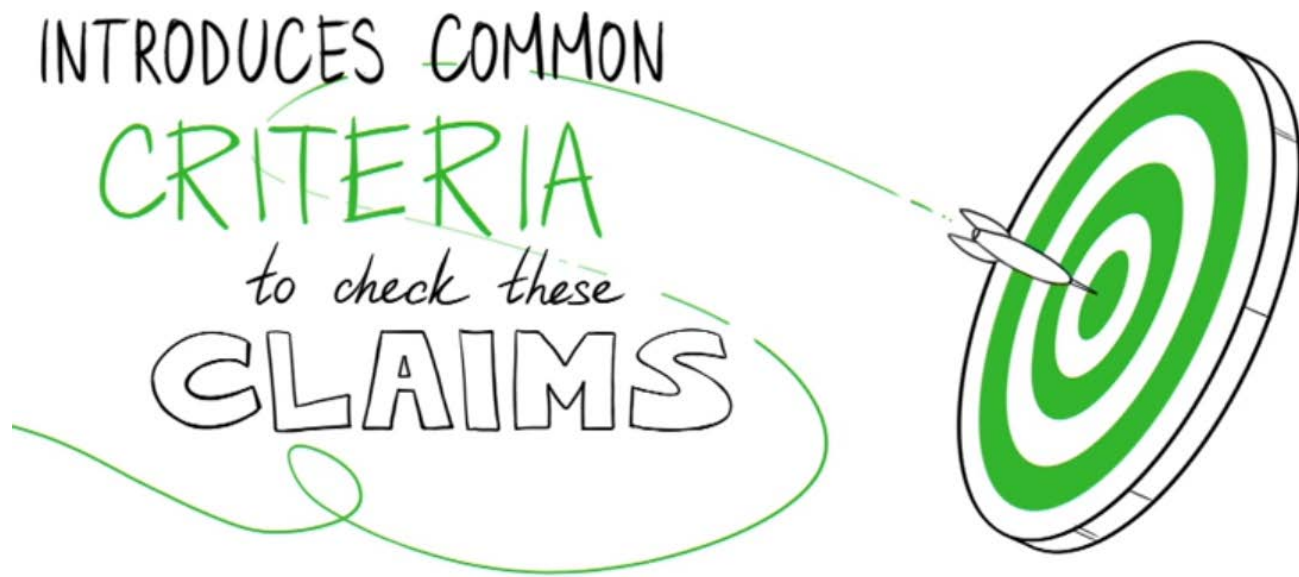
“any message or representation which is not mandatory ... in any form, including text, pictorial, graphic or symbolic representation, ... which states or implies that a product, product category, brand or trader has a positive or zero impact on the environment or is less damaging to the environment ... or has improved its impact over time”

(upcoming) EU “Green Claims” Directive

Parliament first reading position voted 12/3/24

Green claims

- must be substantiated
- transparent data
- verification by Member States
- penalties
(up to 4% of annual turnover, exclusion from procurement)

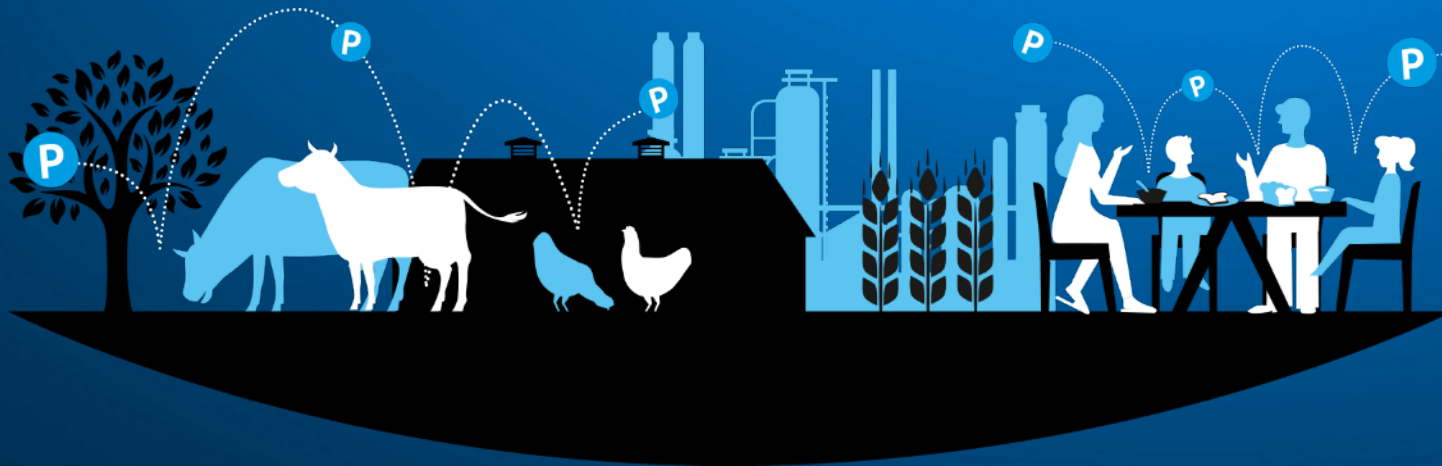




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Definition of “Bio-Based nutrient

See: ESPP stakeholder workshop, January 2024, summary [here](#)

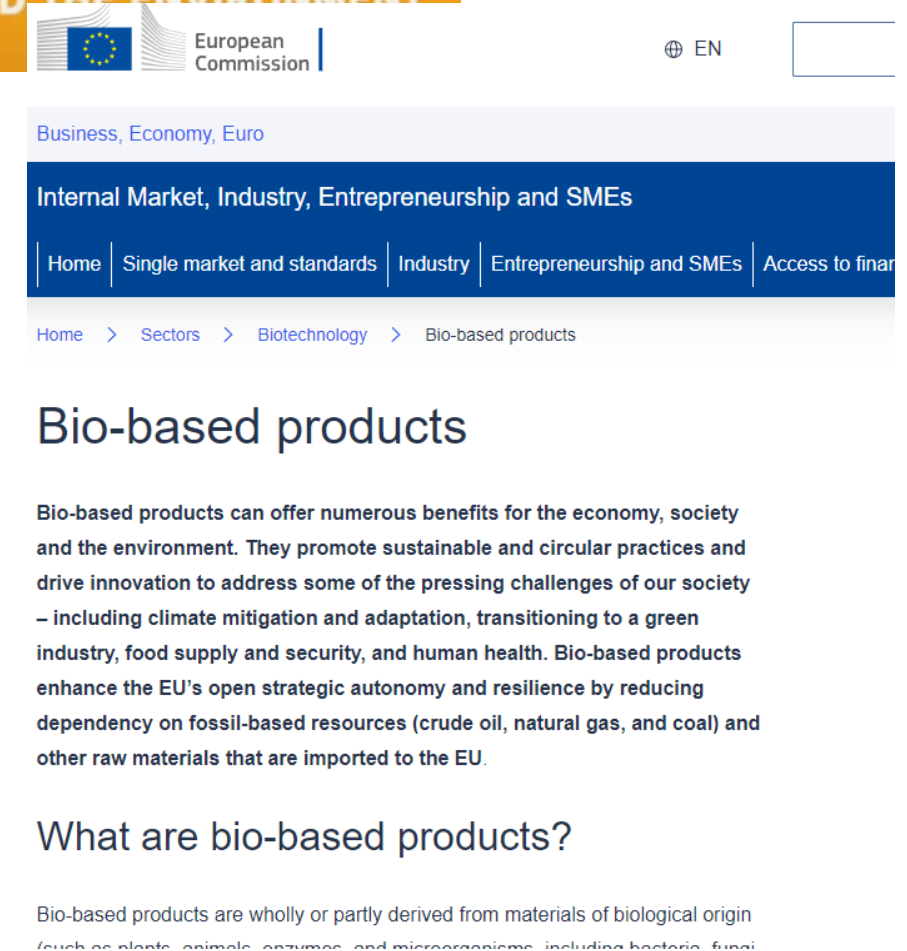


Definition is important

- Market clarity
- Policies

Examples:

- **European Commission Communication**
([COM\(2022\)682](#), 30th November 2022) “EU policy framework on biobased, biodegradable and compostable plastics”.
- **USDA “BioPreferred” programme presentation 2017** [HERE](#) and **USA** [ASTM D6866-22](#).



CEN EN 16575 (August 2014) “Bio-based products: vocabulary”:

- **bio-based product:** *“Wholly or partly derived from biomass. May have undergone physical, chemical or biological treatment”*
- **bio-based content:** *“fraction of a product that is derived from biomass. Normally expressed as a percentage of the total mass of the product”.*
- **Biomass:** *“material of biological origin excluding material embedded in geological formations and/or fossilised”.*

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 16575

August 2014

ICS 01.040.03; 01.040.13; 03.100.50; 13.020.60

English Version

Bio-based products - Vocabulary

Produits biosourcés - Vocabulaire

Biobasierte Produkte - Terminologie

This European Standard was approved by CEN on 21 June 2014.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards are available from the CEN Secretariat.

CEN methodology for quantifying bio-based content CEN/TR 16721:

→ % of bio-based carbon

→ **calculated using the C¹⁴ isotopic ratio** (EN 16640)

(Note USA: similarly ASTM D6866-22 = radiodating)

O, H or N: considered “bio-based” if bound to bio-based carbon.

See also EN 16785-1 (radiocarbon analysis) and EN 16785-2 (material balance)

But ... Isotopic ratios do NOT identify bio-based content of nutrients

EU Fertilising Products Regulation ([FPR](#), 2019/1009) wording:

“organic carbon (C-org) and nutrients of solely biological origin”

- Applies ONLY to Organic Fertilisers, Organo-Mineral Fertilisers. Organic Soil Improvers
- Concerns ONLY the organic moiety

NOT relevant to definition of “Bio-Based” nutrients

ESPP proposals for defining “Bio-Based” nutrients [here](#)

➤ *“fertiliser” already defined in EU FPR (Fertilising Products Regulation)
and in national fertilisers regulations*

➤ *“nutrient” already defined in EU FPR
and in [ISO 8157:2022](#)*

➤ *apply also to nutrient elements
recycled to industrial applications
(e.g. P in plastics additives)*

EU FPR:

(PFC1(C)(I)(a)(ii)) and (PFC1(C)(II))

- **macronutrients** *nitrogen (N), phosphorus (P), potassium (K)*
- **secondary macronutrients:** *calcium (Ca), magnesium (Mg), sodium (Na), sulphur (S)”*
- **Micronutrients:** *boron (B), cobalt (Co), copper (Cu), iron (Fe), manganese (Mn), molybdenum (Mo), zinc (Zn)*

ESPP proposals for defining “Bio-Based” nutrients [here](#)

Based on CEN 16575:

- “derived from biomass ... excluding material embedded in geological formations and/or fossilised ... May have undergone physical, chemical or biological treatment”

This CEN definition:

- allows thermo/chemical processing (e.g. P recovered from incineration ash)
- includes unprocessed materials (e.g. plant parts, raw manure)
- does not take account of chemicals used in processing (LCA see [prEN 18027](#)).

Define “Partly Bio-Based”, “X% Bio-Based”

- calculation method, tolerances, based on CEN [EN 16575](#) (2.4)

Address products containing several nutrients, organic carbon

- of which one or more may be (partly) bio-based

Question: should the objective be a definition of
→ “*Bio-Based*” nutrient
→ or “*Recycled*” nutrient ?

CEN standards for recycled plastics

- CEN/TR 15353 (2007) “Guidelines for the development of standards for recycled plastics”
- CEN EN 15343 (2007) “Plastics recycling traceability and assessment of conformity and recycled content”





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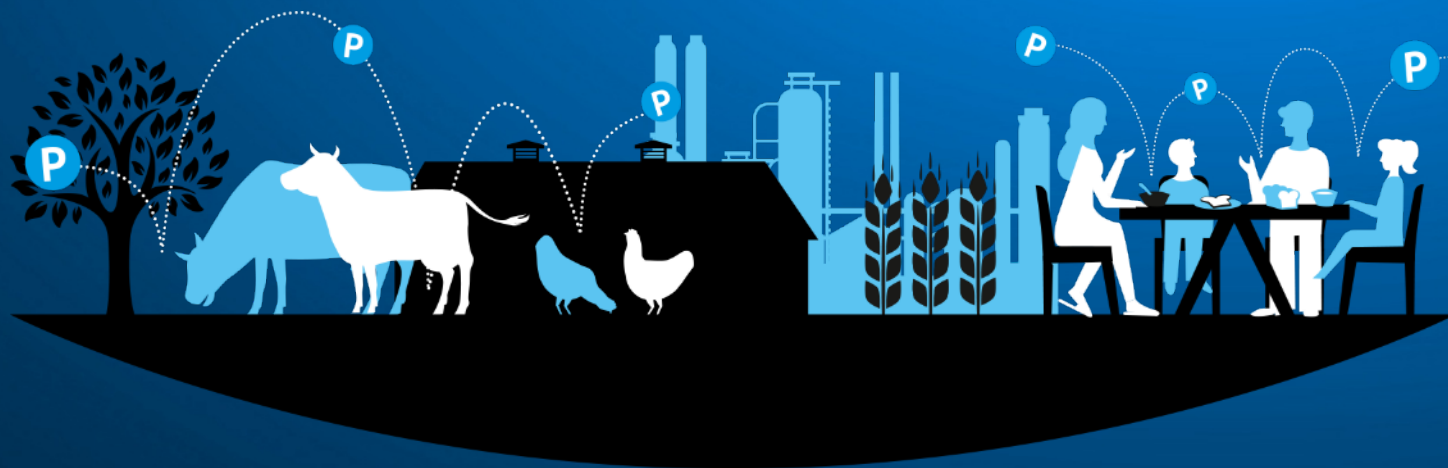
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PRO-FEM

16th May 2024 – n° 16

Policy context – for information



Context

- EU Green Deal COM(2019)640 (page 8)
*“The Commission will **consider legal requirements to boost the market of secondary raw materials with mandatory recycled content** (for instance for packaging, vehicles, construction materials and batteries).”*
<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52019DC0640&qid=1710021423737>
- EU Circular Economy Action Plan COM(2020)98 (ch.3,7 “Food, water and nutrients”)
*“the Commission will develop an Integrated Nutrient Management Plan, with a view to ensuring more sustainable application of nutrients and **stimulating the markets for recovered nutrients**”*
<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1583933814386&uri=COM:2020:98:FIN>
- Revised Urban Waste Water Treatment Directive, preamble (38), [LINK](#):
*“Member States should, while taking into account national and local valorisation options, **take measures to encourage the production and purchasing of recovered nutrients from urban wastewater and sludge.**”*

Revised Urban Waste Water Treatment Directive

(Final validated text <https://data.consilium.europa.eu/doc/document/ST-7108-2024-INIT/en/pdf>)



Article 20 - Sludge and resource recovery

1. Member States shall encourage the recovery of valuable resources and take the necessary measures to ensure that sludge management routes are conform to the waste hierarchy provided for in Article 4 of Directive 2008/98/EC. Such routes shall: (a) maximize prevention; (b) prepare for reuse, recycling and other recovery of resources, in particular phosphorous and nitrogen, taking into national or local valorisation options; (c) minimize the adverse effects on the environment and human health.
2. The Commission is empowered to adopt delegated acts ... specifying a **combined minimum reuse and recycling rate for phosphorus from sludge and from urban wastewater not reused** ..., taking into account available technologies, resources and the economic viability for phosphorus recovery ... phosphorus contents of the sludge and the level of saturation of the national market with organic phosphorus from other sources while ensuring that there is safe sludge management and no adverse impact on human health and the environment.
The Commission shall adopt those delegated acts by [**3 years after entry into force** ...].

EU Critical Raw Materials Act 2024, art. 26.1:

CRM Act, finalised text pending formal ratification and publication:

https://www.europarl.europa.eu/doceo/document/TC1-COD-2023-0079_EN.pdf

National programmes for circularity of CRMs, including

- incentivising resource and materials efficiency:
- “collection, sorting and processing of waste with high critical raw materials recovery potential ...”
- “increase the use of secondary critical raw materials including through measures such as taking recycled content into account in award criteria related to public procurement or financial incentives for the use of secondary critical raw materials”
- “increase the technological maturity of recycling technologies”
- “support the use of Union quality standards for recycling processes of waste streams containing critical raw materials”
- workforce upskilling

EU "Taxonomy"

EU criteria for 'Sustainable Finance' Published Delegated Act 2023/2486 includes P recovery from municipal wastewater

2. Water supply, sewerage, waste management and remediation activities

2.1. Phosphorus recovery from waste water

Description of the activity

Construction, upgrade, operation and renewal of facilities for recovery of phosphorus from urban waste water treatment plants (WWTP) (aqueous phase and sludge) and from materials (i.e. ashes) after thermal oxidation (i.e. incineration) of sewage sludge.

The economic activity only includes the facilities and processes that make phosphorus recovery possible, not the previous steps, such as waste water treatment or incineration facilities.

The economic activities in this category could be associated with several NACE codes, in particular E37.00, E38.32 and F42.99 in accordance with the statistical classification of economic activities established by Regulation (EC) No 1893/2006.

Technical screening criteria

Substantial contribution to the transition to a circular economy

1. For the process integrated at the waste water treatment plant, covering typically phosphorus salts such as struvite–magnesium ammonium phosphate ($\text{NH}_4\text{MgPO}_4 \cdot 6\text{H}_2\text{O}$), the phosphorus recovery process recovers at least 15 % of the incoming phosphorus load. Only the harvested material, such as struvite, is counted for the calculation of this threshold.
2. For down-stream recovery after sewage sludge thermal oxidation with chemical phosphorus recovery or after sewage sludge thermal oxidation with thermo chemical phosphorus recovery, the process recovers at least 80 % of the incoming phosphorus load from the respective input material, such as sewage sludge ash.
3. The phosphorus extracted out of the system is used either as a component material in a fertilising product compliant with Regulation (EU) 2019/1009 of the European Parliament and of the Council ⁽⁴⁰⁾ or national fertiliser legislation where it is more stringent, or in another field of application where the recovered phosphorus fulfils specified functions in accordance with the respective regulations.

EU Fertilising Products Regulation 2019/1009

Already a significant number of amendments adopted: refer to consolidated version

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02019R1009-20220716>

Opens European market for recycled fertilisers ... and for nutrient recycling technologies

Precedent: first EU Product Legislation to confer EU “ End-of-Waste” status

Today includes: CMC3 composts, CMC5 digestates, CMC12 precipitated phosphates, CMC13 ash-derived products, CMC14 biochars / hydrochars, CMC15 ammonium salts from offgas stripping ...

“Optional Harmonisation”: national Fertiliser Regulations remain applicable, but ...

- tendency for Member States to align ?***
- in some cases, required for recycled nutrient products in Organic Farming***
- recycled nutrient materials can also be applied as manure / waste***



Recycled nutrients in EU “Organic Farming”

EU Implementing Regulation on Organic Farming [2021/1165](#) Annex II

In some cases with use specification, contaminant limitations or specified “sustainable origin”

- Materials from **plants or algae** *“only for Organic” or sustainably collected*
- **Manure** inc. dried, composted, digestate *“Factory farming origin forbidden”*
- Compost or digestate of separately collected **biowaste**, of **vegetable materials**
- Certain **animal-by-products**: fish meal, meat & bone meal, hydrolysed proteins, dairy, wool, feathers, ...
- **Wood by-products and ashes**
- **Shellfish wastes**
- **Egg shells** *“Factory farming origin forbidden”*
- **Biochar** from plant materials
- **Struvite and precipitated phosphate salts** (EU FPR CMC12 definition)
- **Negative EGTOP Opinions : Animal Bone Char** June 2022 [here](#) (certain) ammonia stripping N-salts

*Precedent for nutrients
recovered from sewage*

Published [17/1/2023](#)

See also : ESPP proposals [here](#) - FIBL paper [here](#)

EU Nitrates Directive consultation



Have your say

EU public consultation:

to allow* certain nutrient products recovered from manure:

- THREE specific products only:

ammonia scrubbing salts, struvite, “mineral concentrates” (from reverse osmosis)

- ESPP proposals: require FPR quality = CMC15 / CMC12 / “Mineral Fertiliser”

- Commission proposal specifies:

application should not increase nitrate losses, increase livestock numbers

Open to 17th May 2024

**** ‘allow’ meaning exempt from 170 kgN/ha spreading limit for manure “even in a processed form” in Nitrates Vulnerable Zones***

