FiBL

Fertilisers, soil conditioners and further products used in crop production

Evaluation criteria for the Dutch Input List

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1. Introduction

This document describes the criteria that need to be fulfilled in order for fertilisers, soil conditioners and further products used in crop production[1] to be included in the Dutch Input List. This document will be updated whenever necessary. The most recent version which is available on the website https://netherlands.inputs.eu/ is the only valid version.

The Dutch Input List

The Dutch Input List is a public list of 'inputs' that may be legally used by certified organic farmers in the Netherlands. For the time being, the scope of 'inputs' is limited to fertilisers and soil improvers, plant protection products and related products and feeding products. Expansions of the scope might be possible in the future. The first issue of the Dutch Input List was published in 2016.

Dutch organic farmers may use products from the Dutch Input List. If they use a product not listed there, they have to prove during inspection that the use of the product is allowed, otherwise it will be treated by Skal as a non-conformity. For proving the compliance of non-listed inputs, farmers can use this document as a guideline.

About the project partners, contact information

The Dutch Input List is produced in collaboration by Skal and FiBL. Skal is an accredited control authority of organic operators in the Netherlands, while FiBL is a private research institute based in Switzerland.

For further details and contact information, see the document «Application guidance».

2. General provisions

Administrative and formal pre-conditions

The administrative and formal aspects of registration are described in the document «Application guidance». Please pay special attention to the following points:

- Only products which comply with the relevant EU and Dutch legislation will be included. For details, see the product application forms. The Dutch Input List reserves the right to reject products, if it suspects that they do not comply with legislation. For example, this applies to products which are not registered as plant protection products, but which are sold with claims of a plant protection effect.
- Only products which are on the market in The Netherlands can be included.

[1] In this document, the term 'further products used in crop production' refers to further non-plant protection products used in crop production which cannot be categorized as fertilisers, plant protection products or another legally defined category

- Companies must register for the Dutch Input List prior to submitting products for evaluation.
- Requests must be complete. All questions in the application form must be addressed, and all required supporting documents (e.g. registration documents, product labels) must also be submitted. The application forms provide guidance regarding the documents required.

Disclosure of composition

Disclosure of the full composition and manufacturing process of the product is a pre-requisite for the evaluation in all cases. The following minimum requirements apply:

- The production process has to be described.
- All components which are used during the production process have to be declared.
- All components have to be described with English names. If possible, use standard chemical nomenclature. Where available, give also CAS numbers.
- For each component, the quantity must be given (in %, g/kg or other suitable units).
- Where known, indicate the technical function of each component.

Scope of fertilisers, soil conditioners and further products for crop production

Annex II of Reg. (EU) 2021/1165 covers 'fertilisers, soil conditioners and nutrients'. Additionally, the Dutch Input List covers a broader scope of products and includes also products such as potting soils, biodegradable mulching materials and seed treatments.

Please refer to the Annex for the detailed scope of fertilizers, soil conditioners and further products for crop production in the Dutch Input List.

Compliance with general legislation

The Dutch Input List includes only products that comply with the relevant EU and Dutch legislation. Compliance with general legislation is primarily in the responsibility of the applicant companies. However, if FiBL suspects that a product does not comply with the relevant legislation, it may postpone inclusion into the list until the applicant has demonstrated legal compliance.

Compliance with the objectives and principles of organic farming

FiBL and Skal reserve the right to reject products/uses which they consider to be non-compliant with the objectives and principles of organic farming, as set out in Reg. (EU) 2018/848.

3. Prohibition of GMOs

The EU organic legislation prohibits the use of GMO food, feed, processing aids, plant protection products, fertilisers, soil conditioners, seeds, vegetative propagating material, micro-organisms or animals in organic production. Any unavoidable presence of GMOs must not exceed 0.9 %.

Implementation in the Dutch Input List

- For all materials, which are known to exist as GMOs, the applicant must provide a declaration of the absence of GMOs, using the dedicated non-GMO declaration template on the website of the Dutch Input List.
- Upon necessity, FiBL may request companies to effect analyses and/or provide existing analysis reports to verify this point and/or provide samples for analysis.

A non-GMO declaration is required for all materials, including processing aids, which are considered as 'risk materials', such as:

- Antioxidants, e.g. ascorbic acid, citric acid, calcium citrate, vitamin E/tocopherol
- Corn and and products derived from it (e.g. oils, hydrolysates, flours, meal, press cake/expeller, maltodextrin)
- Cotton and products derived from it (e.g. seed oils, fibers, cellulose products)
- Enzymes
- Fermentation products in general
- Microorganisms and products thereof
- Potatoes and products derived from it (e.g. starch, potato juice concentrate)
- Rapeseed and products derived from it (e.g. oils, hydrolysates, flours, meals, press cake/expeller)
- Rice and products derived from it (e.g. oils, hydrolysates, flours, maltodextrin)
- Sugar beet and products derived from it (e.g. molasses, vinasses, sugar beet pulp)
- Sugar cane and products derived from it (e.g. molasses, vinasses, fibers)
- Soja and products derived from it (e.g. oils, hydrolysates, flours, meals, press cake/expeller, maltodextrin)
- Vitamins
- Wheat and products derived from it (e.g. oils, hydrolysates, flours, meals, press cake/expeller)

4. Requirements for different product types

4.1 Requirements for fertilisers, soil conditioners and nutrients

Background

Fertilisers and soil conditioners are explicitly mentioned and regulated in the organic legislations Reg. (EU) 2021/1165 and Reg. (EU) 2018/848. Where relevant, the Dutch Fertilisers Act[2] (*Meststoffenwet*, in Dutch) is applicable.

Requirements

Fertilisers and soil conditioners may only contain

- materials listed in Annex II of Reg. (EU) 2021/1165,
- co-formulants (see section 5.8).

Materials used in fertilizers and soil conditioners may not be contaminated with non-authorized substances during the processing. The applicant might be asked to

- explain the production process including all substances used in sufficient detail,
- demonstrate the absence of contaminants with chemical analyses. If the absence of contaminations cannot be established beyond doubt, the evaluation team may reject the product.

4.2 Further products used in crop production

Background

For 'further products used in crop production' (products used in crop production, other than fertilisers / soil conditioners and other than plant protection products), the organic legislation gives no detailed guidance. Since further products used in crop production are not mentioned in Reg. (EU) 2021/1165, the evaluation criteria follow the objectives and principles of the organic production rules based on Article 4 and 5 of Reg. (EU) 2018/848. In all cases, the raw materials may not be derived from GMOs

4.2.1 Substrates and potting soils

Substrates and potting soils may only contain materials listed in Annex II of Reg. (EU) 2021/1165 in particular

- Materials of plant origin such as compost, peat, wood fibre, coconut fibre, cocoa shells, bark.

[2] See https://wetten.overheid.nl/BWBR0004054/2025-01-01

- Inert mineral components such as clay, sand, pumice, lava, perlite, vermiculite, expanded clay and soil.
- Fertilisers complying with the present evaluation criteria.

Requirements for plant-based fibres and wooden products

Plant-based fibres (e.g. coconut fibre) and wooden materials (incl. bark) are only allowed, if they have not been treated with synthetic substances such as nitrogen compounds (e.g. calcium nitrate).

4.2.2 Products which influence crop growth or performance

Background

Products claiming to influence crop growth or performance have traditionally been used in organic production and are widely used today. They are referred to by different names, such as 'plant additives/aids', 'biostimulants' and 'plant strengtheners'. In the Netherlands there is no specific Dutch legislation for such products. In line with the new Fertilising Products Regulation (EU) 2019/1009, the evaluation team treat such products as a subcategory of fertilisers, therefore, Annex II of Reg. (EU) 2021/1165 applies.

Requirements

- The main ingredient(s) must be listed in Annex II of Reg. (EU) 2021/1165.
- Materials authorized in other Annexes of the organic legislation are only acceptable, if they do not have an effect as plant protection product.
- Co-formulants: see separate section 5.8 for co-formulants.

4.2.3 Manure additives

Background

Manure is listed in the Annex II of Reg. (EU) 2021/1165. However, the organic legislations Reg. (EU) 2018/848 and Reg. (EU) 2021/1165 give no detailed guidance regarding the use of additives in manure.

Requirements

- Materials listed in Annex II of Reg. (EU) 2021/1165 may be used as manure additives.

4.2.4 Biodegradable products (mulching sheets/films)

Background

Mulching sheets are regularly used in practice, especially in vegetable production. They serve several purposes such as weed suppression, water conservation, regulation of soil temperature and keeping the harvest clean. Depending on the crop and situation, it may be preferable to use non-biodegradable or biodegradable mulching sheets/films. Since biodegradable mulching sheets/films are not mentioned in Reg. (EU) 2021/1165, the evaluation criteria follow the objectives and principles of the organic production rules based on Article 4 and 5 of Reg. (EU) 2018/848. Although these criteria were developed for mulching sheets/films, they may also be applied to other types of biodegradable products, e.g. biodegradable pots.

In the opinion of the evaluation team, such products should ideally be made entirely from bio-based materials. However, we recognize that to date this is not yet technically feasible.

Requirements for mulching sheets/films

- Biodegradability must be demonstrated with certificates based on a suitable test method (e.g. EN 17033; other certificates will be evaluated case by case). Results may be submitted either for the final product, or for all components.

4.2.5 Seed treatments

Background

Seed treatments that contain plant protection or biocidal products are subjected to the criteria of products for crop health (see document "Products for crop health - Evaluation criteria for the Dutch Input List"). The evaluation team considers seed treatments that do not contain plant protection or biocidal products to be a subcategory of fertilisers. Seed treatments that do not contain plant protection or biocidal products can serve a wide range of technological functions, such as seed grading, priming, pilling, coating, etc.

Requirements

- Components with an effect as fertiliser/nutrient must comply with the criteria for fertilisers.
- Micro-organisms are allowed, provided that they are not GMOs.
- The need for co-formulants in seed treatments is generally recognised. Preferably, they should be listed in Annex II of EU Reg. 2021/1165. Other components are evaluated according to the criteria established for co-formulants in section 5.8.

Further requirements for auxiliaries used in seed operations / processing

- The need for auxiliaries in seed treatments is generally recognised.
- Preferably, they should be listed in Annex II of EU Reg. 2021/1165.
- Other natural materials are also acceptable.
- Synthetic components may be accepted under the following conditions:
  (i) the applicant can demonstrate that they are necessary to achieve the desired function, there are no natural alternatives, and that they are used in the lowest possible amounts.
  (ii) They comply with the principles for the evaluation of co-formulants (section 5.8).
  (iii) according to the wishes of the Dutch organic seed sector, the use of synthetic solvents such as hexane and chloroform for seed grading is not allowed.
- They are removed from the seeds after the operation, and leave no residues

Further requirements for auxiliaries used in seed priming

- Soluble nitrogen used as signalling compounds during the priming process are allowed.
- Synthetic substances acting as plant hormones are not allowed (with the exception of ethylene).

5. Requirements concerning individual components

The Annex II of Reg. (EU) 2021/1165 contains a list of 'fertilisers, soil conditioners and nutrients' which are allowed for use in organic farming. This chapter describes the requirements which are applied to each component of a product. Requirements are described separately for different materials.

5.1 Products and by-products of animal origin

5.1.1 Animal excrements

Background

Manure and slurry, unprocessed or processed, are out of scope of the Dutch Input List and cannot be listed.

Requirements

- Manure or slurry (processed or unprocessed) may not be present as a component in commercial fertilisers and soil conditioners.

5.1.2 By-products of animal origin

Background

The Annex II of Reg. (EU) 2021/1165 contains a list of permitted animal by-products.

Requirements

- Products must meet the requirements of Reg. (EC) 1069/2009 and Reg. (EU) 142/2011.

5.1.3 Hydrolysed proteins obtained from animal origin

Background

The expert group EGTOP[3] has proposed to exclude products produced using nitric acid, phosphoric acid and ammonia. Although this requirement has not yet been incorporated into the EU organic legislation, the evaluation team has already taken this requirement into account as it directly reflects the principles of organic production.

Requirements

- Hydrolysed proteins from animal origins are not produced by using nitric or phosphoric acid or ammonia.

5.1.4 Nitrogen fertilisers produced by air scrubbers

Background

Various organic materials such as manure or sewage sludge emit ammonia. The ammonia can be captured with air scrubbers and transformed into highly soluble nitrogen fertilisers (also called nitrogen stripping). The expert group EGTOP has recommended not to authorize such materials for organic production[4].

Requirements

- Highly soluble nitrogen fertilisers produced by air scrubbing / nitrogen stripping will not be included in the Dutch Input List.

[3] EGTOP (Expert Group for technical Advice on Organic Production): Report on Fertilisers (VIII), chapter 3.1.2.
[4] EGTOP (Expert Group for technical Advice on Organic Production): Report on Fertilisers (III), chapter 3.5.1.

5.1.5 Guano

Background

'Guano' in the true sense of the word is accumulated excrement of seabirds, seals, or cave-dwelling bats. This material is allowed. However, non-permitted materials such as Chilean nitrate are sometimes also traded under the denomination 'guano'.

Requirements

- To avoid misinterpretations and erroneous authorization, components declared as 'guano' will be subject to more in-depth investigations regarding their true nature.

5.2 Products and by-products of plant origin

Background

Annex II of Reg. (EU) 2021/1165 allows 'products and by-products of plant origin for fertilisers' and gives the following examples: 'oilseed cake meal, cocoa husks, malt culms'. The expert group EGTOP [5] recognise the need of processing methods for materials from Annex II of Reg. (EU) 2021/1165 to be used as fertilizers. There are also plant-based fertilisers on the market which undergo a complex series of processing steps (e.g. hydrolysation, fermentation, extraction) or are by-products in food production. The evaluation team reserves the right to review the production processes of such products to determine their eligibility as 'products and by-products of plant origin.'

Requirements

- By-products of plant materials derived by physical processing are allowed. The basic requirements in section 4.1 for fertilizers, soil conditioners and nutrients must be complied with.
- Any substances used to separate, isolate or extract plant materials, have been removed from the final product such that they have no technical or functional effect and present no risk of contamination of the environment. The use of such substances should be only authorised after case-by-case evaluation.
- Aqueous and ethanolic extracts are generally allowed.
- Wood ash is allowed, if the applicant can demonstrate with analyses that the final product complies with the requirements of the Dutch fertiliser legislation concerning the maximum content of heavy metals and of PACs.

[5] EGTOP (Expert Group for technical Advice on Organic Production): Report on Fertilisers (II), chapter 4.8.

5.2.1 Fermentation products

Background

Products and by-products of plant origin can be transformed into fertilisers through a range of microbial fermentation technologies. Not all types of fermentation products are explicitly mentioned in Annex II of Reg. 2021/1165, but the evaluation team considers that they are covered by the entry 'Products and by-products of plant origin'.

The expert group EGTOP[6] has proposed to limit ammonium content in fermented plant materials. Although this requirement has not yet been incorporated into the EU organic legislation, the evaluation team has already taken it into account since it reflects the principles of organic production.

Requirements

- The nitrogen content in fermentation products must originate from the plant materials themselves and not from synthetic nitrogen added during the fermentation process.
- Fermented products such as vinasse are allowed, up to a maximum level of 5 % nitrogen. For products with a nitrogen content >5 %, a decision will be taken case by case, based on the process.
- In all cases, the manufacturer must declare whether any synthetic nitrogen compounds are added as 'starters' for fermentation, and in what amounts.

5.2.2 Compost, digestate

Background

Compost and digestates are out of scope of the Dutch Input List and cannot be listed. 2021/1165

Requirements

- Compost may only be present as a component in commercial fertilisers and soil conditioners (e.g. potting soil and substrates).
- Digestates are not acceptable as a component in commercial fertilisers and soil conditioners.

[6] EGTOP (Expert Group for technical Advice on Organic Production): Report on Fertilisers (VIII), chapter 3.1.1.

5.2.3 Products made from peat

Background

The use of peat in organic production is restricted to horticulture. Therefore, the Dutch Input List allows peat only in potting soils, and as a co-formulant (carrier material). The use of peat products for other purposes is not allowed.

Requirement

- With the exception of use in potting soil, products made from peat (e.g. peat extracts) are not allowed.

5.2.4 Other single nutrients isolated from plant materials

Single nutrients, obtained by chemical processes or ion exchange technology are not in line with the objectives and principles of organic production and are not allowed.

5.3 Microorganisms

Background

According to Annex II of Reg. (EU) 2021/1165 microorganisms may be used to improve the overall condition of the soil or to improve the availability of nutrients in the soil or in the crops. Microorganisms complying with Article 2 of Reg. (EU) 2021/1165 are therefore allowed for usage in organic farming.

Requirements concerning microorganisms

- The microorganisms must not be GMOs. A declaration of absence of GMOs is required for each microbial strain.
- The identity (species and strain) of the microorganism must be given.
- Strains which are known to have a pesticidal function are not allowed in fertilisers (see EU pesticides database).
- Yeast extracts (from non-GM yeast) are allowed as fertilisers

Requirements concerning growing media for microorganisms

- The manufacturer must specify all ingredients which are used for the growing media (if possible, use standard chemical nomenclature).
- The manufacturer must declare whether remains of the growing media used to grow the microorganisms, or microbial products (e.g. antibiotics) can be found in the final product, and approximately how much. If remains of the growing media are present in significant amounts, their acceptability is determined case by case.

The acceptability of microbial products is determined case by case; the presence of antibiotics in the final product is not allowed.

- For the growing media for microorganisms, there are no requirements regarding the GM status. However, if remains of the growing media can be found in the final product, no DNA of GMOs must be detectable. The evaluation teams may request analytical or other evidence to verify this point.

5.4 Inorganic plant nutrients

Annex II of Reg. (EU) 2021/1165 contains a list of materials which may be used as sources of phosphorus, potassium, calcium, magnesium and sulphur.

5.4.1 Liming materials (magnesium and calcium carbonate) and Kieserite (magnesium sulphate)

Background

Liming materials, as well as kieserite of natural origin are allowed. Liming materials include mollusc and eggshells.

Requirements

- The production process must be documented with a flow chart. All kind of treatments (including calcination) must be declared.
- These raw materials may not be processed with acids or other synthetic substances. Processes that change the chemical composition are excluded (e.g. calcination / conversion of calcium carbonate to calcium hydroxide). Note that burnt lime (calcium oxide) and slaked lime (calcium hydroxide) are not allowed.
- Persistent flocculants are not allowed (e.g. polyacrylamide).

5.4.2 Inorganic nitrogen

Mineral nitrogen fertilisers are not permitted according to Article 5(g)(iii) and Annex II Part I, 1.9.8. of Reg. (EU) 2018/848. This includes synthetic compounds such as ammonia, nitrate and urea, but also natural sources such as 'Chilean nitrate' (also known as 'Chile salpeter', 'Peru salpeter', 'Caliche').

5.4.3 Stone meal, sand of natural origin, clays and clay minerals (e.g. perlite, sand, vermiculite)

Annex II of Reg. (EU) 2021/1165 allows stone meal, clays and clay minerals. These substances may undergo mining, milling and heat-treatments. Processing/extraction with acids or other chemical substances is not allowed. Pyrogenic silica and other synthetic forms of silicium are not allowed. For specific materials known to be on the

market also in synthetic form (e.g. apatite), applicants have to confirm that the materials are of natural origin.

5.4.4 Selenium salts

Based on Annex II of Reg. (EU) 2021/1165 selenium salts are allowed. They may only be used in case of deficiency in fields used for grazing or for the production of feed crops.

5.5 Inorganic micronutrients

Background

With respect to inorganic micronutrient fertilisers, the EU organic legislation Reg. (EU) 2021/1165 refers to the EU fertilizer legislation Reg. (EU) 2019/1009 regarding relevant limits of contaminants. Concerning complexing and chelating agents, the Dutch Input List differentiates on biodegradability. Preference is given to easily biodegradable complexing and chelating agents. Slowly biodegradable chelating agents may only be used in combination with micronutrients if the necessity under Dutch conditions is demonstrated by the applicant.

Requirements

- All inorganic micronutrients listed in the EU fertilizer legislation Reg. (EU) 2019/1009 are allowed.
- Consistent with Article 5(g)(iii) and Annex II Part I, 1.9.8 of Reg. 2018/848, mineral nitrogen salts (e.g. nitrate, ammonia) of micronutrients are not allowed.
- Natural materials may be used as complexing agents.
- Complexing agents (heptagluconic acid, citric acid, lignosulfonic acid, lignosulfonate, humic and fulvic acid) and easily biodegradable chelating agents (IDHA and EDDS) are allowed for all micronutrients.
- Slowly biodegradable chelating agents (EDTA, HEEDTA, DTPA, EDDHA, EDDHMA, EDDCHA, EDDHSA and HBED) are allowed in combination with iron.
- The use of slowly biodegradable chelating agents in combination with other micronutrients may only be allowed if the necessity under Dutch conditions is demonstrated by the applicant

5.6 Materials of aquatic origin

Background

For various materials of marine origin, Annex II of Reg. (EU) 2021/1165 restricts their origins to organic production or sustainable sources.

Requirements

- For algae, algae products, mollusc waste and chitin (polysaccharide obtained from the shell of crustaceans) a declaration on origin is required. Please use the dedicated form[7] available on the website of the Dutch Input List.

Additional requirements for seaweed products

Seaweed products may be obtained by:

- Physical processes including dehydration, freezing and grinding,
- Fermentation.
- Extraction with water or aqueous acid and/or alkaline solutions. Clarification: Aqueous acid and/or alkaline solutions which increase the concentration of nutrients in the final product are prohibited. This means that nitric and phosphoric acids are not allowed according to Annex II Part I, 1.9.8 and Article 5(g)(iii) of Reg. 2018/848, because they act as easily soluble mineral fertilisers. Extraction with potassium compounds (e.g. potassium hydroxide, KOH) is allowed, but the evaluation team may reject products which contain excessive amounts of potassium deriving from the extraction agents. In particular, such products may not be marketed as potassium fertilisers. Manufacturers may be asked to provide the necessary data for this point to be verified.

5.7 Other materials

5.7.1 Humic and fulvic acids

Background

Humic and fulvic acids are mentioned in Annex II of Reg. 2021/1165. The expert group EGTOP[8] has recommended authorizing humic and fulvic acids for organic production, with certain restrictions.

Humic and fulvic acids are often manufactured by treatment with potassium hydroxide. Because this is a synthetic form of potassium, the levels should be kept low.

Requirements

- Humic and fulvic acids obtained from the purification of drinking water are allowed, while humic and fulvic acids obtained from the purification of *wastewater* are *not allowed*.

[7] Declaration of conformity with the sustainability requirements for materials sourced from aquatic environment

[8] EGTOP Report on Fertilisers (III), chapter 3.3

- Humic and fulvic acids obtained from leonardite and other natural humic rich substances mentioned in Annex II of Reg. (EU) 2021/1165 are allowed. The use of virgin peat is limited to horticulture, meaning it is *not permitted* as a source to obtain humic and fulvic acids.
- Humic and fulvic acids obtained from processed organic precursors may be allowed only in the absence of contaminants (heavy metals and pathogens) and if desirable from the point of view of resource efficiency.
- They may be obtained with thermal or physical processes, as well as by inorganic salts/solutions. Extraction agents with nitrogen compounds (e.g. ammonia, nitrate, urea) are not allowed.
- Extraction with potassium compounds (e.g. potassium hydroxide, KOH; potassium chloride, KCl) is allowed. However, the evaluation team may reject products which contain excessive amounts of potassium deriving from the extraction agents. In particular, such products may not be marketed as potassium fertilisers. Manufacturers may be asked to provide the necessary data for this point to be verified.

5.7.2 Biochar

Background

Biochar is mentioned in Annex II of Reg. 2021/1165, with restrictions on raw materials used for manufacture and on contaminants present in the final product. In the Netherlands, biochar must comply with the European Fertilizer Product Regulation (EU) 2019/1009.

Requirements

- Raw materials for the production of biochar are limited to
  - organic materials of plant origin,
  - plant materials, when treated after harvest only with products included in Annex I of Reg. (EU) 2021/1165.
- The product must be obtained using pyrolysis.
- Relevant limits for contaminants and input materials for pyrolysis set in regulation (EU) 2019/1009 have to be complied with.
- Applicants must submit an analysis of PAHs in the final product. The analysis may not be older than 12 months at the time of submission. The level of PAH_{16} may not exceed 6 mg/kg dry matter. The analysis must be done according to the methods specified by the European Biochar Certificate (extraction with toluene).

5.7.3 Synthetic nanoparticles

Background

Article 7 (e) of Reg. (EU) 2018/848 excludes food containing, or consisting of engineered nanomaterials, but makes no such requirement for inputs. Consistent with the policy of EGTOP[9], the Dutch Input List considers that nanoparticles are not implicitly prohibited but would require a separate listing in order to be authorized.

Requirements

- Synthetic nanoparticles are not allowed at the moment.
- The size limit below which a particle is considered as a nanoparticle follows the definition of the European Commission[10] (i.e. 50 % or more of the particles are in the range between 1 nm and 100 nm).

5.7.4 Phosphonate / phosphonic acid

Manufacturers must take great care to avoid the content of phosphonate / phosphonic acid (also in traces) in their products. The evaluation teams may request analyses to verify this point.

5.8 Requirements for co-formulants

Background

As a general rule, fertilisers should normally contain no co-formulants, but exceptions are possible when there is a clearly demonstrated need (see EGTOP report on fertilisers and soil conditioners II, chapter 4.9). This rule is implemented as follows:

- All co-formulants must explicitly be declared during the application process.
- Materials listed in the Annex II of Reg. 2021/1165 are allowed.
- If the materials listed are not sufficient to achieve these effects, other materials may be used, provided that the applicant can demonstrate their need and that they are not harmful to the user or the environment.
- Natural substances should be used in preference.

[9] see EGTOP Report on Fertilisers (II), chapter 4.8.2.

[10] https://ec.europa.eu/environment/chemicals/nanotech/faq/definition_en.htm

Requirements

- Where a synthetic co-formulant is used, the applicant must demonstrate that the desired effect cannot be achieved with a natural substance.
- If synthetic co-formulants are necessary, the lowest possible amounts must be added.
- Co-formulants banned for the use in plant protection products as per Reg (EU) 2021/383, may not be used in fertilizers and related products.
- Co-formulants must not be harmful to the user or the environment and should be easily biodegradable (for example, silver-based compounds are not allowed). They should not cause residues in crops. FiBL reserves the right to request additional information, particularly on environmental fate and on residues in soil and/or crops. If the applicant fails to prove the need to use a co-formulant, or if he fails to demonstrate that the co-formulant does not cause residues in crops and has no unacceptable effects on human health and the environment, the product will be rejected.
- Co-formulants must not act as plant nutrients (e.g. ammonium compounds, ammonium lignosulfonate) and must not have a plant protection effect (e.g. preservatives).
- Quaternary ammonia compounds (QAC) may not be added.
- Colouring may be accepted in seed treatments and mulching sheets/films, if there is an agronomic need. Colorants will be evaluated case-by-case.

6. Annex: Scope of fertilizers, soil conditioners and further products used in crop production in the Dutch Input List

The current scope of fertilisers, soil conditioners and further products used in crop production in the Dutch Input List is show below. Please note that the scope may be widened in the future.

Fertilisers, soil conditioners and further products used in crop production	**Status**
Fertilisers and soil conditioners	included
Potting soils with a brand name (usually pre-packaged in bags)	included
Biodegradable products and other technical materials, such as mulching sheets / films	included
Products which influence crop growth or performance, such as 'plant additives/aids', 'biostimulants' and 'plant strengtheners'	included
Seed additives and seed treatments (that do not contain plant protection or biocidal products)	included
Potting soils with a brand name (usually pre-packaged in bags)	included
Farm-specific mixes of potting soils (usually sold in bulk)	not included
unprocessed manure, slurry, compost and digestate (materials of agricultural origin which are sold directly to farms in bulk)	not included
mushroom growing media	not included