



J R C T E C H N I C A L R E P O R T S

Revision of European Ecolabel Criteria for Soil Improvers and Growing Media

Technical report and draft criteria proposal
for the 2nd AHWG meeting

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Introduction

The revision process of the current EU Ecolabel criteria for Soil improvers (Decision 2006/799/EC) and Growing media (Decision 2007/64/EC) is under development. In order to prepare the ground for this revision process, a study has been carried out by the Joint Research Centre's Institute for Prospective Technological Studies (JRC-IPTS) with technical support from the Ricardo-AEA. The work is being developed for the European Commission's Directorate General for the Environment.

A Preliminary Report was produced (September 2013), which summarises all the work done in preparation for the First Ad-Hoc Working Group meeting, at which the new criteria were discussed with stakeholders. The Technical report for the 1st AHWG meeting presented the criteria proposals as result of the study and the recommendations that were contained in the Preliminary Report, together with their justification.

As a result of the discussion during the 1st AHWG meeting and the stakeholder consultation, this second version of the Technical report has been produced, where the first criteria proposal is revised under the light of the stakeholders comments. This document will be presented and discussed in the 2nd AHWG meeting.

Currently, separate sets of EU Ecolabel criteria exist for Soil improvers (Decision 2006/799/EC) and Growing media (Decision 2007/64/EC). The revision process spans both product groups; thus common criteria for both Soil improvers and Growing media are developed, only distinguishing between technical product characteristics where necessary.

Another objective of this revision is addressing the possibility to broaden the current scope to the product *mulch*, as it has been identified as a potentially differentiated product.

The main issues addressed in the revision process have taken into account the Commission Statement issued in April 2006, shown in Table 1:

Table 1. Commission Statements Soil improver and Growing media

Issues to be addressed	Growing Media	Soil Improvers
Strengthening demands for heavy metals	X	X
Reducing the use of mineral wool (25% or 50%)	X	
Use of re-cycled/re-used mineral wool	X	
Extraction phase and emissions for minerals	X	
Re-look at the inclusion of peat	X	
Limits for relevant organic pollutants (*)	X	X
Test methods - <i>E. Coli</i> versus <i>Helminth Ova</i>		X
Sustainable resource management for ingredients		X

(*) Especially pesticides from fruit and vegetable sludges

The revision process has been conducted considering the new legislative framework that will apply to the product group: End of waste criteria for biodegradable waste that is currently under development and the Fertilizers Regulation that is currently being revised and will include soil improvers and growing media in its scope.

Additionally, the EU Ecolabel Regulation 66/2010 has introduced new requirements by mean of Article 6.6 and 6.7., whose application in the product groups "soil improver", "growing medium" and "mulch" has been studied.

The current separate sets of EU Ecolabel criteria exist for Soil improvers and Growing media are the summarized in Table 2:

Table 2. Current sets of EU Ecolabel criteria

Soil improvers (Decision 2006/799/EC)	Growing media (Decision 2007/64/EC)
Criterion 1.1 Organic ingredients	Criterion 1.1 Organic ingredients
Criterion 1.2 Sludges	Criterion 1.2 Sludges
Criterion 1.3 Minerals	Criterion 1.3 Minerals
Criterion 2. Limitation of hazardous substances	Criterion 2. Limitation of hazardous substances
Criterion 3. Physical contaminants	---
Criterion 4. Nutrient loadings	---
Criterion 5. Product performance	Criterion 3. Product performance
Criterion 6. Health and safety	Criterion 4. Health and safety
Criterion 7. Viable seeds/propagules	Criterion 5. Viable seeds/propagules
---	Criterion 6.a Electrical conductivity
---	Criterion 6.b After use
Criterion 8. Information provided with the product	Criterion 7. Information provided with the product
Criterion 9. Information appearing on the eco-label	Criterion 8. Information appearing on the eco-label

The criteria proposed are shown in Table 3:

Table 3. Criteria proposal for the revision of the EU Ecolabel

Criteria proposal	Soil improvers	Growing media	Mulch
Criterion 1 Constituents	x	x	x
Criterion 2 Organic constituents	x	x	x
Criterion 3.1 Mineral constituents: Energy consumption and GHG emissions	x	x	
Criterion 3.2 Mineral constituents: Sources of mineral extraction	x	x	
Criterion 3.3 Mineral constituents: After use		x	
Criterion 4 Recycled/re-used materials in growing media		x	
Criterion 5.1 Limitation of hazardous substances – PTE	x	x	x
Criterion 5.2 Limitation of hazardous substances – POP	x	x	x
Criterion 5.3 Limitation of hazardous substances – Hazardous substances and mixtures	x	x	x
Criterion 5.4 Limitation of hazardous – substances listed in accordance with Article 59(1) of Regulation (EC) No 1907/2006	x	x	x
Criterion 6 Health and safety	x	x	x
Criterion 7 Stability and maturity	x	x	x
Criterion 8 Physical contaminants	x	x	x
Criterion 9 Nitrogen	x		x
Criterion 10 Organic matter and dry matter	x	x	x
Criterion 11 Viable seeds and weeds	x	x	x
Criterion 12 Electrical conductivity		x	
Criterion 13 Provision of information	x	x	x
Criterion 14 Information appearing on the EU Ecolabel	x	x	x

1 Product group scope and definition

Proposed scope

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

- Organic soil improvers
- Growing media
- Organic mulch

According to the definitions below

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, 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.

Rationale and discussion

The analysis of existing definitions has revealed the following findings:

- The current EU Ecolabel definition for Growing Media is consistently applied in the current EU Ecolabel documents and is consistent with the definition of Growing Media used in CEN Standards.
- The EU Ecolabel definition for Growing Media is a simple statement that provides an open playing field for commercial interests.
- The EU Ecolabel for Growing Media would contain aspects of hydroponic production. The definitions given by CEN/TC 223 derive that hydroponic production are not considered separately. However whilst some forms of hydroponic production involve growing plants in a wholly mineral nutrient water based medium, other methods include growing the plants in medium containing solid supports through which the mineral nutrient solution is passed.
- The current EU Ecolabel definition for soil improvers provides some inconsistency, as two different definitions appear in the EU Ecolabel User Manual. One of these is a simple definition that closely matches the definition applied by CEN apart from a few word changes, i.e. changing the first part of the definition from *Material added to soil* to *Materials to be added to the soil*. The definition given by the User Manual is more complex; so it may lead to confusion, as it is not helpful to include the phrases "can

loosely be used”, “include bulky organic manures” and “can be subdivided in soil conditioner, planting materials or mulches.”.

- Mulch is applied as a surface layer to soil, is not incorporated into the soil and typically has different characteristics than true soil improvers. Therefore, the initial view is that mulch is a product that can be differentiated from soil improvers on the basis of its function and application as a layer on top of the soil. Whilst this may be considered as insufficient differentiation by many, the differences could lead to different hazards and risks associated with mulches compared with soil improvers. It is likely that different criteria might need to be developed for mulches and for soil improvers that reflect differences in risks.
- The next Fertilizer Regulation will cover the products soil improver and growing medium, and it will contain definitions of both products

Based on the findings above, the recommendations on definitions are the following:

- The definitions of Soil Improvers and Growing Media are consistently applied and match those typically applied in CEN developed Standards for these products.
- Nevertheless, EU Ecolabel definitions shall be aligned to the definitions within the next Fertilizer Regulation, in order to ensure the consistency among the European product policies. Thus, the development of this regulation will be followed during the revision of the EU Ecolabel Decision and its product definitions will be harmonized with the ones within the last version of the Fertilizer Regulation. Meanwhile, CEN Standards definitions will be used since they are the most relevant references currently available;
- That a separate product “Mulch” is considered for which EU Ecolabel criteria are developed.

Stakeholders feedback

Many comments were received regarding the proposed definition of mulch. It was widely supported to redefine the product in such way that enables the exclusion of mineral and synthetic mulch.

In addition to the modification suggested by the stakeholders, the definitions of soil improvers and growing media have been accommodated to the last update of the Fertilizer Regulation definitions. In this regard, some stakeholders have suggested to not defining a separate product group for mulches, since the ongoing revision of the Fertilizer Regulation does not foresee a separate product for mulch, but it would be covered in the definition of soil improver. This issue is very relevant for the revision of this product group: in case that the final version of the Fertilizer Regulation coming into force does not include a separate product group for mulch, but it embeds it within the soil improvers definition, the requirements for soil improvers will be mandatory for mulches, superseding any distinction or exclusion for mulches that the EU Ecolabel Decision might contain.

Other stakeholders pointed out the need of reformulate some definitions according to the revised Waste Framework Directive, since it has introduced the definition of by-product, together with the exclusion of some materials from the waste category that is within the Article 2 of the rWFD, which are perfectly suitable inputs for EU Ecolabel soil improvers (manure, farming material, straw).

2 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 (through an accreditation standard and accreditation organisation accepted at EU level or equivalent recognition by the Member State competent authority).

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

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. For plants with an annual input of more than 20000 tonne, the sampling and analysis frequency in the first year is calculated according to the default formula that applies to the following years. This minimum annual number of samples shall be acquired by external independent samplers trained by and recognised by an accredited laboratory, or by a Quality Assurance Organisation or by the Member State competent authorities. All collected samples shall be measured by accredited external independent laboratories.
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.

This minimum annual number of samples shall be acquired by external independent samplers trained by and recognised by an accredited laboratory, or by a Quality Assurance Organisation or by the Member State competent authorities. All collected samples shall be measured by accredited external independent laboratories.

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

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

Annual input (tonne)	Samples / year
300001 - 350000	7
350001 - 400000	8
400001 - 450000	9
450001 - 500000	10
500001 - 550000	11
> 550000	12

3. All samples taken for PAH₁₆ measurements need to be taken by external independent samplers trained by and recognised by an accredited laboratory, or by a Quality Assurance Organisation or by the Member State competent authorities. All collected samples shall be measured by accredited external independent laboratories.

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.

Rationale and discussion

From the perspective of a reliable assessment of the criteria proposed, a robust scheme of sampling and testing was agreed by the stakeholders, to be the most suitable tool of compliance assurance. However, the proposal of sampling and testing frequencies in the first version of the Technical Report produced many complaints from manufacturers regarding the economic overburden that it would imply. Thus, a revised scheme is proposed in line with the proposal within the EoW criteria for biodegradable waste report (EC JRC, 2014). This proposal was widely agreed among the stakeholders involved in that project, and its estimated costs were detailed within the report. The Table 4 is an adaptation of that estimation.

Table 4. Cost estimation of the sampling and testing scheme proposed

	Sampling and analysis frequency (number/year)										Cost			
	Recognition year					Following years					Recognition year		Following years	
	Sampling			Analyses		Sampling			Analyses					
Annual Input (tonne)	Total	External	Internal	All but PAH	PAH	Total	External	Internal	All but PAH	PAH	Total (Euro)	Unit cost (Euro/tonne)	Total (Euro)	Unit cost (Euro/tonne)
<500	1	1	0	1	1	1	1	0	1	0.2	800		680	
500	1	1	0	1	1	1	1	0	1	0.2	800	1.60	680	1.36
1000	1	1	0	1	1	1	1	0	1	0.2	800	0.80	680	0.68
1500	2	2	0	2	1	2	2	0	2	0.2	1450	0.97	1330	0.89
2000	2	2	0	2	1	2	2	0	2	0.2	1450	0.73	1330	0.67
2500	3	3	0	3	1	2	2	0	2	0.2	2100	0.84	1330	0.53
3000	3	3	0	3	1	2	2	0	2	0.2	2100	0.70	1330	0.44
3500	4	4	0	4	2	2	2	0	2	0.2	2900	0.83	1330	0.38
4000	4	4	0	4	2	2	2	0	2	0.2	2900	0.73	1330	0.33
4500	4	4	0	4	2	2	2	0	2	0.2	2900	0.64	1330	0.30
5000	4	4	0	4	2	2	2	0	2	0.2	2900	0.58	1330	0.27
7500	4	4	0	4	2	2	2	0	2	0.2	2900	0.39	1330	0.18
10000	4	4	0	4	2	2	2	0	2	0.2	2900	0.29	1330	0.13
15000	4	4	0	4	3	3	3	0	3	0.5	3050	0.20	2025	0.14
20000	4	4	0	4	3	3	3	0	3	0.5	3050	0.15	2025	0.10
25000	4	4	0	4	4	4	4	0	4	0.5	3200	0.13	2675	0.11
30000	4	4	0	4	4	4	4	0	4	1	3200	0.11	2750	0.09
40000	5	5	0	5	4	5	5	0	5	1	3850	0.10	3400	0.09
50000	6	6	0	6	5	6	6	0	6	1	4650	0.09	4050	0.08
60000	7	7	0	7	5	7	7	0	7	2	5300	0.09	4850	0.08
70000	8	8	0	8	6	8	8	0	8	2	6100	0.09	5500	0.08
80000	9	9	0	9	6	9	9	0	9	2	6750	0.08	6150	0.08
90000	10	10	0	10	7	10	10	0	10	2	7550	0.08	6800	0.08
100000	11	11	0	11	7	11	11	0	11	2	8200	0.08	7450	0.07
110000	12	12	0	12	8	12	12	0	12	3	9000	0.08	8250	0.08
120000	12	12	0	12	8	12	12	0	12	3	9000	0.08	8250	0.07
>120000	12	12	0	12	8	12	12	0	12	3	9000		8250	

The figures show that the costs estimated for the sampling and testing scheme are feasible for plants above 1000 tonne input, but they might be an important 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.

Example frequencies before accreditation and following accreditation are given in Table 5 and Table 6.

Table 5: Monitoring frequency in existing standards

	PAS100 (compost)	PAS110 (digestate)	VLACO QAS (digestate)*	Germany RAL GZ 256 (secondary raw material fertilisers and SI)
Before Accreditation	3	3	Amount of samples is calculated on the basis of biodegradable waste input.	1 analysis for every full or partial batch of 1500 tons plant input, at least 4 tests. Max. 12 analyses per year
After Accreditation	1/5,000 m ³ or 1/year if production is <5,000 m ³ /a	1/6,000 m ³ digestate or once every 3 months (whichever is sooner)	Amount of samples is calculated on the basis of biodegradable waste input.	1 analysis for every full or partial batch of 2000 tons plant input, at least 4 tests. Max. 12 analyses per year

*As described in EC JRC (2014)

Table 6: Frequency of testing for organic pollutants in some national standards.

Austria	France		Germany		UK
(Austrian Compost Ordinance BGBl II 292)	(Norme NFU 44051)		(Quality and Test Regulations for secondary raw material fertilisers and soil improvers RAL-GZ 256)		(PAS 100 and PAS110)
Frequency depends on compost tonnage and with some required to be analysed by external laboratories: e.g. plant >4000 m3: 1 sample every 4,000 m3 but with a minimum of 3 and maximum of 12 per year of which 2 should be externally analysed	Plant output (tonnes per annum)	Monitoring frequency	Approval procedure	Monitoring procedure	No limits for organic pollutants
	0 – 350	1 per annum	one analysis for every full or partial batch of 1500 tons plant input, at least 4 tests max. 12 analyses per year	one analysis for every full or partial batch of 2000 tons plant input, at least 4 tests max. 12 analyses per year	
	350 – 3,500	1 per annum			
	3,500 – 7,000	1 per annum			
	> 7,000	2 per annum			

Table 5 and Table 6 indicate that monitoring frequency varies and that it may be based on volume or tonnage and on inputs or outputs. Note also that the French standard NFU 44-051 adds further complexity as not only are the frequency of monitoring different for different sized of plants but also the frequency for each analytical tests differs. For example for a plant of 7,000 t/a requires 4 microbial and 3 inert impurity tests per year whilst for a plant of 350 to 3,500 t/a requires 2 microbial and 2 inert impurity tests.

It is also important to highlight that the sampling and testing scheme proposed was developed for compost and digestate production, meaning organic constituents of soil improvers and growing media. 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 should be carried out by the constituents producers.

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.

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3 Criteria proposal

Currently, separate sets of EU Ecolabel criteria exist for Soil improvers and Growing media, which are the following:

Table 7. Current sets of EU Ecolabel criteria

Soil improvers (Decision 2006/799/EC)	Growing media (Decision 2007/64/EC)
Criterion 1.1 Organic ingredients	Criterion 1.1 Organic ingredients
Criterion 1.2 Sludges	Criterion 1.2 Sludges
Criterion 1.3 Minerals	Criterion 1.3 Minerals
Criterion 2. Limitation of hazardous substances	Criterion 2. Limitation of hazardous substances
Criterion 3. Physical contaminants	---
Criterion 4. Nitrogen	---
Criterion 5. Product performance	Criterion 3. Product performance
Criterion 6. Health and safety	Criterion 4. Health and safety
Criterion 7. Viable seeds/propagules	Criterion 5. Viable seeds/propagules
---	Criterion 6.a Electrical conductivity
---	Criterion 6.b After use
Criterion 8. Information provided with the product	Criterion 7. Information provided with the product
Criterion 9. Information appearing on the eco-label	Criterion 8. Information appearing on the eco-label

The revision process spans both product groups; thus common criteria for both soil improvers and growing media are developed, which are only distinguishing between technical product characteristics where necessary. Another objective of this revision is addressing the possibility to broaden the current scope to mulch, as it has been identified as a potentially differentiated product.

Table 8 shows the criteria proposal for soil improvers, growing media and mulch, and the equivalences with the current sets of criteria.

Table 8: Criteria proposal for the revision of the EU Ecolabel of Soil improvers, growing media and mulch, and equivalences with current criteria

Criteria proposal	Revision			Current Decisions	
	Soil improvers	Growing media	Mulch	Soil improvers	Growing media
Criterion 1 Constituents	X	X	X	Criterion 1 Constituents	Criterion 1 Constituents
Criterion 2 Organic constituents	X	X	X	Criterion 1.1 Organic ingredients	Criterion 1.1 Organic ingredients
Criterion 2 Organic constituents	X	X	X	Criterion 1.2 Sludges	Criterion 1.2 Sludges
Criterion 3.1 Mineral constituents: Energy consumption and GHG emissions	X	X		---	---
Criterion 3.2 Mineral constituents: Sources of mineral extraction	X	X		Criterion 1.3 Minerals	Criterion 1.3 Minerals
Criterion 3.3 Mineral constituents: After use		X		---	Criterion 6.b After use
Criterion 4 Recycled/re-used materials in growing media		X		---	---
Criterion 5. Limitation of hazardous substances – PTE	X	X	X	Criterion 2. Limitation of hazardous substances	Criterion 2. Limitation of hazardous substances
Criterion 5.2 Limitation of hazardous substances – POP	X	X	X	---	---
Criterion 5.3 Limitation of hazardous substances –Hazardous substances and mixtures	X	X	X	---	---

	Revision			Current Decisions	
Criteria proposal	Soil improvers	Growing media	Mulch	Soil improvers	Growing media
Criterion 5.4 Limitation of hazardous - substances listed in accordance with Article 59(1) of Regulation (EC) No 1907/2006	X	X	X	---	---
Criterion 6 Health and safety	X	X	X	Criterion 6. Health and safety	Criterion 4. Health and safety
Criterion 7 Physical contaminants	X	X	X	Criterion 3. Physical contaminants	---
Criterion 8 Nitrogen	X		X	Criterion 4. Nitrogen	---
Criterion 9 Organic matter and dry matter	X	X	X	Criterion 5. Product performance	Criterion 3. Product performance
Criterion 10 Viable seeds and weeds	X	X	X	Criterion 7. Viable seeds/propagules	Criterion 5. Viable seeds/propagules
Criterion 11 Electrical conductivity		X		---	Criterion 6.a Electrical conductivity
Criterion 12 Stability / maturity	X	X	X	Criterion 8. Information provided with the product	Criterion 7. Information provided with the product
Criterion 13 Provision of information	X	X	X	Criterion 8. Information provided with the product	Criterion 7. Information provided with the product
Criterion 14. Information appearing on the eco-label	X	X	X	Criterion 9. Information appearing on the eco-label	Criterion 8. Information appearing on the eco-label

3.1 Criterion 1: Constituents

The constituents admitted are organic constituents and mineral constituents that meet the EU Ecolabel criteria.

Assessment and verification:

The applicant shall declare the constituents of the product, together with the evidences of the compliance according the EU Ecolabel criteria.

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3.2 Criterion 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(f) of Directive 2008/98/EC.

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 according the European list of wastes (as defined by Commission Decision 2001/118/EC of 16 January 2001 amending Decision 2000/532/EC as regards the list of 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.

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. A material is considered 'contaminated' if it has a level of chemical, biological or physical contamination that may cause difficulties in meeting the EU Ecolabel criteria or that may result in other

adverse environmental or human health impacts from the normal use of the output material.

Assessment and verification

The applicant shall provide the Competent Body with the detailed composition of the product and the origin of each organic constituent, and a declaration of compliance with the above requirement.

Rationale and discussion

Two options were presented in the 1st AHWG meeting, which were

Proposal 1: the retention of the complete prohibition of peat, so the organic constituents shall be derived from waste materials, or

Proposal 2: allowing a certain percentage of peat in GM, which should not exceed 20% on a dry matter basis. This proposed limit was suggested on the basis of the LCA studies which indicate that such a peat content results in environmental impacts similar to many peat free GM. Moreover, peat used for the purposes of EU Ecolabel should then only be allowed from responsibly managed peatlands that are neither pristine peat habitats nor designated Natura 2000 sites, Special Areas of Conservation (SACs) or Sites of Special Scientific Interest (SSSIs). In that respect, acceptable sources and conditions to ensure responsible peat extraction should be clearly defined in the final EU Ecolabel criteria.

Stakeholder feedback

The revision of the peat-free criterion in the EU Ecolabel is a particularly controversial area, and many arguments both in favour and against the inclusion of peat have been raised during the discussion.

Arguments in favour of peat

Quality: the growing media manufacturers have argued that peat is an essential constituent to be added to growing media mixes, not having identified real alternatives so far. The main benefits of peat are related to pH, electrical conductivity and bulk density, being identified as a most advantageous carrier to improve the quality features of compost-based growing media. From the manufacturers' perspective, peat would enable to offset the adverse characteristics of waste-derived materials, which might perform too high EC and bulk density for suiting the requirements for growing purposes. The percentages of peat suggested to reach such level of fitness oscillate from 25 to 100% v/v. Some stakeholders, from opposite positions in the discussion, have pointed out that the percentage originally proposed does not suffice to improve the quality of growing media, while figures up to 50 -100% were claimed to be needed for growing media to perform a quality class.

Market availability: the manufacturers reproach the low uptake of the EU Ecolabel in growing media products to the peat-free criterion, since peat is by far the main growing medium constituent representing about 29 million m³ of the growing media produced in Europe in 2007.

LCA studies: some LCA studies for growing media (Quantis 2012, Boldrin 2010) have concluded that in terms of GHG the impact for peat might be comparable to other growing media, and comparable to compost at constituent level. These studies were performed using

the same functional unit (cubic meter of growing medium). The Quantis study analyses different mixes for diverse purposes

Responsible peat production: the first proposal presented in the 1st AHWG meeting recognized the need of a reliable certification scheme that prevents the harvesting of peat from natural peatlands and that ensures the after-extraction measurements for restoration, as far as possible. This argument is supported on the figures that prove that drained peatlands (for agricultural or forestry purposes) become net carbon sources, and upholds the responsible peat production as a potentially suitable management system to ensure the actions required to restore the peatlands, once the extraction phase is over. For these purposes, this certification scheme prioritises the extraction of peat from abandoned agricultural lands and requires implementing a restoration plan once the extraction phase is over.

Slowly renewable resource: manufacturers have questioned the classification of peat as non-renewable resource, since many experts classify peat as slowly-renewable, because its rate of renewal ($10^2 - 10^5$ years) is much faster than that of lignite and coal ($10^5 - 10^8$ years), but much slower than that of living plants (1 – 10 years).

Arguments against peat

Boundaries in the reviewed LCA studies: some stakeholders questioned the boundaries set for the assessment of compost in the studies aimed at comparing the environmental performances of compost and peat. Quantis study defines a reference scenario to analyse the impact of peat in growing media, so the natural GHG emissions from peatlands are considered avoided by the peat extraction, and thus deducted from the GHG impact of the extracted peat. This study does not cover the replacement of other conventional waste management system by composting, while Boldrin (2010) modelled two scenarios, a baseline scenario with landfilling of the organic waste in a landfill with gas recovery and production of electricity and a recycling scenario with source separation and organic waste composting and use of compost as a substitution for peat. Therefore, the results obtained are not comparable. Some stakeholders pointed out these issues to refute the arguments in favour of the inclusion of peat based on LCA studies.

GHG emissions in degraded peatlands: NGOs support to implement restoration actions that recover the drained peatlands to turn them into their original role of carbon sink, but without the extraction phase that is foreseen in the responsible peat production scheme. From their view, the peat responsible extracted should not be EU Ecolabel awarded because (i) the extraction and use phase of peat would release the amount of carbon still stored in the peatland, and (ii) the EU Ecolabel should otherwise rely on the future implementation of after-use plans where the rewetting of the peatland might not be foreseen.

Impacts on biodiversity: some NGOs have argued that peatlands represent a unique ecosystem for diverse species of plants and animals that are seriously jeopardized by the activities of extraction of peat, and by agriculture and forestry. Therefore, one of the aims of the EU Ecolabel should be the promotion of the phasing out of peat in horticultural applications in line to some MS environmental policies.

Non-renewable resource: other experts (Joosten, 2008) point out that from a climate change point of view, the term of "slowly-renewable" is misleading, since renewable resources must replenish as quickly as they are consumed to be considered carbon neutral. Global peat losses exceed the new formation of peat by a factor of 20 so the use of peat contributes as equally to the greenhouse effect as other fossil resources. Therefore it is more appropriate to treat peat – similar to lignite and coal – as a non-renewable resource. This is also supported by the

IPCC that classifies peat as fossil fuel in their methodology to calculate GHG emissions from energy activities (IPCC, 2006).

Alternatives to peat: many stakeholders provided information about the peat-free products, as coir pith, which are currently on the market, performing very good quality features.

Based on the arguments that come along the discussion on this criterion, the proposal 2 presented in the first version of the Technical report has been withdrawn and the proposal 1 to retain the peat-free criterion is recommended. The EU Ecolabel shall be committed to support and foster those alternatives to peat that are available in the growing media market, while as voluntary scheme, it does not entail the blocking of any product on the market, but identifying the ones that perform better. On top of that, the EU Ecolabel principle in this product group is promoting re-used and recycled materials, in line with the hierarchy set by the WFD. The inclusion of peat on EU Ecolabel products might undermine the efforts already made to promote the consumers' choice of growing media based on recycled materials over the peat-based ones, given that the suggested range of peat should be above 50% v/v to reach a quality class.

The input materials for the organic constituents have been re-defined according the revised Waste Framework Directive. There were many comments in this regard from stakeholders and competent bodies in charge of awarding EU Ecolabel licenses under the current decisions. 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. Moreover, the WFD introduces the concept of by-product, which is also relevant for some organic constituents as bark, rice hulls, coir pith, etc.

In the previous technical report, it was proposed to align the composts and digestates allowed as organic constituents to the scope proposal within the EoW criteria for biodegradable waste report. Some stakeholders didn't agree on the definition of biodegradable waste, so in order to not excessively restrict the organic constituents the alignment is proposed to stick only to the explicit exclusions of the EoW criteria for biodegradable waste report.

Other comments pointed out that in case of manure and other organic materials, there exist other processes than composting and anaerobic digestion to stabilize and sterilize those materials, as pelletizing and reductive thermal processing (i.e. plant based biochar). In this regards, the criterion proposal has been reformulated in line to main definitions of the rWFD, using the terms recycling and recovery, in such way that other processes are also covered.

3.3 Criterion 3: Mineral constituents

3.3.1 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
- CO₂ emissions / production ≤ 0.8 t CO₂/t prod

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

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

Where:

- i is each year of the period of 5 years
- $Production$ is the mineral wool production in tonnes in the year i
- F is the annual consumption of fuels in the production process in the year i
- El_{grid} is the annual electricity consumption from the grid in the year i
- H_{cog} is the annual consumption of useful heat from cogeneration in the year i
- El_{cog} is the annual consumption of electricity from cogeneration in the year i
- η_{refH} and η_{refEl} are the reference efficiencies for the separate production of electricity and heat as defined in the Directive 2012/27/EU and calculated according to the Commission implementing Decision of 19 December 2011 establishing harmonised efficiency reference values for separate production of electricity and heat ...
- PES_{cog} is the primary energy saving of the cogeneration plant as defined in the Directive 2012/27/EU, in the year i

The ratio CO₂ emissions/production shall be calculated as an annual average of the last 5 years before the application as follows:

$$\text{ratio CO}_2 \text{ emissions/Production} = \frac{1}{\sum_{i=1}^5 \text{Production}_i} \cdot \sum_{i=1}^5 (Direct\ CO_2 + Indirect\ CO_2)_i$$

Where

- i is each year of the period of 5 years
- $Production$ is the mineral wool production in tonnes in the year i
- $Direct\ CO_2$ is the CO₂ emissions as defined in 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, in the year i

- *Indirect CO₂* is the indirect CO₂ emissions due to final energy consumption in the year I, and shall be calculated as:

$$\text{Indirect CO}_2 \text{ emission} = FE_{\text{grid}} \cdot El_{\text{grid}} + FE_{\text{fuel cog}} \cdot \left(\frac{H_{\text{cog}}}{\eta_{\text{refH}}} + \frac{El_{\text{cog}}}{\eta_{\text{refEl}}} \right) \cdot (1 - PES_{\text{cog}})$$

Where

FE_{grid} is the EU average carbon intensity of the electricity grid, according to MEErP methodology (0.384 tCO₂/MWh = 0.107 tCO₂/GJe)

$FE_{\text{fuel cog}}$ is the CO₂ emission factor of the fuel in the cogeneration.

The direct CO₂ emissions shall be monitored 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

Assessment and verification

The applicant shall declare the following information

- Ratio Energy consumption (GJ)/production (tonne)
- Ratio emissions CO₂ (tonne)/production (tonne)
- Annual productions (t) for the 5 years before the application
- Tonnes direct CO₂ emissions for the 5 years before the application
- Tonnes indirect CO₂ emissions for the 5 years before the application
- Consumption of each fuel and process (GJ) for the 5 years before the application
- Electricity consumption from the grid (GJ final energy) for the 5 years before the application
- Useful heat consumption from cogeneration (GJ final energy) for the 5 years before the application
- Electricity consumption from cogeneration (GJ final energy) for the 5 years before the application
- Reference efficiencies (η_{refH} and η_{refEl}) for separate production of heat and electricity
- PES of the cogeneration (%) for the 5 years before the application
- Identification of fuels used in cogeneration and their share in the fuel mix, for the 5 years before the application

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

- Records of electricity consumption from the grid provided by the supplier, for the 5 years before the application
- Records of the useful heat and electricity consumption from cogeneration, both on-site and purchased, for the 5 years before the application

Rationale and discussion

Environmental performance of mineral wool and expanded minerals

Quantis (2012) concluded that mineral wool has a lower impact on climate change and resources than white peat (43% lower in GWP, 48% lower in resources) ; however, it still has a higher impact than compressed coir pith (30% higher in GWP, 50% higher in resources). The energy consumption during the production process contributes to 70% of the Ecosystem quality impacts and to more than half Climate change and Resources. In the graphs that this study provides with the results of the different constituents considered, 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. Although the study strongly advises against the comparison between constituents providing different functions, such comparison is necessary to outline the environmental performance of mineral wool and expanded minerals in the framework of the product group of growing media.

Stakeholder feedback

During the stakeholder consultation, there have been many 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.

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 (i) the hydroponic production based on stone wool and coir pith perform similar environmental impacts; and (ii) the growing medium makes a minor contribution to the total impact of tomato production (about 1%).

The LCA studies show that the manufacture process of mineral wool and expanded minerals is very intensive in consumption, and thus, a criterion focused on GHG emissions and the energy consumption per ton of product is proposed. The thresholds are based on the Sector report for the mineral wool industry carried out by Ecofys to develop a Methodology for the free allocation of emission allowances in the EU ETS post 2012 (Ecofys, 2009) and the BREF for the Manufacture of Glass (EC JRC, 2013). The ratio of CO₂ emissions, direct and indirect, per production of mineral wool is proposed to select the best 20 plants out of the 73 plants/lines analyzed by Ecofys report (87 plants identified), which emit less than 0.85 ton CO₂/ ton product. This would represent the 27% of plants analyzed in Europe and 22% of the plants identified. The verification is proposed to be based on the EU ETS methodology, which

requires third party verification by an accredited entity. The energy consumption ratio is proposed to select those plants that operate with electrical furnaces, performing lower CO₂ emissions. According to BREF Glass, the electricity consumption is in the range of 2.7 to 5.5 GJ/tonne, in final energy, (6.75 – 13.75 GJ/tonne in primary energy, 2.5 transformation factor). A threshold of 11 GJ/tonne in primary energy would be in the middle of the range.

For expanded minerals, there are not so detailed data available, but aggregate figures provided by the stakeholders suggest that the thresholds proposed are also suitable for the manufacture of these mineral constituents.

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3.3.2 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.

Assessment and verification

The applicant shall provide the Competent Body with a declaration of compliance with this requirement issued by the appropriate authorities.

Rationale and discussion

Criterion 1.3 (for both SI and GM) in the current EU Ecolabel criteria indicates that minerals extracted from natural resources can be used as a constituent, provided they are not sourced from protected sites.

This criterion is proposed to be retained whenever extracted mineral materials are used. It is a key question that there should be a restriction on the source of extraction, in such way that EU Ecolabel products ensure to not proceed from sources placed in protected habitats. According to Quantis (2012), for perlite extraction, blasting contributes more than half of the impact on ecosystem quality.

3.3.3 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 15 000 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.

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.

Assessment and verification

PROPOSAL 1

The applicant shall provide a declaration that the mineral wool 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.

PROPOSAL 2

The applicant shall provide a declaration that the mineral wool 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.

Rationale and discussion

It is proposed that mineral growing media are restricted to its use in commercial horticultural applications (closed-cycle recirculating hydroponic systems). Under these conditions, the after use criterion can be considered feasible and realistic. Spent GM may be re-used by the amateur gardener or placed in household waste, which may in turn hinder the recycling process, leading to disposal of the waste mineral GM in landfill. It would be impractical to arrange and manage a totally separate recycling route for mineral GM

Arising of spent GM composed of 100% mineral in commercial hydroponic applications would be on a sufficient scale that the used GM could be collected and effectively cleaned and recycled. It is suggested from the stakeholder consultation that the re-use of this GM is not practised due to the difficulty of cleaning and mitigating risks from spreading plant pathogens. However, such issues are not insurmountable, and might be considered, together with recycling into other mineral wool applications.

The current EU Ecolabel GM criteria recognise this and provide in Criterion 6b requirements for the after use of mineral GM. Proposal 1 is aimed at keeping the current criterion, since it has proven to be doable though it shows some difficulties for verification. The threshold of 30000 m³ should be revised to increase the scope of this criterion.

Stakeholder feedback

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

The Proposal 2 is based on the input from manufacturers, who highlighted the difficulty of demonstrating the percentage of sold volumes which are recycled, meaning that several stages of the process are beyond their control and thus, many assumptions need to be contrived in the calculation leading to a large uncertainty in the results. An alternative approach is therefore proposed to streamline the implementation of this criterion, while keeping a level of ambition that is translated to the sales across EU countries. In this proposal, the threshold of annual sales is removed, applying to all the manufacturers regardless the volume of their sales at country level. The criterion also allows the applicant to decide the markets to offer the collecting and recycling services, optimizing the efforts and the results to comply with the criterion.

3.4 Criterion 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

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

Rationale and discussion

The NNFCC study (NNFCC, 2008) addresses the LCA of glass fibre wool manufactured by KNAUF and stone wool manufactured by ROCKWOOL, for insulation purposes. Both processes were similar except that the KNAUF process used significant amounts of recycled glass (typically 30-60% and up to 80%, although the content in the example was not described) whilst the ROCKWOOL process used mainly virgin raw minerals (77%) and 23% recycled materials. Both processes included some finite percentage of raw mineral in the feedstock. The results of this study are highly sensitive to the density of the product. These data were used to build the first proposal of recycled materials in mineral wool growing media.

The first criteria proposal presented in the 1st AHWG meeting were aimed at ensuring that all EU Ecolabel products would contain a certain amount of recycled/re-used materials, by mean of the Organic matter content criterion, which was proposed to be extended to growing media products.

Stakeholder feedback

On the basis of the limited LCA data, the previous version of the criterion proposal recommended that mineral wool for EU Ecolabel purposes is only acceptable if sourced from a manufacturing process that uses at least 60% waste material as input. The stone wool manufacturers for GM purposes agreed on a recycled content criterion, but also informed that the percentage proposed was not doable, because the quality of the stone 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%.

During the 1st AHWG meeting, it was proposed to set a minimum percentage of organic constituents in growing media, so it would ensure that all EU Ecolabel products would contain a certain amount of recycled/re-used materials. The proposal was done by mean of the Organic matter content criterion, but the stakeholders did not consider it appropriate, and they suggested it to be set as a percentage in volume basis. The minimum is proposed based on common formulations of expanded minerals and organic constituents, which vary from 1:1

v/v to 1:3 v/v. The figure of 30% is proposed to provide enough margins in the formulations considering that there are different formulations depending on the constituents and applications.

Some stakeholders have proposed to restrict the origin of the mineral constituents in growing media to recycled mineral wastes or also by-products from gravel or rock mining activities (sands, sediments, rock dust, soils etc.), with a limitation in the use of extracted minerals. They also proposed to restrict the processing of the mineral constituents to mechanical treatments by means of sieving, crushing, washing with water with use of any synthetic extractants or any other agents. In this regard, it is necessary to identify the representative range of mineral constituents used in growing media. Those are expanded minerals (perlite, vermiculite and expanded clay) added to improve the bulk density of the product. For that purpose, it has been found that slags from the blast furnaces can be expanded by adding controlled quantities of water, air, or steam, producing a lightweight expanded or foamed product, though the main applications are construction materials. Slags from aluminium and steel industry can also be used in the production of mineral wool. These considerations have been taken into account to propose a percentage of recycled materials in mineral constituents.

3.5 Criterion 5: Limitation of hazardous substances

3.5.1 Limits for Potentially Toxic Elements (PTEs)

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 9, measured in terms of dry weight of constituent.

Table 9. Proposed PTE limits for SI, GM and Mulches

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

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.

Table 10. Additional PTE limits for organic constituents derived from industrial sludges

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

Assessment and verification

The applicant shall provide the tests reports conducted in accordance with testing procedure indicated in respective EN standards in Table 11:

Table 11. Standard methods of extraction and measurement of PTE

PTE	Abbr	Method of measurement	Method of extraction
Arsenic	As	EN 13650 ICP OES or FAAS EN 16170 ICP OES EN 16171 ICP MS	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
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	

Rationale and discussion

Limit values

The current EU Ecolabel Decisions for soil improvers and growing media set the following limits for PTE in mg/kg DW:

Table 12. Current PTE limits for soil improver and growing media

Parameter	GM Limit	SI Limit	Condition
Zn	300	300	Soil improvers: <i>In the final product, the content of the following elements shall be lower than the values shown below, measured in terms of dry weight</i> Growing media: <i>In the organic growing medium constituents, the content of the following elements shall be lower than the values shown below, measured in terms of dry weight</i>
Cu	100	100	
Ni	50	50	
Cd	1	1	
Pb	100	100	
Hg	1	1	
Cr	100	100	
Mo	2	2	Limit values are applicable to organic constituents only. Maximum allowable concentrations are applied only to products containing material from industrial processes, such as rice hulls, peanut hulls or sludges from the agro-food industry. <i>Note this is the same text for GM and SI</i>
Se	1.5	1.5	
As	10	10	
F	200	200	

It is recommended that the PTEs that should be limited in EU Ecolabel GM, SI and mulch are those that are currently limited, i.e. Zn, Cu, Ni, Cd, Cr, Pb, Hg, Mo, Se, As and F.

The first version of the proposed criteria included two options:

1. retaining the current limit values
2. setting stricter limit values, based on the limits proposed in the EoW criteria for Biodegradable waste project.

Stakeholder feedback

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. In this regard, limit values equal to those proposed in the EoW for biodegradable waste report and even higher were suggested.

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 most bark mulches that might reach values up to 3 ppm, according to the comments received.

For mineral constituents in growing media, some comments pointed out that the test based on aqua regia digestion measures the content of metals that are not bioavailable in mineral constituents. 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. Furthermore, it was also mentioned that mineral wool and expanded minerals are manufactured at high temperatures, producing a chemical bound of heavy metals within the structure of the mineral. These comments are further supported by the standard NF U 44-551 Supports de cultures, which exempts mineral wool and expanded minerals from the requirement of heavy metals, as shown in Table 13.

Table 13. PTE limit values in NF U 44-551 Supports de cultures

PTE	Abbr	Limit values for GM except mineral wool and expanded minerals. mg/kg (dry weight)
Cadmium	Cd	2
Chromium (total)	Cr	150
Copper	Cu	100
Mercury	Hg	1
Nickel	Ni	50
Lead	Pb	100
Zinc	Zn	300

The ongoing revision of the Fertilizer Regulation is also considering to set limit values in heavy metals specific for Growing media products, but no exemption for mineral wool and expanded minerals is foreseen (Table 14)

Table 14. PTE limit values in ongoing revision of Fertilizer Regulation

PTE	Abbr	Limit values for GM (under discussion) mg/kg (dry weight)
Cadmium	Cd	3
Chromium (total)	Cr	150
Copper	Cu	230
Mercury	Hg	1
Nickel	Ni	90
Lead	Pb	150
Zinc	Zn	500

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 (see Table 15 and Table 16), given that the EU Ecolabel should go beyond mandatory requirements.

Table 15. PTE limits proposed in EoW criteria for biodegradable waste report vs EU Ecolabel proposal

PTE	Limit EoW biodegradable waste report 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

Table 16. PTE limits in EU Countries (EC JRC, 2014)

Country	Regulation	Type of standard	Cd	Crtot	CrVI	Cu	Hg	Ni	Pb	Zn	As
mg/kg d.m.											
AT	Compost Ord.:Class A+ (organic farming)	Statutory Ordinance	0.7	70	-	70	0.4	25	45	200	-
	Compost Ord.:Class A (agriculture; hobby gardening)		1	70	-	150	0,7	60	120	500	-
	Compost Ord.: Class B limit value (landscaping; reclam.) (guide value)*		3	250	-	500 (400)	3	100	200	1,800 (1,200)	-
BE	Royal Decree, 07.01.1998, case by case authorisation, Compost	Statutory decree	2	100	-	150	1	50	150	400	20
	Royal Decree, 07.01.1998, case by case authorisation, DIGESTATE	Statutory decree	6	500	-	600	5	100	500	2000	150
BG	No regulation	-	-	-	-	-	-	-	-	-	-
CY	No regulation	-	-	-	-	-	-	-	-	-	-
CZ	Use for agricultural land (Group one)	Statutory	2	100	-	100	1	50	100	300	10
	Landscaping, reclamation (draft Bio-waste Ordinance) (group two)	Statutory									
		Class 1	2	100	-	170	1	65	200	500	10
		Class 2	3	250	-	400	1.5	100	300	1200	20
		Class 3	4	300	-	500	2	120	400	1500	30
	Fertilizer law 156/1998, ordinance 474/2000 (amended)	DIGESTATE with dry matter > 13%	2	100		150	1	50	100	600	20
	Fertilizer law 156/1998, ordinance 474/2000 (amended)	DIGESTATE with dry matter < 13%	2	100		250	1	50	100	1200	20
DE	Quality assurance RAL GZ - compost / digestate products	Voluntary QAS	1.5	100	-	100	1	50	150	400	-
	Bio waste Ordinance	Statutory decree (Class I)	1	70	-	70	0.7	35	100	300	-
		(Class II)	1.5	100	-	100	1	50	150	400	-
DK	Statutory Order Nr.1650; Compost after 13 Dec. 2006	Statutory decree	0.8	-	-	1,000	0.8	30	120/60 for priv. gardens	4,000	25
EE	Env. Ministry Re. (2002.30.12; m° 87) Sludge regulation	Statutory	-	1000	-	1000	16	300	750	2500	-
ES	Real decree 506/2013 on fertilisers	Statutory									
	Class A		0.7	70	0	70	0.4	25	45	200	-
	Class B		2	250	0	300	1.5	90	150	500	-

Country	Regulation	Type of standard	Cd	Crtot	CrVI	Cu	Hg mg/kg d.m.	Ni	Pb	Zn	As
	Class C		3	300	0	400	2.5	100	200	1000	-
FI	Decree of the Ministry of Agriculture and Forestry on Fertiliser Products 12/07	Statutory decree	1.5	300	-	600	1	100	100	1,500	25
FR	NF U44-051	standard	3	120		300	2	60	180	600	
GR	KYA 114218, Hellenic Government Gazette, 1016/B/17- 11-97 [Specifications framework and general programmes for solid waste management]	Statutory decree	10	510	10	500	5	200	500	2,000	15
HU	Statutory rule 36/2006 (V.18)	Statutory Co. 50; Se: 5	2	100	-	100	1	50	100	--	10
IE	Licensing/permitting of treatment plants by competent authority stabilised MBT output or compost not meeting class I or II	Statutory	5	600	-	600	5	150	500	1500	-
	(Compost – Class I)	Statutory	0.7	100	-	100	0.5	50	100	200	-
	(Compost – Class II)	Statutory	1.5	150	-	150	1	75	150	400	-
IT	Law on fertilisers (L 748/84; and: 03/98 and 217/06) for BWC/GC/SSC	Statutory decree	1.5	-	0.5	230	1.5	100	140	500	-
Luxembourg	Licensing for plants		1.5	100	-	100	1	50	150	400	-
LT	Regulation on sewage sludge Categ. I (LAND 20/2005)	Statutory	1.5	140		75	1	50	140	300	-
LV	Regulation on licensing of waste treatment plants (n° 413/23.5.2006) – no specific compost regulation	Statutory =threshold between waste/product	3			600	2	100	150	1,500	50
Netherlands	Amended National Fertiliser Act from 2008	Statutory	1	50		90	0.3	20	100	290	15
PL	Organic fertilisers	Statutory	5	100		-	2	60	140	-	-
PT	Standard for compost is in preparation	-	-	-	-	-	-	-	-	-	-
Sweden	Guideline values of QAS	Voluntary	1	100	-	100	1	50	100	300	
	SPCR 152 Guideline values	Voluntary	1	100	-	600	1	50	100	800	-
	SPCR 120 Guideline values (DIGESTATE)	Voluntary	1	100	-	600	1	50	100	800	-
SI	Decree on the treatment of biodegradable waste (Official Gazette of the Republic of Slovenia, no. 62/08)	Statutory: 1 st class*	0.7	80	-	100	0.5	50	80	200	-
		Statutory: 2 nd class*	1.5	200	-	300	1.5	75	250	1200	-
		Statutory: stabilized biodegradable waste*	7	500	-	800	7	350	500	2500	-

Country	Regulation	Type of standard	Cd	Crtot	CrVI	Cu	Hg	Ni	Pb	Zn	As
		mg/kg d.m.									
		* normalised to an organic matter content of 30%									
SK	Industrial Standard STN 46 5735 Cl. 1	Voluntary (Mo: 5)	2	100		100	1	50	100	300	10
	Cl. 2	Voluntary(Mo: 20)	4	300		400	1.5	70	300	600	20
UK	UKROFS fertil.org.farming, 'Composted household waste'	Statutory (EC Reg. 889/2008)	0.7	70	0	70	0.4	25	45	200	-
	Standard: PAS 100	Voluntary	1.5	100	-	200	1	50	200	400	-
	Standard: PAS 110 (DIGESTATE)	Voluntary	1.5	100	-	200	1	50	200	400	-
EU ECO Label	COM Decision (EC) n° 64/2007 eco-label to growing media COM Decision (EC) n° 799/2006 eco-label to soil improvers	Voluntary [Mo: 2; As: 10; Se: 1.5; F: 200 [only if materials of industrial processes are included]	1	100	-	100	1	50	100	300	10
EU Regulation on organic agriculture	EC Reg. n° 889/2008. Compliacne with limits required for compost from source separated bio-waste only	Statutory	0.7	70	-	70	0.4	25	45	200	-

Regarding the content of cadmium present in bark mulches, its Cd concentration will have to fulfil the requirements within the ongoing revision Fertilizers regulation, which considers mulch as a type of soil improver. In this regard, the limit value for Cd that is foreseen to be adopted is 1.5 ppm. Hence, the EU Ecolabel limit value cannot be less strict than the one set by the mandatory regulation. In addition, there are bark mulches that can fulfil the limits of 1 - 1.5 ppm Cd, so the EU Ecolabel criterion would select the best ones from an environmental point of view, which is the main objective of this scheme.

Extraction and measurement methods

The initial proposal recalled the instruction within the current EU Ecolabel Decisions to implement those relevant methods developed under the Horizontal project once they were available, and thus, and the CEN/TC 400 standards were suggested to be chosen over the CEN/TC 223.

Stakeholder feedback

In reaction, most GM manufactures claimed that CEN/TC 400 methods were not validated for GM and SI, in contrast to CEN/TC 223, while other stakeholders supported the original proposal. Some of the manufacturers supporting the CEN/TC 223 also argued that their laboratories work with CEN/TC 223 standards, and new standards would mean an economical overburden that would not bring any advantage.

Other comments about the different heavy metals measuring methods proposed in the previous document have been raised. One stakeholder requested to set one method for monitoring each heavy metal. In addition, the proposed method should have been validated for the tested materials (soils improvers and growing media), as the ones from CEN TC 223.

In response to this discussion, a revised proposal is recommended, where those standards within CEN/TC 223 and the equivalent ones within CEN/TC 400 are allowed to be used. In the case of Hg determination, the EN 13650 doesn't include any determination method for it, thus the CEN/TC method based on cold-vapour atomic absorption spectrometry or cold-vapour atomic fluorescence spectrometry is proposed. The aqua regia digestion is recommended as extraction method (EN 13650 Soil improvers and growing media - Extraction of aqua regia soluble elements; or EN 16174 Sludge, treated biowaste and soil - Digestion of aqua regia soluble fractions of elements), and methods of determination based on ICP OES or FAAS (as the EN 13650 standards does by mean of its Annex B) and on ICP MS are allowed to be used. These methods are suitable to measure the heavy metals in the concentrations permitted, and just in the case of Hg, the determination with cold-vapour atomic absorption spectrometry or cold-vapour atomic fluorescence spectrometry is required.

This proposal of recognition of both CEN/TCs standards, which is also extended to the rest of criteria, aims at avoiding any additional overburden to comply with the EU Ecolabel criteria, while the correct level of assurance of compliance is reached. In this regard, the standards proposed are technically equivalent, and the standards harmonization that might be needed between both CEN/TCs is beyond the scope of EU Ecolabel scheme.

As mentioned above, for mineral constituents in growing media, 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.

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3.5.2 Limits for Persistent Organic Pollutants

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 in Table 17, measured in terms of dry weight

Table 17. Limit value proposed for POP

Pollutant	Limit mg/kg DW
PAH ₁₆	6

PAH₁₆ = sum of naphthalene, acenaphthylene, acenaphthene, 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

Assessment and verification

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

Table 18. Standard test method for PAH₁₆

Pollutant	Test method
PAH ₁₆ (sum of naphthalene, acenaphthylene, acenaphthene, 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)	CEN/TS 16181

Rationale and discussion

In line with other initiatives, it was proposed that some specific POPs limits should be introduced for PAHs, PCBs, PFC and PCDD/F. Although most of the responses from the stakeholder consultation would like to have no or limited monitoring, there have also been occurrences of poor quality products contaminated with organic pollutants (EC JRC, 2014).

The control of organic pollutants, particularly POPs that do not degrade during composting and AD, is largely by elimination of input materials containing such pollutants. The FATE study by IPTS published in the Working document for EoW criteria for biodegradable waste (EC JRC, 2014) indicated, however, 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 in our view, such measures are unlikely to be fully effective and eliminate the risk of the composts and digestates being contaminated. Assurance of quality through appropriate product testing is therefore recommended.

Stakeholder feedback

The frequency of testing is a key parameter, as testing is a cost but greater assurance on product quality is provided by more frequent monitoring. The stakeholder responses clearly show that the financial cost of monitoring for organic pollutants might become a burden, so

an appropriate balance has been sought. It is also suggested that testing has to be carried out by laboratories accredited for that purpose, through an accreditation standard and accreditation organisation accepted at EU level or by the Member State competent authority. The costs of the test proposed are shown in Table 19:

Table 19. Estimated cost of the PAH₁₆ test

Parameter	Test method	Cost
PAH ₁₆	prCEN/TS 16181	€ 149

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). While being a good indicator of the presence of organic pollutants, the expenses of the monitoring are reduced to the minimum.

3.5.3 Hazardous substances and mixtures

The EU Ecolabel may not be awarded if the product or any article of it, as defined in Article 3(3) of Regulation (EC) No 1907/2006 of the European Parliament and of the Council, or any homogenous part of it contain substances or mixtures meeting the criteria for classification with the hazard statements or risk phrases specified in Table 20, in accordance with Regulation (EC) No 1272/2008 or Council Directive 67/548/EC, nor they contain substances or mixtures referred to in Article 57 of Regulation (EC) No 1907/2006, unless they have been specifically derogated from.

The most recent classification rules adopted by the Union shall take precedence over the listed hazard classifications and risk phrases. Applicants shall therefore ensure that any classifications are based on the most recent classification rules.

The hazard statements and the risk phrases in generally refer to substances. However, if information on substances cannot be obtained, the classification rules for mixtures shall apply.

Substances or mixtures which change their properties through processing and thus become no longer bioavailable or undergo chemical modification in a way that removes the previously identified hazard are exempted from Criterion 5.3. This shall include, for instance, modified polymers and monomers or additives, which become covalently bonded within plastics.

Concentration limits for substances or mixtures which may be or have been assigned the hazard statements or risk phrase listed in Table 20, meeting the criteria for classification in the hazard classes or categories, and for substances meeting the criteria of Article 57 (a), (b) or (c) of Regulation (EC) No 1907/2006, shall not exceed the generic or specific concentration limits determined in accordance with Article 10 of Regulation (EC) No 1272/2008. Where specific concentration limits are determined they shall prevail over the generic ones.

Table 20. Hazard statements and respective risk phrases

Hazard Statement ^a	Risk Phrase ^b
H300 Fatal if swallowed	R28
H301 Toxic if swallowed	R25
H304 May be fatal if swallowed and enters airways	R65
H310 Fatal in contact with skin	R27
H311 Toxic in contact with skin	R24
H330 Fatal if inhaled	R23/26
H331 Toxic if inhaled	R23
H340 May cause genetic defects	R46
H341 Suspected of causing genetic defects	R68
H350 May cause cancer	R45

Hazard Statement ^a	Risk Phrase ^b
H350i May cause cancer by inhalation	R49
H351 Suspected of causing cancer	R40
H360F May damage fertility	R60
H360D May damage the unborn child	R61
H360FD May damage fertility. May damage the unborn child	R60/61/60-61
H360Fd May damage fertility. Suspected of damaging the unborn child	R60/63
H360Df May damage the unborn child. Suspected of damaging fertility	R61/62
H361f Suspected of damaging fertility	R62
H361d Suspected of damaging the unborn child	R63
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.	R62-63
H362 May cause harm to breast fed children	R64
H370 Causes damage to organs	R39/23/24/25/26/27/28
H371 May cause damage to organs	R68/20/21/22
H372 Causes damage to organs	R48/25/24/23
H373 May cause damage to organs	R48/20/21/22
H400 Very toxic to aquatic life	R50
H410 Very toxic to aquatic life with long-lasting effects	R50-53
H411 Toxic to aquatic life with long-lasting effects	R51-53
H412 Harmful to aquatic life with long-lasting effects	R52-53
H413 May cause long-lasting effects to aquatic life	R53
EUH059 Hazardous to the ozone layer	R59
<p><i>Notes</i></p> <p><i>a</i> In accordance with Regulation (EC) No 1272/2008.</p> <p><i>b</i> In accordance with Directive 67/548/EEC and Directive 1999/45/EC of the European Parliament and of the Council</p> <p><i>c</i> In accordance with Commission Regulation (EU) No 286/2011.</p>	

This criterion does not apply to:

1. 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.
2. Substances not included in the scope of the Regulation (EC) No 1907/2006

Assessment and verification:

The applicant shall provide the bill of materials of the product, including a list with all articles and homogeneous part of it.

The applicant shall screen the presence of substances and mixtures that may be classified with the hazard statements or risk phrases reported in this criterion. The applicant shall provide a declaration of compliance with this criterion for the product, any article of it or any homogenous part of it.

Applicants shall select the appropriate forms of verification. The main forms of verification are set out as follows:

- Homogenous parts and any associated treatments or impurities: safety data sheets shall be provided for the materials composing that part of product and for substances and mixtures used in the formulation and treatment of the materials remaining in the final part above a cut-off limit of 0.10 % w/w unless a lower generic or specific concentration limit applies in accordance with the Article 10 of Regulation (EC) No 1272/2008;
- Chemical recipes used to impart a specific function to the product or to components of the product (e.g. glues and adhesives): safety data sheets shall be provided for substances and mixtures used in the the final product or substances and mixtures applied to components of the product and remaining in the components of the product.

That declaration shall include related documentation, such as declarations of compliance signed by the suppliers, on the non-classification of the substances, mixtures or materials with any of the hazard classes associated to the hazard statements or risk phrases referred in table 5 in accordance with Regulation (EC) No 1272/2008, as far as this can be determined, as a minimum, from the information meeting the requirements listed in Annex VII to Regulation (EC) No 1907/2006.

The information provided shall relate to the forms or physical states of the substances or mixtures as used in the final product.

The following technical information shall be provided to support the declaration of classification or non-classification for each substance and mixture:

- i. *for substances that have not been registered under Regulation (EC) No 1907/2006 or which do not yet have a harmonised CLP classification: information meeting the requirements listed in Annex VII to that Regulation;*
- ii. *for substances that have been registered under Regulation (EC) No 1907/2006 and which do not meet the requirements for CLP classification: information based on the REACH registration dossier confirming the non-classified status of the substance;*
- iii. *for substances that have a harmonised classification or are self-classified: safety data sheets where available. If these are not available or the*

substance is self-classified then information shall be provided relevant to the substances hazard classification in accordance with Annex II to Regulation (EC) No 1907/2006;

- iv. in the case of mixtures: safety data sheets where available. If these are not available then calculation of the mixture classification shall be provided according to the rules under Regulation (EC) No 1272/2008 together with information relevant to the mixtures hazard classification in accordance with Annex II to Regulation (EC) No 1907/2006.*
- v. 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*

Safety data sheets (SDS) shall be completed in accordance with the guidance set out in Section 2, 3, 9, 10, 11 and 12 of Annex II to Regulation (EC) No 1907/2006 (requirements for the compilation of safety data sheets). Incomplete SDS shall require supplementing with information from declarations by chemical suppliers.

Information on intrinsic properties of substances may be generated by means other than tests, for instance through the use of alternative methods such as in vitro methods, by quantitative structure activity models or by the use of grouping or read-across in accordance with Annex XI to Regulation (EC) No 1907/2006. The sharing of relevant data across the supply chain is strongly encouraged.

Rationale and discussion

The EU Ecolabel Regulation 66/2010 has introduced new requirements by mean of Article 6.6 and 6.7. which affects to the hazardous substances that might be present in the products:

Article 6.6

The EU Ecolabel may not be awarded to goods containing substances or preparations/mixtures meeting the criteria for classification as toxic, hazardous to the environment, carcinogenic, mutagenic or toxic for reproduction (CMR), in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures.

Article 6.7

For specific categories of goods containing substances referred to in paragraph 6, and only in the event that it is not technically feasible to substitute them as such, or via the use of alternative materials or designs, or in the case of products which have a significantly higher overall environment performance compared with other goods of the same category, the Commission may adopt measures to grant derogations from paragraph 6. No derogation shall be given concerning substances that meet the criteria of Article 57 of Regulation (EC) No 1907/2006 and that are identified according to the procedure described in Article 59(1) of that Regulation, present in mixtures, in an article or in any homogeneous part of a complex article in concentrations higher than 0,1 % (weight by weight). Those measures, designed to amend non-essential elements of this Regulation, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 16).

Organic constituents

The organic constituents currently allowed by the EU SI and GM Ecolabels are derived from the processing and/or re-use of waste. In the case of compost, it is covered by Article 2(7)(b) of the Regulation (EC) No 1907/2006 (REACH), which sets out criteria for exempting substances within Annex V of this Regulation from the registration, downstream user and evaluation requirements. According to the Guidance provided by ECHA:

This exemption covers compost when it is potentially subject to registration, i.e. when it is no longer a waste, and is understood as being applicable to substances consisting of solid particulate material that has been sanitised and stabilised through the action of micro-organisms and that result from the composting of any bio waste capable of undergoing aerobic decomposition in its entirety.

This explanation is without prejudice to discussions and decisions to be taken under Community waste legislation on the status, nature, characteristics and potential definition of compost, and may need to be updated in the future.

In the case of digestates, an exemption is also foreseen to be considered.

Other wastes not covered by End of waste criteria are out of the scope of the REACH Regulation.

According to the REACH Regulations, naturally occurring substances, if they are not chemically modified, are also exempted. This group of substances is characterised by the definitions given in Article 3(39) and 3(40):

The Article 3(39) defines a 'substances which occur in nature' as 'a naturally occurring substance as such, unprocessed or processed only by manual, mechanical or gravitational means, by dissolution in water, by flotation, by extraction with water, by steam distillation or by heating solely to remove water, or which is extracted from air by any means

Mineral constituents

Mineral constituents are covered by the exemption provided by Article 2(7)(b) of the REACH Regulation. The ECHA Guidance clarifies this point as follows:

Minerals which occur in nature are covered by the exemption if they are not chemically modified. This applies to naturally occurring minerals, which have undergone a chemical process or treatment, or a physical mineralogical transformation, for instance to remove impurities, provided that none of the constituents of the final isolated substance has been chemically modified'

Mineral wool and CLP Regulation (Regulation (EC) No 1272/2008)

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 exceptions are included in 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:

- Note Q:

The classification as a carcinogen need not apply if it can be shown that the substance fulfils one of the following conditions:

- a short term biopersistence test by inhalation has shown that fibres longer than 20 µm have a weighted half-life less than 10 days; or

- a short term biopersistence test by intratracheal instillation has shown that fibres longer than 20 µm have a weighted half-life less than 40 days; or
- an appropriate intra-peritoneal test has shown no evidence of excess carcinogenicity; or
- absence of relevant pathogenicity or neoplastic changes in a suitable long term inhalation test.

- Note R :

The classification as a carcinogen need not apply to fibres with a length weighted geometric mean diameter less two standard geometric errors greater than 6 µm.

One of the main manufacturers of mineral wool for growing media purposes in Europe reported that its mineral wool falls under the Note Q provisions, fulfilling all of the conditions for the exclusion of classification as hazardous under this Note.

It has been found that mineral wool insulation manufacture process uses urea-extended phenol formaldehyde resins as binder. According to the mineral wool insulation industry, primary combustion products of the cured urea extended phenolic formaldehyde binder, when heated above 200 °C, are carbon monoxide, carbon dioxide, ammonia, water and trace amounts of formaldehyde. Other undetermined compounds could be released in trace quantities. Emission usually only occurs during the first heating. In this regard, the industry reported that formaldehyde in mineral wool insulation is eliminated in the production process through high temperatures.

Stakeholder feedback

Some concerns have been raised about the carcinogenic category which mineral wool might be classified as. Based on this fact, some stakeholders propose the exclusion of mineral wool, as there are apparently many risks involved in the mineral wool. However, the fact is that mineral wool is not classified as carcinogenic if it complies with just one of the requirements in Note Q or the requirement in Note R. Given the importance of the hazard, the CLP Regulation is a robust base to ensure the harmlessness of the mineral wool and the compliance with the Article 6.6 of the EU Ecolabel Regulation. It was also 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. The following steps have to be accomplished before the EUCEB Trademark can be awarded:

1. Initial Application for the right to use the Trademark

- *Legal Undertaking*
- *Manufacturers Declaration*
- *Contract with Sampling Institute on test material sampling and monitoring of self-control*
- *Exoneration certificate of the Biopersistence test*
- *Short term Biopersistence test report*
- *Confirmation of scientific expert that the fibre complies with EUCEB-exoneration criteria of 15-04-2005*

-
- *Report of Analysis Institute on initial conformity inspection*
 - *Confirmation of scientific expert that initial conformity inspection complies with EUCEB range of exonerated fibres*

2. Continuous Verification

Every manufacturer obtaining certificate to use the Trademark undertakes to comply with conformity between the tested fibers and those, which are offered for sale.

In order to ensure conformity that the chemical compositions of the fibres are within the acceptable range, cf. enclosure from the fibres tested in the report submitted to the European Certification Board for Mineral Wool Products, an external conformity inspection shall take place regularly twice per calendar year in laboratories designated by the Quality Board.

The samples to be tested shall be obtained from a production line or commercially available products. Collection shall be made by an accredited sampling institute qualified by the Quality Board as competent to act in this domain.

- *The external inspection, which should be submitted to the Quality Board, must include:*
- *Details of the manufacturer.*
- *Designation of the fibres tested (e.g. tradename or other identification).*
- *Inspecting office.*
- *Time or period of the inspection.*
- *Details of the inspection procedure.*
- *Chemical composition of the material examined*

3.5.4 Substances listed in accordance with Article 59(1) of Regulation (EC) No 1907/2006

No derogation from the exclusion in Article 6(6) of Regulation (EC) No 66/2010 shall be given concerning substances identified as substances of very high concern and included in the list provided for in Article 59(1) of Regulation (EC) No 1907/2006, present in mixtures, in an article or in any homogeneous part of the product in concentrations > 0.10 % by weight.

Assessment and verification

Reference to the latest list of substances of very high concern shall be made on the date of application. The applicant shall provide a declaration of compliance with criterion 5.4, together with related documentation, including declarations of compliance signed by the material suppliers and copies of relevant SDS for substances or mixtures in accordance with Annex II to Regulation (EC) No 1907/2006 for substances or mixtures. Concentration limits shall be specified in the safety data sheets in accordance with Article 31 of Regulation (EC) No 1907/2006 for substances and mixtures.

3.6 Criterion 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 in Table 21:

Table 21. Limit value proposed for pathogens

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

Assessment and verification

The applicant shall provide the test reports conducted in accordance with testing procedure indicated in Table 22:

Table 22. Standard test method for pathogens

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

Rationale and discussion

The current EU Ecolabel criteria for GM and SI include monitoring for *Salmonella spp.* and either *E.coli* or Helminth ova, depending on the source of the compost. This section discusses the value in monitoring these organisms and whether these are sufficient.

Salmonella are a genus of enteric pathogenic bacteria that are responsible for many mild to potentially fatal (typhoid) gastric diseases. They are often found associated with food stuffs and faecal material of animal origin. In particular, they are often associated with poultry and eggs and are a known hazard in the kitchen to be aware of during food preparation. Consequently, they are potentially present in compost and digestate feedstocks. They may also contaminate green and garden wastes if containing faecal material, e.g from animal bedding, and natural faecal deposition.

They do not produce heat resistant bodies and are therefore readily destroyed by the heat treatments applied in composting and AD processes to comply with ABPR. They are readily tested for in low cost microbiological tests that test for the group of *Salmonella* and are hence broad based rather than for a particular species. The test is widely applied in the context of standards or proposed standards for composts and digestates (Table 23), where

typically the limit is none detected in 25 g of fresh weight of material, although some are more and some less stringent in some uses. In the EoW criteria for biodegradable waste report (EC JRC, 2014), a limit of absent in 25 g was proposed.

Table 23. EU Standards for compost and digestate – limits for *Salmonella*

Country	Standard	Limit
EU	ABP Regulation	None in 25 g for 5 samples
EU	EoW criteria for biodegradable waste report (EC JRC, 2014)	None in 25 g fresh weight
EU	Fertiliser Regulation (draft proposal)	None in 25 g fresh weight
Germany	RAL-GZ-256	None in 50 g fresh weight
UK	PAS100 and PAS110	None in 25 g fresh weight
France	NFU-44-051	Gardening/retailer – None in 1 g Other uses – None in 25 g
Denmark	Biowaste ordinance	None (sample size not specified)
Italy	Fertiliser law	None in 25 g fresh weight
Latvia	Cabinet Regulation No. 530 25.06.2006	None in 25 g fresh weight

The presence or absence of *Salmonella* is not an effective indicator for general pathogen risk, as it is not always present in the feedstock. However, its absence is a reasonable indication that pathogen risks would be low for many non-sporulating ABP derived pathogens. On this basis, and considering the relatively low cost of testing, we see testing for this organism as valuable protection that should be maintained.

Monitoring for Helminth ova is usually considered as an alternative test to that for *E. coli* as an indicator for faecal contamination and hence faecal-derived pathogen risks.

Helminths are a collective name for flatworms (flukes and tapeworms) and roundworms (nematodes), many of which are parasites of the intestinal tract and produce eggs (ova) which are released and therefore may be found in faecal material. Helminths are transmitted to humans in many different ways, but the simplest is by accidental ingestion of infective eggs (*Ascaris*, *Echinococcus*, *Enterobius*, *Trichuris*) or larvae (some hookworms). The presence of ova may be used as a direct indicator of risks from helminths and of faecal material. Their presence in faecal material is not guaranteed, as they are parasites and not normal components of the intestinal organisms. Therefore, their absence is not a guarantee of no faecal contamination and consequently no risk from other faecal derived pathogens. In the current EU Ecolabel for GM and SI, there is a requirement to monitor for Helminth ova if the compost component is not exclusively green, garden and park waste. This recognizes that

helminths are generally associated with ABP, but there is also no guarantee that park green waste is free of faecal material.

Monitoring for Helminth ova is less commonly carried out in many compost and digestate standards for which limits are similar (Table 24).

Table 24. EU Standards for compost and digestate – limits for Helminth Ova

Country	Standard	Limit
EU	ABP regulation	Not required (<i>E. coli</i> instead)
EU	Proposed end of waste criteria for biodegradable waste (Draft Final Report)	Not required (<i>E. coli</i> instead)
Germany	RAL-GZ-256	Not required
UK	PAS110	<i>E. coli</i> instead but possibly included in specific cases at discretion of accrediting ABR body
France	NFU-44-051	Gardening/retailer – None in 1 g Other uses – None in 1.5 g
Italy	Fertiliser law	Not required but <i>Nematodes</i> , <i>trematodes</i> , <i>cestodes</i> must be absent in 50 g
Poland		Not required but <i>Ascaris</i> , <i>Trichuris</i> , <i>Toxocara</i> must be absent (sample size unspecified)

Escherichia coli is a common microorganism found in significant numbers in the intestinal tract of all animals. Most strains are not pathogenic and live in the intestine as a normal part of the gut flora, but there are some notable pathogenic strains, e.g. O157. Its virtually universal presence in faecal material means that *E. coli* is used in many areas as an organism to indicate faecal contamination and, as a consequence, the potential presence of faecal-derived pathogens.

In the current EU Ecolabel criteria for SI and GM, the test for *E. coli* is applied for products whose compost component is exclusively derived from green, garden or park waste. These materials may be contaminated with faecal material and contain *E. coli*. Similarly, however, the *E. coli* would be an indicator of faecal contamination in EU Ecolabel SI and GM products for which helminth ova are currently tested. In our view, this would be preferable, as *E. coli* is an indicator of faecal contamination rather than a specific pathogen indicator. The presence and absence of *E. coli* does not provide an absolute guarantee of the presence or absence of faecal material and of faecal pathogens. However, it should be understood that the only surety for the presence or absence of a particular pathogen is to monitor specifically for the pathogen.

The analysis of *E. coli* is a relatively low cost and established methodology, and limits for *E.coli* appear widely in standards for composts and digestates, with similar limit of 1000/ g

fresh weight (Table 25). Note there are some differences in methods and reporting units, e.g. as CFU (colony forming units) or MPN (mean probable number).

Table 25. EU Standards for compost and digestate – limits for E. coli

Country	Standard	Limit
EU	ABP regulation	1000/ g in 4 of 5 samples (units CFU or MPN not specified)
EU	Proposed end of waste criteria for biodegradable waste (Draft Final Report)	1000 CFU /g
EU	Fertiliser Regulation (draft proposal)	1000 CFU/ g fresh weight
Germany	RAL-GZ-256	
UK	PAS100 and PAS110	1000 CFU/ g fresh weight
France	NFU-44-051	Not used (Helminth ova instead)
Italy	Fertiliser law	Not used (<i>Enterobacteriaceae</i> instead)
Czech Republic	Biowaste ordinance	1000 CFU/ g
Spain		1000 MPN/g
Finland		1000 CFU/g
Latvia	Cabinet Regulation No. 530 25.06.2006	2500 CFU/g

Stakeholder feedback

Some doubts related to the change of the test method for the measurement of E. Coli have been raised, since it would require a comparative evaluation of both methods to conclude whether the limit value should be updated accordingly or not. From JRC perspective, the proposed limit value and method for E. Coli is in line with the limits proposed by the EoW criteria report, and with other national standards. Thus, such comparison would not be needed, since the limit value does not come from the previous EU Ecolabel criterion, but from a harmonization with the legislation currently in force and under development.

3.7 Criterion 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

Assessment and verification

The applicant shall provide the test reports conducted in accordance with testing procedure indicated in Table 26.

Table 26. Standard test method for stability / maturity

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

Rationale and discussion

The stability criterion is proposed based on several comments from stakeholders that pointed out the concerns related to unstable products. A stability requirement can help prevent the introduction of materials that have hardly undergone any treatment (e.g. so-called "shred-and-spread" compost). Furthermore, greenhouse gas emissions may occur during transport and storage of all compost and digestate materials. 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, where a statement about the stability of organic matter (stable or very stable) by national or international standard is required.

On the other hand, a maximum C/N ratio is recommended, as indicator of the decomposition of the organic matter in the soil improver and its grade of stability and maturity. C/N ratio illustrates the equilibrium between the most important constituents of organic matter. It is often used in literature as indicator of stability and maturity, and thresholds have been

suggested between 10 and 20. A value of 15 is proposed in line to the requirements that are currently under discussion in the revision of the Fertilizer Regulation.

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. For the same reason, it is inadvisable to use high C:N mulches in annual beds or vegetable gardens where the plants of interest do not have deep root systems. 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. However, it is important to highlight that this criterion may be modified according to the criteria under discussion in the ongoing revision of the Fertilizer Regulation, since mulch is not considered a separate product and it is embedded in the definition of soil improver.

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3.8 Criterion 8: Physical Contaminants

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

In organic constituents and mineral constituents, (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.

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

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.* However, there is no requirement for this in the EU Ecolabel for GM, which seems inappropriate, owing to the risk from injury through handling GM. Thus, this criterion is proposed to be applied to the constituents of all products.

3.9 Criterion 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

The applicant shall provide the test reports conducted in accordance with testing procedure indicated in Table 27:

Table 27. Standard test methods for nitrogen content

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

Rationale and discussion

A high level of organic N ensures that N is released only slowly after application. The current EU Ecolabel for SI has limits for nitrogen content: *“the concentration of nitrogen in the product shall not exceed 3 % total N (by weight) and inorganic N must not exceed 20% total N (or organic N ≥ 80%)*.

In the first version of the criteria proposal, the maximum nitrogen content was proposed to be retained for mulches products, but not for soil improvers, since in mulch products, the addition of readily available N is not considered appropriate, as the material functions to suppress weed growth and not as a soil improver through fertilization of the soil. The maximum N content for soil improvers was proposed to be withdrawn, based on the variation of the soil improvers application that led to focus the control of this parameter on the total loading of nitrogen by mean of the application rates of soil improvers in the land.

Stakeholder feedback

A high content in nitrogen can cause the volatilization of nitrogen compounds during land application through ammonia emissions for instance. This concern about nitrogen compounds emissions was raised by some stakeholders with regard of digestates. Thus, the maximum nitrogen content is proposed to be set to both mulches and soil improvers.

Some stakeholders suggested the explicit inclusion of MBA (Meat and Bone Ash), animal bone biochar (ABC), chicken litter incineration ash, or similar products, which are sanitised and safe, and which provide appropriate levels of plant-available phosphorus, to replace phosphorus from mineral sources. It is also suggested that for all products total phosphorus content should be included as user information, and a certain level of total phosphorus it should be

further specified the readily available phosphorus. Regarding this recommendation, the total phosphorus content is proposed in the criterion Provision of information, but no minimum requirements of N-P-K are proposed. As explicit inclusion seems to be unnecessary since the criteria proposed allow the use of this type of products. In addition, this criteria proposal is aligned to the requirements that are under discussion in the ongoing revision of the Fertilizer Regulation.

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3.10 Criterion 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

The applicant shall provide the result of tests conducted in accordance with testing procedure indicated in Table 28:

Table 28. Standard test methods for Dry matter and Organic matter.

Parameter	Test method
Dry matter (% FW)	EN 15934 - Sludge, treated biowaste, soil and waste - Calculation of dry matter fraction after determination of dry residue or water content EN 13041:2011 Soil improvers and growing media - Determination of physical properties - Dry bulk density, air volume, water volume, shrinkage value and total pore space
Organic matter as Loss on Ignition (%DM)	EN 15935 - Sludge, treated biowaste, soil and waste - Determination of loss on ignition EN 13039 Soil improvers and growing media - Determination of organic matter content and ash

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 initial minimum of 20% proposed in the previous version of this document has been revised according to the comments received in this regard by the stakeholders, suggesting this harmonization.

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, which implies a need for certain measures for storage and no possibility of packaging in small bags. Moreover, special equipment is necessary to apply the liquid digestate (like for liquid manure). In addition, it is important to remark that stricter legislation in force at national level will supersede any limit value set by the EU Ecolabel criteria.

3.11 Criterion 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

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 and RAL-GZ 250/1-2 Quality Parameters for Composted Bark

3.12 Criterion 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.

Rationale and discussion

Electrical conductivity is an indirect measurement of salinity, and therefore an important parameter to be checked for products coming into direct contact with plant roots. However, it is not particularly applicable for SI or mulches, which are added to or spread on soil, where the soluble elements that constitute the electrical conductivity would quickly dissipate.

The current EU Ecolabel criteria for GM states that, *the electrical conductivity of the products shall not exceed 1,5 dS/m*. This limit was proposed in the previous revision of this document. Growing media manufacturers strongly recommended to revise this value, which was very high in their view. Further investigation on the EC performed by growing media showed that multiple methods are used to test this parameter, and the results are highly dependent on the extraction ratio of the method. Particularly, there are two extraction ratios commonly used to measure EC: extraction ratio 1:5 and extraction ratio 1:1.5. The standard EN 13038 applies the extraction ratio 1:5 (1 V sample + 5 V water). It hasn't been found a 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. Different sources and data have been collected in order to set a revised EC criterion (Reed 2007, Watson 2003), finding that EC (1:5) below 65 mS/m is suitable for most plants.

3.13 Criterion 13: Provision of information

The following information shall be provided with the product, either written on the packaging or on accompanying fact-sheets:

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
- 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

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

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- 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

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
- 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

3.14 Criterion 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,

The guidelines for the use of the optional label with the text box can be found in the 'Guidelines for the use of the EU Ecolabel logo' on the website:

<http://ec.europa.eu/environment/ecolabel/promo/pdf/logo%20guidelines.pdf>

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Acronyms

ABP	Animal By-Products
ABPR	Animal By-Products Regulations
ABPR	Animal By-Product Regulations
AD	Anaerobic Digestion
AOX	Adsorbable Organic Halogen
BSI	British Standards Institute
CEN	Comité Européen de Normalisation (European Committee for Standardisation)
CEN TC	European Committee for Standardization (Comité Européen de Normalisation) Technical Committee
CLP	Classification, Labelling and Packaging (refers to Regulation on Classification, Labelling and Packaging of Substances and Mixtures)
CV-AAS	Cold-vapour atomic absorption spectrometry
CV-AFS	Cold-vapour atomic fluorescence spectrometry
DDT	DichloroDiphenylTrichloroethane
DG	Directorate General
EC	European Community
ECHA	European Chemicals Agency
EEC	European Economic Community
EoW	End of Waste
EPA	Environmental Protection Agency
EU	European Union
FAAS	Flame atomic absorption spectrometry
GM	Growing Media
GPP	Green Public Procurement
ICP MS	Inductively coupled plasma mass spectrometry
ICP OES	Inductively coupled plasma optical emission spectrometry
IPTS	Institute for Prospective Technological Studies
ISE	Ion-Selective Electrode method
JRC	Joint Research Centre
LCA	Life Cycle Assessment
MBT	Mechanical-Biological Treatment

MS	Member State
MSW	Municipal Solid Waste
OJ	Official Journal
PAH	Polycyclic Aromatic Hydrocarbon
PAS	Publically Available Standard
PBDE	PolyBrominated Diphenyl Ether
PCB	Polychlorinated Biphenyl
PCDD	Polychlorinated Dibenzodioxin
PCDD	PolyChlorinated Dibenzo-p-Dioxin
PCDF	Polychlorinated Dibenzofuran
PFC	PerFluorinated Compounds
PFNA	PerFluoroNonanoic Acid
PFOA	PerFluoroOctanoic Acid
PFOS	PerFluoroOctane Sulfonate
POP	Persistent Organic Pollutant
PTE	Potentially Toxic Element
QAS	Quality Assurance System
REACH	Registration, Evaluation, Authorisation and restriction of Chemicals
rWFD	Revised Waste Framework Directive
SI	Soil Improvers
TA	Technical Annex
TC	Technical Committee
TCDD	TetraChloroDibenzo-para-Dioxin
TEQ	Toxic EQuivalent
TS	Technical Standard
UK	United Kingdom
US	United States
VAT	Value Added Tax
WFD	Waste Framework Directive
WRAP	Waste and Resources Action Programme

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