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Soil Improvers and Growing Media

2nd Ad Hoc Working Group Meeting for the revision of Ecolabel criteria

16th May 2014

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Institute for Energy

IRMM – Geel, Belgium
Institute for Reference Materials and Measurements

ITU – Karlsruhe, Germany

Institute for Transuranium Elements

IES/ IHCP/ IPSC – Ispra, Italy
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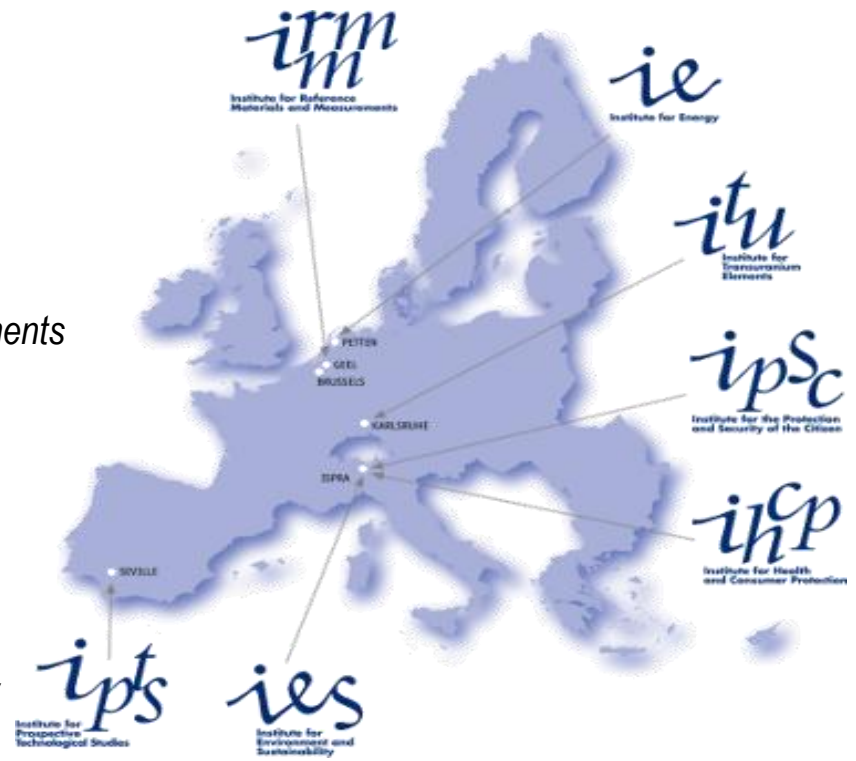

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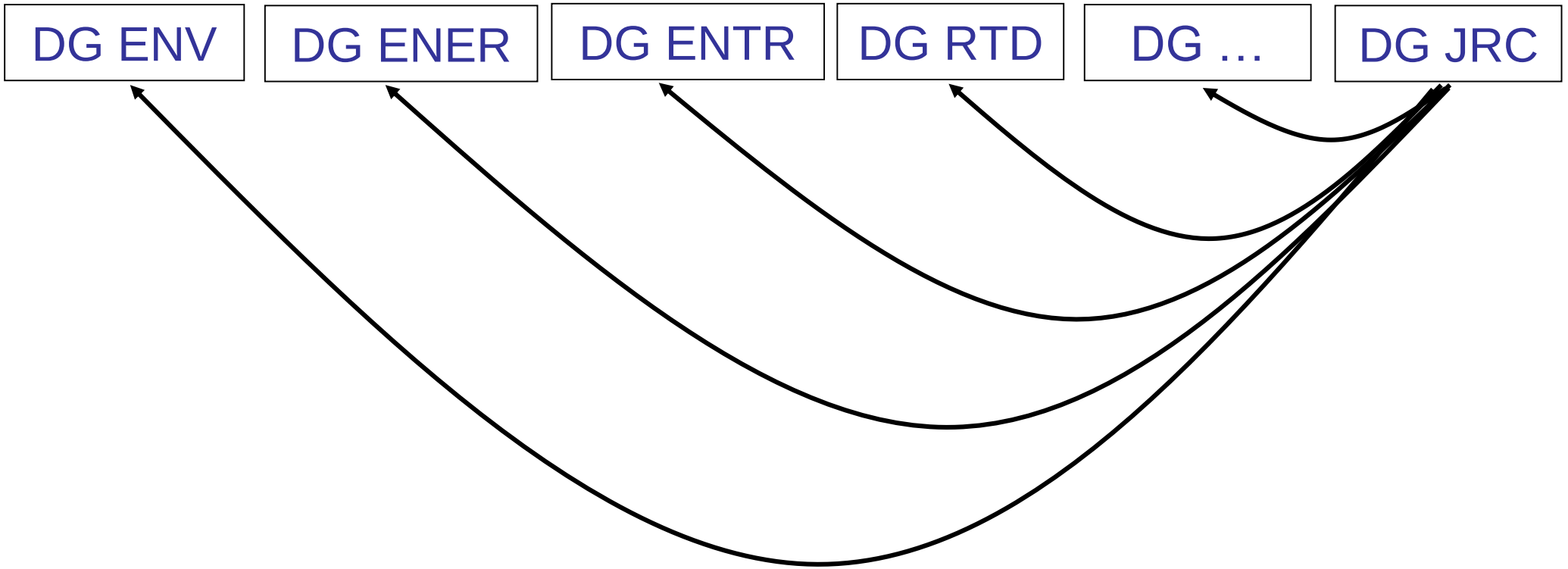

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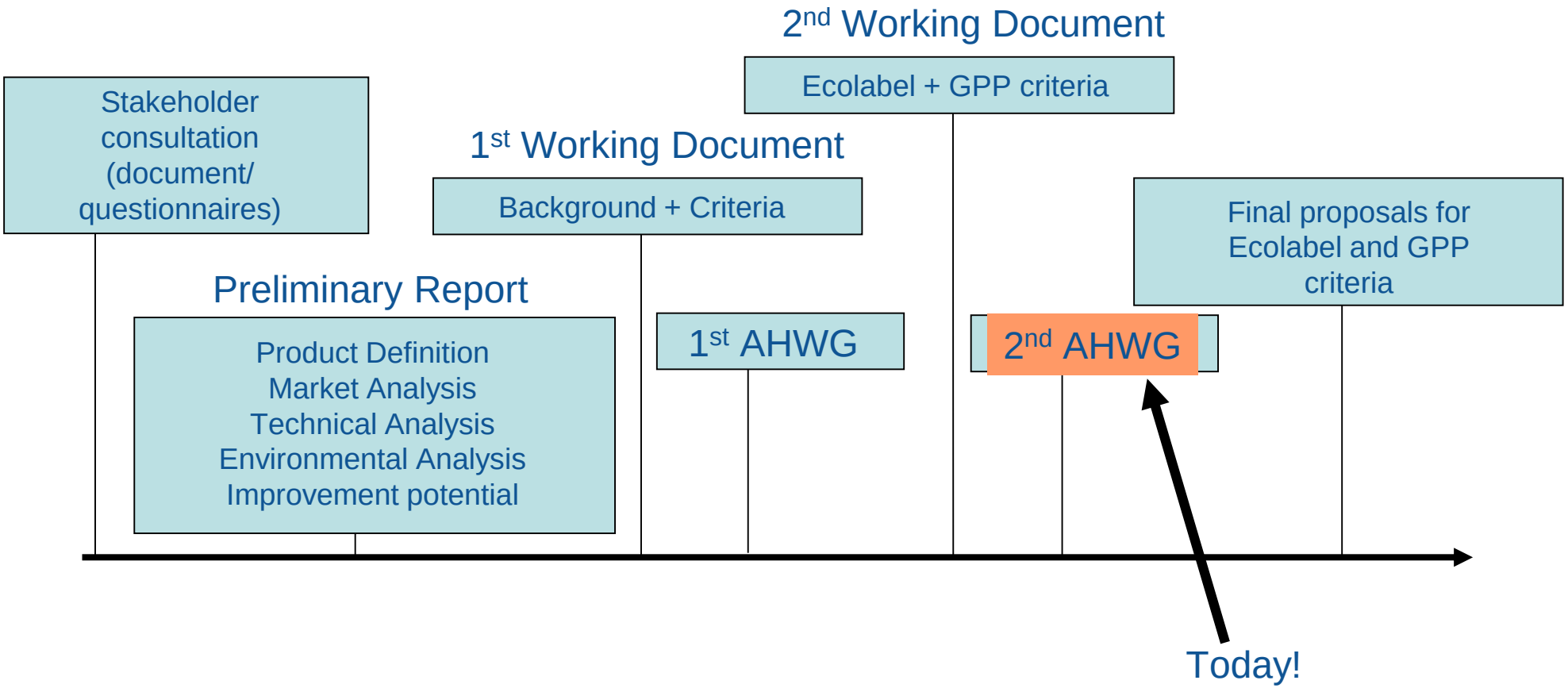
Activities in support of Product Policy

IPTS supports the development and implementation of Sustainable Product Policies, among them the EU Ecolabel Regulation and the Green Public Procurement Communication.

Analysis of product groups with focus on techno-economic and environmental aspects

Develop criteria and implementing measures until the stage of voting in committee (resp. publication on GPP page)

Criteria development process



Next Steps

1. Stakeholders can provide comments on working document (deadline: 4th July)

2. Comments need to be transmitted in BATIS

3. June 2014: EUEB progress report

4. November 2014 final draft criteria available

5. Process finalized 1st half 2015

Today's 2nd AHWG

Agenda:

- *Session 1: Product group scope and definition*
- *Session 2: Requirements on sampling and testing*
- *Session 3: Recycled content in growing media*
- *Session 4: Organic constituents*
- *Session 5: Mineral constituents + Hazardous substances Art. 6.6*
- *Session 6: Limitation of hazardous substances (PTE and POP)*
- *Session 7: Health and safety + Stability / maturity*
- *Session 8: Other criteria*

Thank you

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Revision of Ecolabel Decisions for Soil improvers and Growing media

Proposal on scope and definition

Joint Research Centre

Scope and definition

Proposed scope

The product group "soil improvers, growing media and mulch" shall comprise:

- Organic soil improvers
- Growing media
- Organic mulch

Scope and definition

Proposed definitions

- ***Soil improver*** means a material added to soil in situ whose main function is to maintain or improve its physical and/or chemical and/or biological properties or the soil activity, with the exception of liming materials
- ***Organic soil improver*** means a soil improver containing carbonaceous materials whose main function is to increase soil organic matter content.
- ***Growing medium*** means a material other than soil in situ used as a substrate for root development, in which plants are grown and which is used independently from soil in situ;
- ***Mulch*** means a material used as protective covering placed around plants to prevent the loss of moisture, control weed growth, and reduce soil erosion.
- ***Organic mulch*** means mulch containing carbonaceous materials.

Scope and definition

Rationale and discussion

- Mulch definition → modified in order to clearly exclude mineral and synthetic materials.
- Definitions of soil improver and growing medium → based on the last update of the ongoing revision of the Fertilizers Regulation
- Some stakeholders have suggested to not defining a separate product group for mulches, to be fully aligned to Fertilizer Regulation
- In case that the final version of the Fertilizer Regulation coming into force does not include a separate product group for mulch, the requirements for soil improvers will be mandatory for mulches

Scope and definition

Fertilizers Regulation (ongoing revision)

- **'soil improver'** means a material added to soil *in situ* whose main function is to maintain or improve its physical and/or chemical and/or biological properties or the soil activity, with the exception of liming materials.
- **'organic soil improver'** means a soil improver containing carbonaceous materials whose main function is to increase soil organic matter content;
- **'other soil improver'** means a material other than an organic soil improver added to soil *in situ* whose main function is to maintain or improve its physical and/or chemical and/or biological properties or the soil activity;
- **'growing medium'** means a material other than soil *in situ* used as a substrate for root development, in which plants are grown and which is used independently from soil *in situ*;

Questions

- Do you agree on the alignment of definitions to Fertilisers Regulation?
- Do you consider appropriate to set a separate definition of mulch?
- Is the definition of mulch clear enough, regarding functions and materials?

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Revision of Ecolabel Decisions for Soil improvers and Growing media

Requirements on sampling and testing

Joint Research Centre

Requirements on sampling and testing

- The test reports shall be carried out within an external, independent quality assurance framework by laboratories that are accredited for that purpose
- The sampling shall be carried out according the standard EN 12579:2013 Soil improvers and growing media – Sampling.
- Samples shall be prepared according the standard EN 13040:2007 Soil improvers and growing media - Sample preparation for chemical and physical tests, determination of dry matter content, moisture content and laboratory compacted bulk density

Requirements on sampling and testing

For the assessment and verification of the following criteria:

- Criterion 5.1 Potential Toxic Elements
- Criterion 6. Health and safety
- Criterion 7 Stability and maturity
- Criterion 8 Physical contaminants
- Criterion 10. Organic matter and dry matter
- Criterion 11. Viable seeds/propagules

The sampling shall meet the following requirements:

1. The minimum sampling and analysis frequency in the first year (EU Ecolabel application year) should be
   - at least 4 (one sample every season),
   - unless the plant treats up to 3000 tonnes of input material per year in which case one sample for every 1000 tonnes input material, rounded to the next integer, is required.

Requirements on sampling and testing

2. The following years, the default minimum sampling and analysis frequency is calculated according to the formula:

   number of analyses per year = amount of annual input material (in tonnes)/10000 tonne + 1

   with a maximum of 12 analyses per year.

- Any non-integer value should be rounded up to the next integer.
- The frequency shall be at least 2, and limited at 12.
- Only one yearly sample measurement is required for plants with an annual input up to 1000 tonne.

Requirements on sampling and testing

- For the assessment and verification of Criterion 5.2 Persistent organic pollutants the sampling shall meet the following requirements:

1. The minimum sampling and analysis frequency in the first year (EU Ecolabel application year) should be as follows:

Annual input (tonne)	Samples / year
<= 3000	1
3001 - 10000	2
10001 - 20000	3
20001 - 40000	4
40001 - 60000	5
60001 - 80000	6
80001 - 100000	7
100001 - 120000	8
120001 - 140000	9
140001 - 160000	10
160001 - 180000	11
> 180000	12

Requirements on sampling and testing

2. The following years, the default minimum sampling and analysis frequency is as follows:

Annual input (tonne)	Samples / year
<= 10000	0.2 (once per 5 years)
10001 - 25000	0.5 (once per 2 years)
25001 - 50000	1
50001 - 100000	2
100001 - 150000	3
150001 - 200000	4
200001 - 250000	5
250001 - 300000	6
300001 - 350000	7
350001 - 400000	8
400001 - 450000	9
450001 - 500000	10
500001 - 550000	11
> 550000	12

Requirements on sampling and testing

- For the assessment and verification of
  - Criterion 9 Nitrogen and
  - Criterion 12 Electrical conductivity,

- analytical tests shall be made on a representative sample from a product batch and at least one further representative sample from a different product batch, each of which was produced in the three months before the application date.

Requirements on sampling and testing

Rationale and discussion

- The proposal of sampling and testing frequencies in the first version of the Technical Report → economic overburden
- A revised scheme is proposed in line with the proposal within the EoW criteria for biodegradable waste report (EC JRC, 2014).
- Costs estimated for the sampling and testing scheme are feasible for plants above 1000 tonne input, but an expense in very small plants (< 500 tonne).
- However, a minimum frequency should be set, and the proposed one it is line with other standards at national level across Europe.

Requirements on sampling and testing

Rationale and discussion

- In order to optimize the frequency, this scheme would apply to the constituents of the products within the scope of the EU Ecolabel, prior to their formulation.

- This would ensure that no dilution of pollutants is produced in the constituents mixing, while preventing the testing of products that just differ on the formulation.

- The sampling and testing scheme proposed for Criterion 8 Nitrogen is aligned to the current frequency set in the User Manuals for soil improvers, and it is extended to Criterion 11 Electrical conductivity.

Requirements on sampling and testing

CEN/TC 223 – CEN/TC 400

- Standards from both CEN/TCs that are technically equivalent are allowed to be used for the assessment and verification
- Standards are defined in Assessment and Verification of each criterion

Rationale and discussion

- There were many comments on this regard from the manufacturers
- Both CEN/TCs standards are allowed to prevent any overburden that might be derived from restricting to one of them

Questions

- Do you agree on the sampling and testing scheme? Would it be feasible for very small plants?
- Do you agree on testing at constituent level or would it be more suitable at product level?
- Do you consider appropriate to set requirements on frequency of sampling and testing in the Decision, or would it be better to keep them in the User Manual?

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Revision of Ecolabel Decisions for Soil improvers and Growing media

Criterion proposal on Recycled/re-used materials in growing media

Joint Research Centre

Cr. 4: Recycled/re-used materials in growing media

This criterion applies to growing media.

Growing media products shall perform a minimum percentage of recycled content, as follows:

a) The growing medium shall contain a minimum 30% v/v organic constituents, or
b) The growing medium shall contain mineral constituents manufactured from a process using at least 30% w/w recycled materials

Cr.4: Recycled/re-used materials in growing media

Assessment and verification

The applicant shall declare the following information:

- Identification of organic constituents, amount and origin
- Identification of mineral constituents, amount and origin

Additionally, for the case b) the applicant shall declare the following information about the mineral constituents manufacture process:

- Identification of raw material inputs, amount and origin
- Identification of waste material inputs, amount and origin

Cr.4: Recycled/re-used materials in growing media

Rationale and discussion

Option b) 30% w/w recycled content for mineral GM

- The previous version of the criterion proposal recommended that mineral wool → 60% waste material as input.
- The mineral wool manufacturers for GM purposes informed that the percentage proposed was not feasible → the quality of the mineral wool as GM would be seriously affected, and also the Note Q of CLP Regulation compliance.
- It was recommended to set a percentage of 30%.

Cr. 4: Recycled/re-used materials in growing media

Rationale and discussion

Option a) 30% v/v of organic constituents in GM

- Minimum percentage of organic constituents in growing media, → all EU Ecolabel products contain a certain amount of recycled/re-used materials.

- Stakeholders suggested it to be set as a percentage in volume basis, instead of Organic matter content.

- The figure of 30% v/v → provide enough margins in the formulations

- Common formulations of expanded minerals : organic constituents → → 1:1 v/v to 1:3 v/v.

Cr. 4: Recycled/re-used materials in growing media

Rationale and discussion

- Some comments suggest restricting the use of extracted materials and the transformation processes of minerals

- Identifying the representative range of mineral constituents → expanded minerals added to improve the bulk density of the product.

- Slags from the blast furnaces can be expanded producing a lightweight expanded or foamed product → mainly used as construction material.

- Slags from aluminium and steel industry can also be used in the production of mineral wool.

Questions

- Do you agree on setting a percentage of recycled materials in EU Ecolabel growing media?
- Do you agree on the proposed thresholds?

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Revision of Ecolabel Decisions for Soil improvers and Growing media

Criteria proposal on organic constituents

Joint Research Centre

Cr. 2: Organic constituents

A product shall only be considered for the award of the Ecolabel if it does not contain peat and its organic constituents are:

- Materials derived from recycling or recovery.
- Materials derived from animal by-products category 2 and 3 for which composting and/or digestion is allowed according to ABP Regulation (EC) No 1069/2009 and implementing Regulation (EU) 142/2011.
- By-products, as defined in article 5 of Directive 2008/98/EC.
- Materials derived from the exclusions included in Article 2.1.(f) of Directive 2008/98/EC.

Cr.2: Organic constituents

Materials derived from recycling or recovery of sludges are allowed if the sludges comply with the following requirements:

1. They are identified as one of the following wastes

- 0203 05 sludges from on-site effluent treatment in the preparation and processing of fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco; conserve production; yeast and yeast extract production, molasses preparation and fermentation.
- 0204 03 sludges from on-site effluent treatment in sugar processing
- 0205 02 sludges from on-site effluent treatment in the dairy products industry
- 0206 03 sludges from on-site effluent treatment in the baking and confectionery industry.
- 0207 05 sludges from on-site effluent treatment in the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)

2. Sludges are single-source separated, meaning that there has been no mixing with effluents or sludges outside the specific production process.

Cr.2: Organic constituents

The following materials are not allowed:

1. Materials partially or completely derived from
- the organic fraction of mixed municipal household waste separated through mechanical, physicochemical, biological and/or manual treatment;
- sewage sludge
- sludges derived from the paper industry
- sludges derived from industries other than those allowed in this criterion.
- animal by-product category 1 materials according to ABP Regulation (EC) No 1069/2009.

2. Materials partially or completely derived from contaminated input materials, regardless of their origin, are also excluded from the scope.

Cr.2: Organic constituents

Rationale and discussion

- **In favour of inclusion of peat**
  - ✓ Quality and availability of alternatives
  - ✓ Low uptake of EU Ecolabel due to market of peat-based growing media
  - ✓ Environmental performance of peat based on LCA studies
  - ✓ Peat as slowly renewable resource

- **Against inclusion of peat**
  - ✓ LCA boundaries to assess the performance of compost
  - ✓ GHG emissions in degraded peatlands and restoration actions in RPP
  - ✓ Impacts on biodiversity
  - ✓ Peat as non-renewable resource
  - ✓ Market availability of alternatives

Cr.2: Organic constituents

Rationale and discussion

- Revision of peat-free criterion: controversial issue showing polarized positions.

- The different positions and contributions raised at the 1st AHWG meeting, EUEBs and Batis consultation have been assessed under the EU Ecolabel principles → Proposal 1 to retain the peat-free criterion is recommended:
  - The EU Ecolabel → to support and foster those alternatives to peat that are available in the growing media market

  - EU Ecolabel principle → promoting re-used and recycled materials, in line with the hierarchy set by the WFD.

Cr.2: Organic constituents

Rationale and discussion

- The input materials for the organic constituents → redefined according the revised Waste Framework Directive.
- Some materials as manure, straw, agricultural and forestry material are out of the scope of the WFD, but they might be used as input materials of compost and digestate production.
- WFD introduces the concept of by-product, which is also relevant for some organic constituents as bark, rice hulls, coir pith, etc.

Questions

- Do you agree on harmonization proposed according ABP Regulation and Waste Framework Directive?
- Is there any waste/byproduct category missed in the proposal?
- Are there further comments on the peat-free criterion?

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Revision of Ecolabel Decisions for Soil improvers and Growing media

Criteria proposal on mineral constituents

Joint Research Centre

Cr. 3.1 Mineral constituents: Energy consumption and GHG emissions

- The manufacture of expanded minerals and mineral wool shall fulfil the following energy consumption and GHG emissions thresholds:
  - Energy consumption / production <= 11 GJ/t prod
  - CO_2 emissions / production <= 0.8 t CO_2/t prod

Cr. 3.1: Mineral constituents: Energy consumption and GHG emissions

- The ratio energy consumption/production shall be calculated as an annual average of the last 5 years before the application, as follows:

$$ratio\ Energy/Production = \frac{1}{\sum_{i=1}^{5} Production_i} \cdot \sum_{i=1}^{5} \left(F + 2.5 \cdot El_{grid} + \left(\frac{H_{cog}}{\eta_{refH}} + \frac{El_{cog}}{\eta_{refEl}} \right) \cdot (1 - PES_{cog}) \right)_i$$

- The ratio CO_2 emissions/production shall be calculated as an annual average of the last 5 years before the application as follows:

$$ratio\ CO_2\ emissions/Production = \frac{1}{\sum_{i=1}^{5} Production_i} \cdot \sum_{i=1}^{5} (Direct\ CO_2 + Indirect\ CO_2)_i$$

Cr. 3.1: Mineral constituents: Energy consumption and GHG emissions

- Direct CO2 is the CO2 emissions as defined in Reg (EU) No 601/2012 of 21 June 2012 on the monitoring and reporting of GHG emissions
- Indirect CO2 is the indirect CO2 emissions due to final energy consumption in the year i, and shall be calculated as:

$$Indirect\ CO2\ emission = FE_{grid} \cdot El_{grid} + FE_{fuel\ cog} \cdot \left(\frac{H_{cog}}{\eta_{refH}} + \frac{El_{cog}}{\eta_{refEl}} \right) \cdot (1 - PES_{cog})$$

Cr. 3.1: Mineral constituents: Energy consumption and GHG emissions

Assessment and verification based on EU ETS

- The following documents shall be provided together with the declarations:
  - Annual emissions report according to Commission Regulation (EU) No 601/2012 of 21 June 2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council, for the 5 years before the application
  - Verification report finding the annual emissions report satisfactory according to Commission Regulation (EU) No 600/2012 of 21 June 2012 on the verification of greenhouse gas emission reports and tonne-kilometre reports and the accreditation of verifiers pursuant to Directive 2003/87/EC of the European Parliament and of the Council, for the 5 years before the application

Cr.3.1: Mineral constituents: Energy consumption and GHG emissions

Rationale and discussion

- The energy consumption during the production process contributes to 70% of the Ecosystem quality impacts and to more than half Climate change and Resources.
- Mineral wool results in GWP indicator and Resources indicator comparable to other constituents as bark and perlite.
- Regarding perlite, it was reported that energy consumption for perlite expansion contributes to 70% of the climate change impact

Cr.3.1: Mineral constituents: Energy consumption and GHG emissions

Rationale and discussion

- The thresholds → based on the Sector report of the mineral wool for the EU ETS post 2012 and the BREF for the Manufacture of Glass.
- The ratio of CO2 emissions, direct and indirect, per production → best 20 plants out of the 73 plants/lines analysed by Ecofys report (87 plants identified → representing 27% of plants analysed in Europe and 22% of the plants identified.
- Glass Bref: Electricity consumption in electrical furnaces is in the range of 2.7 to 5.5 GJ/tonne, in final energy, (6.75 – 13.75 GJ/tonne in primary energy).

Cr.3.1: Mineral constituents: Energy consumption and GHG emissions

Rationale and discussion

- During the stakeholder consultation, there have been proposals of exclusion of mineral wool based on the impacts of the extraction of basalt rock and the high energy demand of the manufacture process. These concerns would be extended to the expanded minerals, as perlite, vermiculite and expanded clay.

- Other stakeholders and MS raised an opposite opinion regarding mineral wool, arguing that the energy consumption in the production of mineral wool is offset due to the energy and water savings achieved by the hydroponic production.

Cr.3.1: Mineral constituents: Energy consumption and GHG emissions

Rationale and discussion

- Additional information about the environmental performance of stone wool has been provided by a manufacturer. An LCA on the hydroponic productions of tomato was carried out, comparing different growing media (stone wool and coir pith), and the results show that the hydroponic production based on stone wool and coir pith perform similar environmental impacts;

- A stakeholder has pointed out that the average density of mineral wool used in Quantis study is 70 kg/m3, while most products in the market perform an average density of 50 kg/m3. A higher density of mineral wool leads to a higher environmental impact (around 30%).

Questions

- Do you agree on criterion proposed for mineral wool and expanded minerals?
- Do you consider appropriate the proposed thresholds?
- Do you agree on the alignment to the EU ETS for the assessment and verification?

Cr.3.2: Mineral constituents: Sources of mineral extraction

Extracted minerals can be used provided that they are not extracted from:

- notified sites of Community importance pursuant to Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora,

- Natura 2000 network areas, composed of the special protection areas pursuant to Council Directive 79/409/EEC on the conservation of wild birds, and those areas under Directive 92/43/EEC together, or equivalent areas located outside the European Community that fall under the corresponding provisions of the United Nations' Convention on Biological Diversity, or equivalent areas located outside the European Community that fall under the corresponding provisions of the United Nations' Convention on Biological Diversity.

Cr.3.2: Mineral constituents: Sources of mineral extraction

Rationale and discussion

- This criterion is proposed to be retained whenever extracted mineral materials are used.

- According LCA studies, for perlite extraction, blasting contributes more than half of the impact on ecosystem quality.

Questions

- Do you agree on retaining the criterion on sources of extracted minerals?

Cr. 3.3: Mineral constituents: Mineral GM after use

PROPOSAL 1

- This criterion is applicable to mineral growing media only
- The mineral growing media shall be used for commercial horticultural applications.
- For all substantial professional markets (i.e. where the applicant's annual sales in any one country in the professional market exceed **15000 m3),** the applicant shall fully inform the user about available options for the removal and processing of growing media after use. This information shall be integrated in the accompanying fact sheets. The applicant shall demonstrate that at least 50 % by volume of the growing media waste is recycled after use.

Cr. 3.3: Mineral constituents: Mineral GM after use

PROPOSAL 2

- This criterion is applicable to mineral growing media only
- The applicant shall offer customers a structured collection and recycling service using third party service providers. The collection and recycling service shall cover a minimum of 70% v/v of the applicant sales across the European Union.

Cr. 3.3: Mineral constituents: Mineral GM after use

Assessment and verification: PROPOSAL 1

The applicant shall provide a declaration that the mineral GM is used for commercial horticultural applications.

The applicant shall inform the Competent Body about the option(s) on offer and their response, to these options in particular:

- Description of collection, processing and destinations.
- Annual overview of the volume of growing media collected (input) and processed (by destination).

The applicant shall demonstrate that at least 50 % by volume of the growing media waste is recycled after use.

Cr. 3.3: Mineral constituents: Mineral GM after use

Assessment and verification: PROPOSAL 2

The applicant shall provide a declaration that the mineral GM is used for commercial horticultural applications.

The applicant shall inform the Competent Body about the option(s) on offer and their response, to these options in particular:

- Contract documentation between the manufacturer and the service providers
- Description of collection, processing and destinations.
- Annual overview of the total sales volume of growing media in the EU Member States and an annual overview of the sales volumes in areas of those Member States where collection and processing are on offer.

Cr. 3.3: Mineral constituents: Mineral GM after use

Rationale and discussion

- The Proposal 1 → retaining the current criterion, but revising the sales cut-off value.
- Stakeholder feedback suggests that a lower threshold could be feasible → there are important markets that are not covered by the current threshold.
- A threshold of 15000 m3 could be implemented, extending the scope of the criterion to other countries.

Cr. 3.3: Mineral constituents: Mineral GM after use

Rationale and discussion

- The Proposal 2 is based on the input from manufacturers, → difficulty of demonstrating the percentage of sold volumes which are recycled → several stages of the process are beyond their control → many assumptions in the calculation leading to a large uncertainty in the results.

- Threshold of annual sales is removed, applying to all the manufacturers regardless the volume of their sales at country level → allowing the applicant to decide the markets to offer the collecting and recycling services, optimizing the efforts and the results to comply with the criterion.

Questions

- Do you agree on retaining the after use criterion?
- Which proposal for the revision of the after use criterion do you consider more appropriate?

Cr. 5.3: Hazardous substances and mixtures

- Horizontal approach for the implementation of Article 6.6 and 6.7 of the EU Ecolabel Regulation
- This criterion does not apply to:
  - Substances covered by Article 2(7)(b) of the Regulation (EC) No 1907/2006, which sets out criteria for exempting substances within Annex V of this Regulation from the registration, downstream user and evaluation requirements.
  - Substances not included in the scope of the Regulation (EC) No 1907/2006

Cr. 5.3: Hazardous substances and mixtures

Assessment and verification

- Horizontal approach for the implementation of Article 6.6 and 6.7 of the EU Ecolabel Regulation

- In the case of mineral wool, the applicant shall provide the certificate awarded for the right to use the European Certification Board for Mineral Wool Products trademark to proof the compliance with the Note Q within the Regulation (EC) No 1272/2008

Cr. 5.3: Hazardous substances and mixtures

Rationale and discussion

- Compost: covered by Article 2(7)(b) of the Regulation (EC) No 1907/2006.
- Digestates: exemption is also foreseen to be implemented.
- Other constituents are covered by the exemption :
  - Minerals which occur in nature if they are not chemically modified.
  - Naturally occurring substances as such: means, substances obtained, for example, from plants, micro-organisms, animals.

Cr. 5.3: Hazardous substances and mixtures

Rationale and discussion

- Mineral wool is included in CLP Regulation as a substance that may be classified as Carcinogen category 2 if it does not fall under the conditions of exception.

- The conditions are defined by the Notes Q and R within the CLP Regulation, meaning that if the mineral wool is under the scope of one of these notes, the classification of carcinogen cat 2 does not apply to it.

Cr. 5.3: Hazardous substances and mixtures

Rationale and discussion

- It was requested that the compliance with Note Q shall be supported by reliable data as external tests.

- This external surveillance is already in force by mean of the European Certification Board for Mineral Wool Products, whose aim is certifying the conformity of mineral wool fibres with Note Q of Regulation (EC) No 1272/2008.

Questions

- Do you agree on the particular requirements for mineral wool?

European Commission

Revision of Ecolabel Decisions for Soil improvers and Growing media

Criteria proposal on Limitation of hazardous substances

Joint Research Centre

Cr. 5.1: Limits for Potential Toxic Elements

This criterion applies to organic constituents and mineral constituents of soil improvers, growing media and mulch.

In organic constituents and mineral constituents the content of the following elements shall be lower than the values shown in Table, measured in terms of dry weight of constituent.

PTE	Abbr	Maximum content in the constituent mg/kg DW
Cadmium	Cd	1
Chromium (total)	Cr	**75**
Copper	Cu	100
Mercury	Hg	**0.75**
Nickel	Ni	**30**
Lead	Pb	100
Zinc	Zn	300

Cr. 5.1: Limits for PTE

Additionally, in organic constituents derived from industrial sludges allowed in Criterion 2, the content of the following elements shall be lower than the values shown in Table 10, measured in terms of dry weight.

PTE	Abbr	Maximum content in the constituent mg/kg DW
Arsenic	As	10
Fluorine	F	200
Molybdenum	Mo	2
Selenium	Se	1.5

Cr. 5.1: Limits for PTE

Assessment and verification

PTE	Sym.	Method of measurement
Arsenic	As	EN 13650 ICP OES or FAAS EN 16170 ICP OES EN 16171 ICP MS
Cadmium	Cd	EN 13650 ICP OES or FAAS EN 16170 ICP OES EN 16171 ICP MS
Chromium (total)	Cr	EN 13650 ICP OES or FAAS EN 16170 ICP OES EN 16171 ICP MS
Copper	Cu	EN 13650 ICP OES or FAAS EN 16170 ICP OES EN 16171 ICP MS
Fluorine	F	EN 16279:2012 ISE
Mercury	Hg	EN 16175 CV-AAS or CV-AFS
Molybdenum	Mo	EN 16170 ICP OES EN 16171 ICP MS
Nickel	Ni	EN 13650 ICP OES or FAAS EN 16170 ICP OES EN 16171 ICP MS
Lead	Pb	EN 13650 ICP OES or FAAS EN 16170 ICP OES EN 16171 ICP MS
Selenium	Se	EN 16171 ICP MS
Zinc	Zn	EN 13650 ICP OES or FAAS EN 16170 ICP OES EN 16171 ICP MS

Cr. 5.1: Limits for PTE

Assessment and verification

Method of extraction

For organic constituents

EN 13650 Soil improvers and growing media - Extraction of aqua regia soluble elements

EN 16174 Sludge, treated biowaste and soil - Digestion of aqua regia soluble fractions of elements

For mineral constituents

EN 13651 Soil improvers and growing media - Extraction of calcium chloride/DTPA (CAT) soluble nutrients and elements

Cr. 5.1: Limits for PTE

Rationale and discussion

- The stakeholders' feedback showed that the current limit values are feasible and supported by many of them, raising doubts about the Cu and Zn limit values due to their function as micronutrients.

- Some stakeholders also recommended restricting the elements to be monitored to those proposed by the EoW criteria for biodegradable waste report, meaning the withdrawn of Mo, Se, As and F limit values. Furthermore, one comment pointed out that Mo is an essential element in the nitrogen fixation process.

- Another controversial limit value is the one proposed for Cd, as it would exclude some bark mulches that might reach values up to 3 ppm

Cr. 5.1: Limits for PTE

Rationale and discussion

- The proposed limits are therefore the same as the current EU Ecolabel values for organic constituents for soil improvers and growing media except Cr, Hg and Ni that are stricter.

- The proposed limits are stricter than the current limit values set by many MS legislation and the limit values proposed in the EoW criteria for biodegradable waste report

PTE	EoW biodegradable waste mg/kg DW	Limit proposed revision EU Ecolabel mg/kg DW
Cd	1.5	1
Cr	100	**75**
Cu	200	100
Hg	1	**0.75**
Ni	50	**30**
Pb	120	100
Zn	600	300

Joint Research Centre

Cr. 5.1: Limits for PTE

Rationale and discussion

- Standards within CEN/TC 223 and the equivalent ones within CEN/TC 400 are allowed to be used.
- The aqua regia digestion is recommended as extraction method (EN 13650 or EN 16174) for organic constituents
- Methods of determination based on ICP OES or FAAS and on ICP MS are allowed to be used.
- In the case of Hg, the determination with cold-vapour atomic absorption spectrometry or cold-vapour atomic fluorescence spectrometry is required.

Cr. 5.1: Limits for PTE

Rationale and discussion

- For mineral constituents, some stakeholders pointed out that the test based on aqua regia digestion measures the content of metals in mineral constituents including the fraction that is not bioavailable. The standard EN 13650 also declares that the results cannot be regarded as the "bioavailable" fraction, as the extraction procedure is too vigorous to represent any biological process.

- Based on this information and the input from the manufacturer, the extraction method proposed for mineral constituents is EN 13651 Soil improvers and growing media - Extraction of calcium chloride/DTPA (CAT) soluble nutrients and elements

Questions

- Do you agree on the PTE limits proposed?
- Do you think it would be more appropriate to set limits just on the heavy metals proposed by EoW criteria for biodegradable waste report?
- Do you agree on the assessment and verification proposed?

Cr. 5.2: Limits for POP

- This criterion applies to organic constituents of soil improvers, growing media and mulches
- In organic constituents, the content of the following elements shall be lower than the values shown, measured in terms of dry weight

Pollutant	Limit mg/kg DW
PAH_{16}	6

- PAH16 = sum of naphthalene, acenaphtylene, acenaphtene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, indeno[1,2,3-cd]pyrene, dibenzo[a,h]anthracene and benzo[ghi]perylene

Cr. 5.2: Limits for POP

Assessment and verification

- The applicant shall provide the tests report conducted in accordance with testing procedure indicated in respective EN standard in Table 18

Pollutant	Test method
PAH_{16}	CEN/TS 16181

Cr. 5.2: Limits for POP

Rationale and discussion

- The JSAC results indicate that there is likely to be some measurable and variable level of POPs in all potential waste streams.
- Elimination of known materials as constituents with a high risk of high concentrations is feasible, but such measures are unlikely to be fully effective
- Based on the inputs received from the stakeholders, the first proposal that included PAH16, PCB7, PCDD/F and Pesticides has been reduced to PAH16, in line with the criterion proposal within the EoW criteria for biodegradable waste report (EC JRC, 2014).

Questions

- Do you agree on the POP limit proposed?
- Do you agree on reduce the pollutants monitored to PAH_{16}

European Commission

Revision of Ecolabel Decisions for Soil improvers and Growing media

Criterion proposal on Health and safety

Joint Research Centre

Cr. 6: Health and safety

- This criterion applies to organic constituents of soil improvers, growing media and mulches.
- The organic constituents of the product shall not exceed the maximum levels of primary pathogens as set:

Pathogen	Limit
E. Coli	1000 CFU/g fw
Samonella spp	absent in 25g fw
CFU = colony-forming units; fw = fresh weight	

Cr. 6: Health and safety

Assessment and verification

- The applicant shall provide the test reports conducted in accordance with testing procedure indicated in:

Parameter	Test method
E. Coli	CEN/TR 16193
Salmonella	ISO 6579

Cr. 6: Health and safety

Rationale and discussion

- Limits and methods aligned to national requirements for compost and digestates and to the proposal within EoW criteria for biodegradable waste report

- Helminth ova limit value has been removed, since it is less common, while *E. coli* is a relatively low cost test and established methodology, and limits for *E.coli* appear widely in standards for composts and digestates

Questions

- Do you agree on the pathogens and limits proposed?
- Do you agree on the assessment and verification proposed?

European Commission

Revision of Ecolabel Decisions for Soil improvers and Growing media

Criterion proposal on Stability / Maturity

Joint Research Centre

Cr. 7: Stability / Maturity

- This criterion applies to organic constituents of growing media, soil improvers and mulches.

- The organic constituent of growing media, soil improvers and mulches shall meet of the following criteria:
  - Respirometric index of maximum 15 mmol O2/kg organic matter/h, measured according to standard EN 16087-1, or minimum Rottegrad IV or V (self-heating test temperature rise of maximum 20 C above ambient temperature), measured according to standard EN 16087-2

- Additionally, the organic constituent of growing media and soil improvers shall meet the following criterion:
  - C/N ratio shall be equal or lower than 15:1

Cr. 7: Stability / Maturity

Assessment and verification

Parameter	Test method
Respirometric index or Rottegrad	EN 16087-1 or 2 Soil improvers and growing media - Determination of the aerobic biological activity
Total N (% FW)	EN 16169 Sludge, treated biowaste and soil - Determination of Kjeldahl nitrogen EN 13654-1 Soil improvers and growing media - Determination of nitrogen - Part 1: Modified Kjeldahl method
Total organic carbon	EN 15936:2012 Sludge, treated biowaste, soil and waste - Determination of total organic carbon (TOC) by dry combustion

Cr. 7: Stability / Maturity

Rationale and discussion

- The stability criterion is proposed based on several comments from stakeholders that pointed out the concerns related to unstable products. The limits proposed are the values required to classify a product as 'stable' according to those standards.

- This criterion is also aimed at retaining and standardizing the current criterion of provision of information

- A maximum C/N ratio is recommended, as indicator of its grade of stability and maturity. A value of 15 is proposed in line to the requirements that are currently under discussion in the revision of the Fertilizer Regulation.

Cr. 7: Stability / Maturity

Rationale and discussion

- The C:N ratio criterion is proposed to not be required to mulches, since woody mulches usually perform high C:N ratios. The application of mulch with high C:N ratio brings about a zone of nitrogen deficiency that might inhibit weed seed germination while having no influence upon established plant roots below the soil surface.

- This is also supported by the standard RAL-GZ 250/1-1 Quality Parameters for Bark Mulch, which sets a C:N ratio higher than 60.

Questions

- Do you agree on the limits proposed for stability / maturity?
- Do you agree on setting a maximum C:N ratio?
- Do you consider appropriate the exception proposed for mulches?

European Commission

Revision of Ecolabel Decisions for Soil improvers and Growing media

Other criteria

Joint Research Centre

Cr. 8: Physical contaminants

- This criterion applies to organic constituents of soil improvers, growing media and mulches.

- In organic constituents (with mesh size 2 mm), the content of glass, metal and plastic an shall be lower than 0,5 % as measured in terms of dry weight.

Assessment and verification

- The applicant shall provide the result of tests conducted in accordance with testing procedure indicated in CEN/TS 16202 Sludge, treated biowaste and soil - Determination of impurities and stones

Cr. 8: Physical contaminants

Rationale and discussion

- The current EU Ecolabel for SI contains limits for the content of physical contaminants, thus: *"in the final product (with mesh size 2 mm), the content of glass, metal and plastic shall be lower than 0.5% as measured in terms of dry weight.*

- This criterion is proposed to be applied to the organic constituents of all products

Cr. 9: Nitrogen

- This criterion applies to soil improvers and mulches.
- The total nitrogen content shall be lower than 3% fresh weight.
- The percentage of inorganic nitrogen shall be lower than 20% of total nitrogen.

Assessment and verification

Parameter	Test method
Total N (% FW)	EN 16169 Sludge, treated biowaste and soil - Determination of Kjeldahl nitrogen EN 13654-1 Soil improvers and growing media - Determination of nitrogen - Part 1: Modified Kjeldahl method
Inorganic N (% of total N)	EN13652 Soil improvers and growing media - Extraction of water soluble nutrients and elements

Cr. 9: Nitrogen

Rationale and discussion

- A high content in nitrogen can cause the volatilization of nitrogen compounds during land application through ammonia emissions for instance.

- Thus, the maximum nitrogen content is proposed to be set to both mulches and soil improvers.

Cr. 10: Organic matter and dry matter

- This criterion applies to organic constituents for soil improvers, growing media and mulches:
- The organic matter as loss on ignition of organic constituents shall not be lower than 15% dry weight.
- The dry matter content shall not be lower than 25% fresh weight.

Assessment and verification

Parameter	**Test method**
Dry matter (% FW)	EN 15934 EN 13041
Organic matter as Loss on Ignition (%DM)	EN 15935 EN 13039

Cr. 10: Organic matter and dry matter

Rationale and discussion

- The organic matter content proposed for the organic constituents for the three product groups is harmonized with the criteria proposed in the EoW criteria for biodegradable waste report, which is also under consideration in the ongoing revision of the Fertilizer Regulation.

- The dry matter content criterion is proposed to be set for organic constituents used in the three product groups. Some stakeholders have advised against the use of liquid digestates, and some MS as Belgium just allow the use of liquid digestates in professional applications, because of a lack of stability

Cr. 11: Viable seeds and weeds

- This criterion applies to the organic constituents of growing media, soil improvers and mulches.
- In the organic constituents, the content of weed seeds and the vegetative reproductive parts of aggressive weeds shall not exceed
  - two units per litre, for soil improvers, and
  - one unit per litre for growing media and mulch.

Assessment and verification

- The applicant shall provide the test report in accordance with testing procedure indicated in CEN/TS 16201 Sludge, treated biowaste and soil - Determination of viable plant seeds and propagules

Cr. 11: Viable seeds and weeds

Rationale and discussion

- This criterion is proposed to be retained from the current set of EU Ecolabel criteria for SI and GM, and be extended to mulch.

- This maximum has been halved for GM according to the stakeholders comments and in line with the standard RAL-GZ 250/2 Quality Parameters for Growing media and RAL-GZ 250/1-2 Quality Parameters for Composted Bark

Cr. 12: Electrical conductivity

- This criterion applies to growing media.
- The electrical conductivity of the final product shall be below 65 mS/m

Assessment and verification

- The applicant shall provide the test report conducted in accordance with testing procedure indicated in EN 13038:2011.

Cr. 12: Electrical conductivity

Rationale and discussion

- The current EU Ecolabel criteria for GM → EC < 150 mS/m.
- Growing media manufacturers → limit too high.
- Extraction ratio 1:5 and extraction ratio 1:1.5. No clear factor to transform the results based on ratio 1:1.5 to 1:5, but they are usually more than double the 1:5 ratio results.
- EN 13038 is based on extraction ratio 1:5
- EC (1:5) below 65 mS/m is suitable for most plants

Cr. 13: Provision of information

Soil improvers

a) the name and address of the body responsible for marketing
b) a descriptor identifying the product by type, including the wording
c) a batch identification code
d) the quantity (in weight)
e) Moisture content
f) the main input materials (those over 5% by weight) from which the product has been manufactured
g) the recommended conditions of storage and the recommended 'use by' date;
h) guidelines for safe handling and use

Cr. 13: Provision of information

Soil improvers

i) a description of the purpose for which the product is intended and any limitations on use. This should include a statement about the suitability of the product for particular plant groups (e.g. calcifuges or calcicoles)
j) pH (Method)
k) Organic C content, total N content and inorganic N content
l) C/N ratio
m) Total phosphorus (%) and total potassium (%)
n) a statement about the stability of organic matter (stable or very stable)
o) a statement on recommended methods of use
p) in hobby applications: recommended rate of application expressed in kilograms of product per unit surface (m2) per annum

Cr. 13: Provision of information

Growing media

a) the name and address of the body responsible for marketing
b) a descriptor identifying the product by type, including the wording
c) a batch identification code
d) the quantity (in volume)
e) Range of moisture content
f) the main input materials (those over 5% by volume) from which the product has been manufactured
g) the recommended conditions of storage and the recommended 'use by' date;
h) guidelines for safe handling and use

Cr. 13: Provision of information

Growing media

i) a description of the purpose for which the product is intended and any limitations on use. This should include a statement about the suitability of the product for particular plant groups (e.g. calcifuges or calcicoles)
j) pH (Method)
k) Electrical Conductivity (1:5 extraction method)
l) a statement about the stability of organic matter (stable or very stable)
m) a statement on recommended methods of use

Cr. 13: Provision of information

Mulch

a) the name and address of the body responsible for marketing
b) a descriptor identifying the product by type, including the wording
c) a batch identification code
d) the quantity (in volume)
e) Range of moisture content
f) the main input materials (those over 5% by volume) from which the product has been manufactured
g) the recommended conditions of storage and the recommended 'use by' date;
h) guidelines for safe handling and use

Cr. 13: Provision of information

Mulch

i) a description of the purpose for which the product is intended and any limitations on use. This should include a statement about the suitability of the product for particular plant groups (e.g. calcifuges or calcicoles)
j) pH (Method)
k) C/N ratio
l) a statement about the stability of organic matter (stable or very stable)
m) a statement on recommended methods of use
n) in hobby applications: recommended rate of application expressed in thickness

Cr. 14: Information appearing on the EU Ecolabel

The optional label with text box shall contain the following text:

- promotes the recycling of materials;
- promotes the use of materials produced in a more sustainable manner, thus reducing environmental degradation

For soil improvers and mulches additional information shall be included:

- contributes to reducing soil and water pollution
- ~~contributes to enhanced soil fertility.~~

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Revision of Ecolabel Decisions for Soil improvers and Growing media

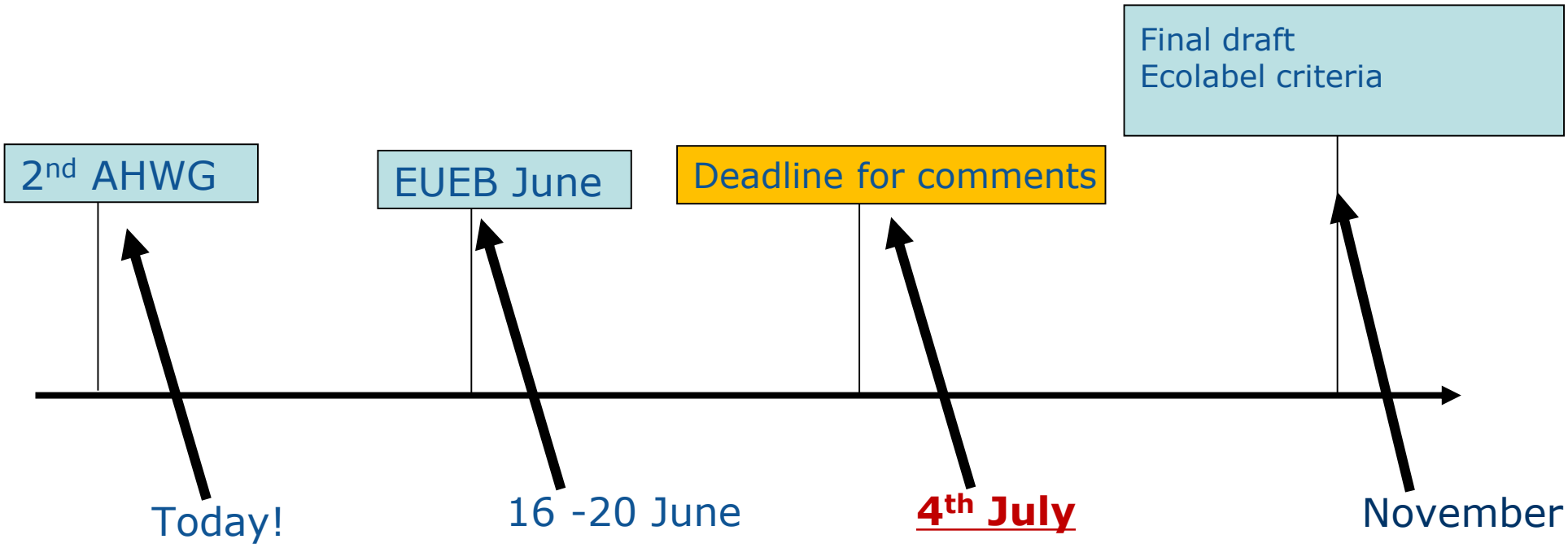
Conclusion and next steps

Joint Research Centre

Summary and conclusions

- *Product group scope and definition: mulch definition*
- *Requirements on sampling and testing: revised and based on constituents*
- *Recycled content in growing media*
- *Organic constituents: peat-free and revised WFD and ABPR*
- *Mineral constituents: new requirements for mineral wool and expanded minerals*
- *Limitation of hazardous substances (PTE and POP)*
- *Stability / maturity*

Next steps


Final draft
Ecolabel criteria
2nd AHWG
EUEB June
Deadline for comments
Today!
16 -20 June
4th July
November

Thank you very much

Joint
Research
Centre