

Technical consultation

Template for comments

Date: 10/08/2012	Document: "EOW for biodegradable waste subject to biological treatment" and its annexes
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Please email back to JRC-IPTS-END-OF-WASTE@ec.europa.eu, with the subject "EoW Biodegradable waste CONSULTATION" **by 21/09/2012 at the latest.**

Commenter: please state your name / affiliation: Emily Nichols, Association for Organics Recycling

Confirmation: Herewith I confirm that my feedback/input can be published (e.g. on the internet), together with the consulted document

(please X-mark if you agree):

1	2	3	4	5	6	7
Page	Chapter No./ Annex (e.g. 3.1, Annex 1)	Text line/Paragraph/T able/ Figure (e.g. Table 1, Last sentence of 3 rd paragraph)	Type of comment ¹	Comment (justification for change) (e.g. The meaning of the sentence is ambiguous, please clarify.)	Proposed change (e.g. Replace the sentence with the following one: "..."; Add the following definition for the new term XYZ: "...")	Comments / feedback to stakeholder
N/A	N/A	N/A	Ge	<p>AfOR has mixed views about the 3rd WD overall; some aspects of the proposals have become more appropriate whilst others have become less appropriate.</p> <p>Proposed EU EoW criteria are different in much of their detail compared with current UK EoW criteria so it will take quite a lot of time and resource to change our systems in the UK, if EU EoW for composts & digestates are supported at vote stage in the European Parliament.</p> <p>MSW: we believe this should be excluded from EU EoW scope, i.e. not allowed as an input to EU EoW compost / digestate product. Despite the controls proposed, any lapse that results in poor quality MSW material being supplied as 'product' could damage all of the markets for all types of EU EoW compost / digestate product, i.e. one MSW scare or bad experience that is well publicised can strongly reduce the demand for any type of EoW</p>	<p>Headline proposals:</p> <p>Please exclude MSW and sewage sludge from EU EoW scope.</p> <p>If MSW and sewage sludge ends up in EU EoW scope:</p> <p>Please do not require organic pollutant testing for compost / digestate made from positive list materials, unless their inputs contained MSW and/or sewage sludge. Associated cost is disproportionate to the risk, so could drive much of the source-segregated biodegradable waste derived compost back to the 'waste to land' regulatory system or push up gate fees as producers seek to recover extra costs from waste suppliers (local authorities for much of the tonnage).</p>	

¹ **1 Type of comment:**

ge = general. Please note that the objective of this consultation is to contrast the accuracy of the background data collected. Political statements without appropriate argumentation will not be considered.

te = technical/specific

ed = editorial/typographic. Please note that editorial corrections of layout and English language are not necessary as this will be done on the final version.

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			<p>compost/digestate product. The risk of damage to the (successful already in the UK) 'EoW' brand is unacceptably high if MSW is allowed as input to EU EoW products.</p> <p>Sewage sludge: negative perceptions associated with materials derived from faecal matter (amongst consumers, food retailers and those responsible for food and farm quality assurance schemes) would take much resource (time and money) to change. We would spend much effort trying to reassure that EU EoW products are fit for use and trying to gain acceptance of a resource derived, at least in part, from faecal matter. We are also concerned that – the same as for MSW - one sewage sludge scare or one bad experience that is well publicised can strongly reduce the demand for <u>any</u> type of EoW compost/digestate product.</p> <p>We are still working to improve market trust in source-segregated biodegradable waste derived composts and digestate products in the UK. Inclusion of MSW and sewage sludge in EU EoW scope could quickly undermine the progress we have made in the UK with our own EoW products.</p> <p>Legal fees and insurance (liabilities and consequential losses) premiums: if in future the only means of demonstrating 'recycled' tonnage is by having a valid certificate for EU EoW compliance (from an independent certification body), suspension or withdrawal of certification could lead to dispute in court if the producer is not satisfied with the outcome of an appeal process managed by the certification body. In terms of disputed compost / digestate derived from MSW and/or sewage sludge, we are concerned about potentially large legal fees in the event that the court finds against the certification body/owner and affordability of premiums for insurance (especially after a high value claim).</p>		
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62	2.8.1.5	2414 - 2424	Ge & Te	<p><u>Approach to setting limits</u></p> <p>The Scientific Committee on Toxicity, Ecotoxicity and the Environment (CSTEE) concluded that Amlinger et al.'s study (2004) 'did not provide sufficient scientific bases for the Commission to be able to propose the appropriate threshold levels for pollutants in compost.</p> <p>To date, there appear to be no other studies or research results that could easily provide a strictly scientific basis at a European level. The major issue remains the determination of safe levels of heavy metals in soils with regard to human toxicity and ecotoxicity.'</p> <p>We have not found in the 3rd draft WD any statement to the effect that proposed limits for heavy metals and organic pollutants are set according to human toxicity and ecotoxicity thresholds, so conclude that proposed limits as 'As Low As Reasonably Achievable', which is an accepted approach in risk assessment and development of quality standards.</p>	<p>Research in the future should aim to establish human toxicity and ecotoxicity thresholds which take account of the ways in which composts and digestates are used.</p> <p>No proposed change for EU EoW in terms of the 'ALARA' approach taken to setting limits; seems to be the only possible approach in the short term.</p>	
101	3.3.4.1		Te	<p><u>PAHs:</u></p> <p>Proposed PAH₁₆ upper limit: 6 mg/kg DM</p> <p>Sample results for PAH₁₂: Max concentrations in GW Co and SS Co and Other exceeded proposed limit.</p> <p>Cost per sample: £118 excl tax.</p> <p><u>Minimum cost for recognition year: £472 excluding tax and any accreditation cost.</u></p> <p>If it is decided that the proposed limit is suitable given the ways in which EU EoW composts / digestates would be allowed to be used, the PAH₁₆ test result statistics seem to show that such testing is necessary for all types of compost / digestate.</p> <p>However, the 3rd WD acknowledges that 'some bias in the results cannot be completely excluded (line 4396), so it is possible that voluntary plant participation, JRC's plant selection for sampling visits</p>	<p>There were insufficient sample numbers included in the PAH₁₂ data for the categories MBT Co, MW Man ECr Di, MBT Di and Other.</p> <p>It is unclear on what basis the Member States that have set PAH limits have chosen those limits; we think their approach has been 'As Low As Reasonably Achievable' rather than determining toxicity thresholds for the environment, animals and humans.</p> <p>JRC should procure a <u>properly resourced</u> ecotoxicity and food chain safety study with aim of establishing PAH toxicity thresholds appropriate to how composts & digestates are intended to be used as EoW resource in the markets. A second aim should include testing sufficient samples of each</p>	

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			<p>and sample exclusion from the data (to avoid too many participating French MBT plants) on which the Figure 8 statistics are based has led to bias. MBT compost samples in the data set were just 9, compared with 30 biowaste compost samples, 24 green waste composts and 16 sewage sludge composts. Similarly, data presented includes just two MBT digestate samples. Given the sample numbers, MBT statistics may have returned similar / lower median, 90 %ile and Max statistics due to chance. With so few samples of those types, it is not possible to determine with confidence whether there are statistically significant differences between the types of compost and digestates, across EU Member States.</p> <p>Presentation of the data does not show what differences may exist between Member States for a specific type of resource, such as Green Waste Compost. There could be significant differences between Member States in terms of contaminant levels, and so applying PAH₁₆ testing in countries that have well established source-segregated biodegradable waste collection and treatment is likely to add disproportionate cost for extremely little benefit (i.e. no samples exceed the proposed PAH₁₆ limit).</p> <p>The 3rd draft WD's lines 2992 to 2993 state that Swiss researchers Brändli et al reported that PAH 'emissions are believed to derive from traffic (asphalt and vehicle exhaust) as well as diffuse sources'. So it seems likely that plant tissue wastes near to heavily trafficked highways / roads and 'street sweepings' (leaves, gravel and smaller soil-size particles) from urban areas in particular would be significant sources of PAHs. You have proposed to reduce the PAHs risk by requiring in the positive list EWC 200201 that 'Grass cuttings, hay, leaves' are only allowed if they are 'Only slightly contaminated cuttings (not collected along highly frequented streets and highways)'. This will make it less likely that a few composts / digestates that included grass cuttings and leaves exceed the</p>	<p>type such that comparison of the data is valid on a statistical basis.</p> <p>THE COST ASSOCIATED WITH PAH₁₆ TESTING IS DISPROPORTIONATE TO THE MARGINAL BENEFIT OF DETECTING RARE, ABOVE-LIMIT CONCENTRATION OF PAH₁₆ IN COMPOSTS AND DIGESTATES MADE FROM SOURCE-SEGREGATED BIODEGRADABLE WASTES, ESPECIALLY IN MEMBER STATES WITH EXPERIENCE IN COLLECTING AND TRANSFORMING THESE WASTE TYPES INTO PRODUCTS, E.G. UK.</p> <p>Preference 1: Leave PAH₁₆ testing and limit out of EU EoW criteria until appropriate PAH toxicity thresholds have been established and the need to apply PAH tests to particular types of compost / digestate has been evaluated (based on larger sample numbers and taking account of possible differences between allowed input types and treatment technologies). Remove MBT and sewage sludge from positive inputs list and exclude them from EU EoW scope.</p> <p>Preference 2: If you decide leave PAH₁₆ testing and limit included in EU EoW criteria, please do not require this for compost / digestate made from positive list materials that did not include MSW and/or sewage sludge, especially where source-segregated collection has been in place for at least one year.</p>	
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				<p>proposed PAH₁₆ limit.</p> <p>A precautionary approach using 'ALARA' limits may be perceived by JRC as better than no PAH₁₆ limit and no PAH testing, but the FATE-COMES study is not SURE there was no bias and limit-setting seems to be 'ALARA' basis rather than known toxicity threshold. ALARA limit is not necessarily the same as the toxicity level, so we are not certain that exceeding the limit would result in harm, nor that complying with the limit would assure no harm. Furthermore, the single PAH₁₆ limit proposed takes no account of compost / digestate rate of application.</p>		
80 & 81	3.3.4.2	Text lines 3031 to 3034, figure 9, lines 3036 to 3041 and figure 10.	Te	<p><u>PCBs</u></p> <p>3rd WD text lines 3031 to 3034': 'Following the results obtained from these measurements, samples in each category exhibiting high TEQ values were subject to further chemical analysis on PCBs and PCDD/Fs. In total 20 samples were selected. The results of the subsequent PCB and PCDD/F measurements are given in Figure 10 and Figure 11.'</p> <p>3rd WD text lines 3036 to 3041: 'The PCB analysis results (Figure 10) indicate that two samples in the category "Other" exceed the guide values in LU and DK (100 and 80 µg/kg). The compost and digestate samples exhibit generally low PCB levels and no clear distinctions can be made between the categories. Nevertheless, the analysis results indicate the importance of measuring PCBs as no assumptions on PCB levels can be made solely based on the sample technology and/or input material.'</p> <p>Comments: The charted PCB₇ statistics in figure 10 comprise just 20 samples out of the much larger number of samples that underwent</p>	<p>JRC should procure a <u>properly resourced</u> ecotoxicity and food chain safety study with aim of establishing PAH toxicity thresholds appropriate to how composts & digestates are intended to be used as EoW resource in the markets. A second aim should include testing sufficient samples of each type such that comparison of the data is valid on a statistical basis.</p> <p>THE COST ASSOCIATED WITH PCB₇ TESTING (approx. £71 excl tax, per sample) IS DISPROPORTIONATE TO THE MARGINAL BENEFIT OF DETECTING RARE, ABOVE-LIMIT CONCENTRATION OF PCB₇ IN COMPOSTS AND DIGESTATES MADE FROM SOURCE-SEGREGATED BIODEGRADABLE WASTES, ESPECIALLY IN MEMBER STATES WITH EXPERIENCE IN COLLECTING AND TRANSFORMING THESE WASTE TYPES INTO PRODUCTS, E.G. UK.</p> <p>Preference 1: Leave PCB₇ testing and limit out of EU EoW criteria until appropriate PCB₇ toxicity thresholds have been established and the need to apply PCB₇ tests to particular types of compost / digestate has been evaluated (based on</p>	

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			<p>dioxins bioassay screening (figure 9). Those 20 samples had the highest bioassay results so were suspected (rightly) to contain the highest concentrations of PCBs and dioxins. In figure 10, the most samples in any category was 4 BWCo samples, there were just 3 samples in each category GWCo, SSCo and MBTCO, and the rest of the categories comprised just two samples, except Man+ECr which was just one sample. These figure 10 results should be regarded as 'maximum PCB₇ concentrations' found in each type of material that underwent dioxin bioassay screening; consequently they are not mean values for each material type.</p> <p>Given that the PCB₇ results should be interpreted as maxima statistics, and that the possibility of bias has not been completely eliminated, it is inappropriate to conclude that 'no clear distinctions can be made between the categories' (line 3038) and therefore that 'no assumptions on PCB levels can be made solely based on the sample technology and/or input material'. PCB₇ results for all samples in each material category should have been obtained; it seems as though median and 90%ile PCB₇ statistics for BWCo, GWCo, SSCo, MBTCO and BWMan+ECrDi are likely to have been <u>far</u> below the PCB₇ limit (if each of the samples in each material category had been PCB₇ tested).</p> <p>The proposed PCB₇ limit of 0.2 mg/kg DM (200 µg/kg DM) seems to be chosen on the basis of 'As Low as Reasonably Achievable' (previous regulation set on that basis and from evaluation of FATE-COMES data). ALARA limit is not necessarily the same as the toxicity level, so we are not certain that exceeding the limit</p>	<p>larger sample numbers and taking account of possible differences between allowed input types and treatment technologies). Remove MBT and sewage sludge from positive inputs list and exclude them from EU EoW scope.</p> <p>Preference 2: If you decide leave PCB₇ testing and limit included in EU EoW criteria, please do not require this for compost / digestate made from positive list materials that did not include MSW and/or sewage sludge, especially where source-segregated collection has been in place for at least one year.</p>	
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				would result in harm, nor that complying with the limit would assure no harm. Furthermore, the single PCB ₇ limit proposed takes no account of compost / digestate rate of application.		
82	3.3.4.2	Lines 3051 to 3058 and footnote 41	Te	<p><u>PCDD/F</u></p> <p>3rd WD text: 'The PCDD/F analysis results (Figure 11) are given as both lower and upper bound values⁴¹, with actual values being between these two limits. The results generally indicate low to medium toxicity equivalents for all samples, with no upper bound value exceeding the strictest existing MS limit of 20 ng I-TEQ/ kg d.m. Again, no clear distinctions can be made between categories, especially when taking into account both the lower and upper bound levels. Hence, as for PCBs, the analysis results stress the importance of measuring PCDD/Fs since no assumptions on PCDD/F levels can be made solely based on the sample technology and/or input material.'</p> <p>Footnote 41: 'In the case of measurement results below the detection limit, the lower bound value is calculated assuming a zero concentration value, whereas the upper bound value is calculated assuming the detection limit as concentration value. The detection limit may vary per sample as the instrument settings are adjusted to allow measurement of all compounds.'</p> <p>Comments: These are similar to comments made above with regard to dioxins bioassay screening and PCB₇. Figure 11 displays 'lower bound' and 'upper bound values' so these can be interpreted as likely minimum value and likely maximum value statistics.</p>	<p>JRC should procure a <u>properly resourced</u> ecotoxicity and food chain safety study with aim of establishing PCDD/F toxicity thresholds appropriate to how composts & digestates are intended to be used as EoW resource in the markets. A second aim should include testing sufficient samples of each type such that comparison of the data is valid on a statistical basis.</p> <p>THE COST ASSOCIATED WITH PCDD/F TESTING (approx. £250 per sample, excl tax) IS DISPROPORTIONATE TO THE MARGINAL BENEFIT OF DETECTING RARE, ABOVE-LIMIT CONCENTRATION OF PCDD/F IN COMPOSTS AND DIGESTATES MADE FROM SOURCE-SEGREGATED BIODEGRADABLE WASTES, ESPECIALLY IN MEMBER STATES WITH EXPERIENCE IN COLLECTING AND TRANSFORMING THESE WASTE TYPES INTO PRODUCTS, E.G. UK.</p> <p>Preference 1: Leave PCDD/F testing and limit out of EU EoW criteria until appropriate PCDD/F toxicity thresholds have been established and the need to apply PCDD/F tests to particular types of compost / digestate has been evaluated (based on larger sample numbers and taking account of possible differences between allowed input types and treatment technologies). Remove MBT and sewage sludge from positive inputs list</p>	

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				<p>Given that the PCDD/F limit proposed is 30 ng I-TEQ/kg dry weight' and that all samples PCDD/F tested has 'maximum' concentration below 15 ng I-TEQ/kg dry weight' (the BWCo and GWCo samples tested were by far the furthest below the proposed limit), we believe that the cost of testing for PCDD/F (approx. £250 excl tax, per sample) is disproportionate to the risk of harm, particularly for the BWCo and GWCo types.</p>	<p>and exclude them from EU EoW scope.</p> <p>Preference 2: If you decide leave PCDD/F testing and limit included in EU EoW criteria, please do not require this for compost / digestate made from positive list materials that did not include MSW and/or sewage sludge, especially where source-segregated collection has been in place for at least one year.</p>	
83	3.3.4.3	Text lines 3095 to 3098 and Figure 12.	Te	<p><u>PFCs (perfluorinated compounds)</u></p> <p>3rd WD text: 'The graphs clearly demonstrate that fluorosurfactants appear to some extent in all analysed materials. Nevertheless, sewage sludge compost has clearly higher median and 90 percentile concentrations than the other materials, with certain samples having concentrations exceeding the AT and DE limit value of 100 µg/kg dm.'</p> <p>Comments: JRC-IPTS's proposed PFCs limit is 0.1 mg/kg DM (100 µg/kg DM). All sample types tested except for sewage sludge compost contained PFC concentrations below 45 µg/kg DM.</p> <p>We believe that the cost of testing for PFCs (approx. £125 excl tax, per sample) is disproportionate to the risk of harm in the case of BWCo and GWCo types, for which numbers of samples were the greatest at, respectively 30 and 23.</p>	<p>If you decide leave PFCs testing and limit included in EU EoW criteria, please do not require this for compost / digestate made from positive list materials that did not include sewage sludge, especially where source-segregated collection has been in place for at least one year.</p>	
102	4.3	Lines 3831 to 3833.	Te & Ed	<p>3rd WD text: 'Finally, changes into the input streams could possibly lead to a surge in inorganic or organic contaminants. Therefore, in the case of an important change in input materials, the measurement frequency should</p>	<p>'Finally, changes into the input streams could possibly lead to a surge in inorganic or organic contaminants. Therefore, in the case of an important change in input materials, the</p>	

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				<p>be reset to the measurement frequency of the recognition year.'</p> <p>Comments: A positive list of allowed inputs is proposed, so for the source-segregated biodegradable wastes there could be short-term increase in physical contaminants (macro impurities > 2 mm) from some sources (e.g. households) but it is unlikely there would be surge in organic pollutants.</p> <p>It is more cost-effective to focus extra sample tests on the parameters for which test results are likely to have changed rather than test extra samples in terms of all parameters.</p>	<p>measurement frequency <u>of test parameters relevant to the specific change</u> should be reset to the measurement frequency of the recognition year. <u>Relevant parameters should be identified using hazard analysis and critical control point planning.</u></p> <p>Suggested text changes should also be reflected in criteria text (table, left hand column near bottom of page 105 & top of page 106).</p>	
105 / 106	4.3	Table, left hand column near bottom of page 105 & top of page 106.	Te	<p>3rd WD text: 'In case of important changes (> 5%) regarding the source or composition of the input material, the measurement frequency for inorganic and organic pollutants is reset to the measurement frequency of the first year.'</p> <p>Comment: During the reset period, we assume that if the latest test results show EU EoW compliance that compost / digestate can continue to be dispatched as 'product'.</p>	<p>Please confirm this or clarify that the Member State's competent authority or the recognised independent certification scheme can set the rules about status of dispatched compost / digestate during the reset period.</p> <p>Remember that all of the batches will not be tested during the reset period, so it is important that the production process has a valid certificate during the reset period, in order to dispatch compost / digestate as product.</p>	
103	4.3	Lines 3840 – 3841 Lines 4162 to 4167	Ed	<p><u>Sample taking</u></p> <p>3rd WD text: 'There is also clear agreement on the requirement for external, accredited and independent sampling.'</p> <p>Comment: AfOR disagreed during workshop discussions and in previous written responses (costs approx. £350 per sampling visit, excl tax).</p> <p>~ ~ ~ ~ ~</p>	<p>At best it might be that a majority of workshop participants seemed to agree. Please change the wording so it doesn't imply that agreement was unanimous.</p> <p>~ ~ ~ ~ ~</p>	

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122	4.3	Lines 4163 and 4167 Table left-hand column near bottom of table.	Te / Ed	<p>3rd WD text: 'A suitable quality management system for compost/digestate is expected to include:...procedures for monitoring product quality (including external sampling and analysis)'.</p> <p>'Procedures for monitoring product quality (including external sampling and analysis) that are adjusted to the process and product specifics according to good practice;'</p> <p>Comment: It is not clear whether you intend that <u>every</u> sample tested for EU EoW purposes is taken by an independent and accredited sample taker. Please clarify.</p>	<p>Please make clear who must take each sample for independent EU EoW tests.</p> <p>Arranging appropriately timed, independent sampling visits entails extra forward planning and cost by the certification body; we prefer that independent sampling is carried out on a random selection basis (across all participating composting / digestion processes), and/or that any production process that has caused a complaint about product quality must be visited for independent sampling, at least once after the complaint.</p>	
104	4.3	Table, left hand column, second paragraph from top.	Te	<p>3rd WD text: 'The minimum sampling and analysis frequency in the first year (the recognition year) should be at least 4 (one sample every season), unless the plant treats less than 4000 tonnes of input material (in that case: one sample for every 1000 tonnes input material, rounded to the next integer, is required).'</p> <p>Comment: The proposed recognition period would involve sampling once per quarter, for a year. This is too much spread over time, especially in the case of source-separated biodegradable wastes (biological treatment by composting greatly homogenises the material and it is unlikely to exceed limits due to seasonal variation in plant tissue characteristics); we estimate it will take at least 20 months from starting down EU EoW route to obtaining a certificate of compliance from an</p>	<p>Allow a shorter interval between taking samples in the recognition period; we suggest that the interval between taking each sample is 'at least one month' and that the recognition period's evidence must comprise at least four samples.</p> <p>For each renewal period after initial certification, in the event that any EU EoW limit is exceeded by a sample, there should not be a minimum time interval before a sample from a newer batch of production can be taken and externally tested. In the event of an exceeded EU EoW limit, the producer should quickly take corrective actions and then take extra sample(s) from more recently produced batches of compost / digestate (provided they have been produced according to operating procedures that are</p>	

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				independent certification body.	appropriate). If change of input materials triggers return to a recognition period, the batches of production produced from the earlier 'recognised' input materials should be allowed to be dispatched as EU EoW compost / digestate (assuming that samples of the batches made from earlier 'recognised' input materials showed compliance with EU EoW quality criteria.	
104 / 105	4.3	Table, left hand column near bottom of page 104 & top of page 105.	Te	<p>3rd WD text: 'Plants for which organic pollutant concentrations are all below the maximum values in the recognition year (at 95% confidence level), may be exempted from regular organic pollutant measurement requirements after the recognition year, except for at least 1 full analysis on a cumulative sample, called pool sample. The exemption only applies if all 4 organic pollutant criteria (PAH, PCB, PCDD/F and PFC) meet this requirement.'</p> <p>Comment: It will be very expensive to do extra sample tests on all 4 organic pollutant criteria (£565 per sample excl VAT), triggered by the mean value (at 95% confidence level) exceeded any <u>ONE</u> of the organic pollutant criteria. This seems okay in the case of compost / digestate derived from MSW or sewage sludge but in the case of compost / digestate derived from other input types in the positive lists it looks like a disproportionate cost.</p>	<p>If organic pollutant testing and limits are retained and 95 % confidence level approach is retained for evaluating results against limits:</p> <p>In the event that compost / digestate, derived from positive list inputs that were not MSW nor sewage sludge, exceeds an organic pollutant criterion (mean value at 95 % confidence level), allow that extra sample(s) are tested only on the same organic pollutant type...</p> <p>(E.g. Biowaste compost exceeds PAH₁₆ limit, which triggers extra sample(s) testing in terms of PAH₁₆. Not also the 3 other organic pollutant criteria.</p> <p>E.g. MSW compost exceeds PAH₁₆ limit, which triggers extra sample(s) testing in terms of all 4 organic pollutant criteria.)</p> <p>The number of extra samples tested should be the number that is enough sample(s) to bring the statistical value</p>	

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					back below the appropriate limit.	
N/A	N/A	N/A	Te	Compost stability: 3 rd working document does not require declaration of stability nor set a limit. We welcome that you accepted the important problems: lack of a horizontal CEN/BT151 method of test and our previously stated concerns about setting a limit (an oxygen uptake value) that has not been evaluated for UK EoW composts. However, EU EoW requirements should have a mechanism for preventing ‘shred and spread’ of positive list materials, i.e. those not adequately composted.	Compost stability limit(s) [taking account of intended use] and method of test should be added into EU EoW in future, after research and development has been done. In the meantime, Member States should be allowed to set their own EoW limit and specify their own stability test method. EU EoW should formally recognise that MS stability limit serves as an EoW criterion rather than market specifications. Although this would not be ideal regarding cross-border trade in the EU, it would be better than the stability limit(s) being in market specifications. In this last scenario, there could be problems in markets when compost complies with EU EoW (is product) but does not comply with market specification for stability (remains a product but is unstable), especially if the positive list input materials have been composted for just a couple of weeks.	
100	4.3, product quality requirements	Table starting at line 3806, item 4)	Te	<u>Macroscopic physical impurities</u> Issue 1: Proposed limit is too generous The proposed limit of ‘0.5 % on dry matter weight for glass, metal and plastics > 2mm is too generous. If EU EoW product is supplied and contains something like 0.25 % glass, 0.10% metal and 0.14 % plastics on dry matter weight (compliant with EU EoW proposed limit) it will quickly cause complaints in most markets (except perhaps restoration of landfill above the cap, where the after use is not	Issue 1: AfOR has quite a large dataset for UK EoW composts and could revisit it and propose more strict limits for glass, metal and plastic in compost, if JRC-IPTS is interested. Most compost made from source-separated biodegradable wastes contains far less macroscopic impurities (specifically the types ‘glass’, ‘metal’ and ‘plastic’) than 0.50	

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			<p>grazing of herbage by animals).</p> <p>We note your text in 3rd WD lines 3745 to 3749 that ‘..a standard measurement method [for sharps] does not exist at present..’. Our particle size distribution and physical contaminants method for UK EoW compost already includes determination and reporting of sharps > 2 mm. Suitable text could be added to CEN’s drafted bleach method, instructing determination and reporting of sharps content.</p> <p>Issue 2: Glass and metal < 2 mm in MBT ‘organic’ output Acronym used: MPI for ‘macroscopic physical impurities.</p> <p>Considering that many residual waste (Mixed Solid Waste) collections still include glass and metal, and that MBT advanced separation technology has been focussed on optical detection and sorting of plastic particles, MBT organic output should be tested for MPI < 2 mm as well as MPI > 2 mm and the proposed limit should include MPIs > 1 mm (at least, and perhaps including any MPIs found in the lab sieve set’s bottom pan). The < 2 mm fraction is not examined by labs because the likelihood of glass/metal occurring in 0 – 2 mm fraction of compost made from source-segregated biodegradable wastes is expected to be very low, so risk seems much lower than lab cost if the 0 – 2 mm fraction must also be analysed.</p> <p>Without analysing 1 – 2 mm fraction as well as > 2 mm fractions, it is possible that some MBT ‘organic’ output would comply with EU EoW 0.5% w/w DM limit but contain a potentially harmful number of glass particles < 2 mm. This</p>	<p>% w/w DM. This is why the EU EoW proposed limit seems okay (when written in a document), but if much of the EoW material really contained 0.49 % w/w DM (total glass, metal and plastic > 2 mm), this would cause damage to EoW markets very quickly!</p> <p>Please carefully consider again your proposed limit(s) for ‘macroscopic physical impurities’ > 2 mm.</p> <p>Issue 2: Please carefully consider your proposed macroscopic impurities limit in terms of glass, metal and plastic particles < 2 mm; especially, glass < 2 mm could be present in MBT ‘organic’ output. It seems to be intended that EU EoW compliant MBT ‘organic’ output could be used in any market, which is worrying considering risks associated with glass.</p>	
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				could reduce future use of all EU EoW MBT organic outputs and potentially, in the worst case, all types EU EoW compost / digestate.		
103	4.3	Table beginning at line 3842, first paragraph in left-hand column, first and second paragraphs in middle column.		3 rd WD text: ‘Compost and digestate producers must demonstrate by external independent testing that there is a sufficiently high probability that any consignment of compost/digestate delivered to a customer complies with the minimum quality requirements and is at least as good as the properties declared’. ‘In the case of heavy metal and organic pollutant concentrations, the probability that the mean value of the concentration in a sample exceeds the legal limit should be less than 5%. This implies that the mean concentration of the whole population of the compost/digestate sold plus the 95% confidence interval needs to be below the legal limit.’	A representative sample externally tested should not have to be representative of all output produced since the previous, most recently sampled [and externally tested] batch(es) of production. It is logical and works in theory, but in practice many composting sites will not have sufficient storage space. In the case of anaerobic digestion, there are limited periods of the year when digestate is allowed to be spread. AD operators will need to dispatch material from their storage tanks frequently <u>during the periods when spreading digestate on land is allowed</u> ; requiring that each representative sample sent for external testing is representative of the total means, in effect, that 1) no digestate can be pumped into a storage tank until after the most recent sample’s test results have been evaluated and, if EoW compliant, all its content has been pumped out, or 2) every time digestate is pumped into the storage tank (which is usually at least once per day) the entire contents of the tank has to be independently sampled and sent for independent external testing. This is unworkable, especially during the periods when spreading digestate on land is allowed.	
121		Line 4193 to 4195. All this text is inter-related.		3 rd WD text: ‘Frequency of monitoring includes the number of times a parameter is monitored over any given time period depending on the plant treatment capacity so that it is a representative sample of the total.’ Comments: Given the text quoted, do you mean that each sample sent for external testing should be representative of all the compost/digestate produced after the batches from which the previous representative sample [for external testing] was taken? If yes, this implies that producers will have to keep all of the batches that contributed to the representative sample on-site until the test results have been reported and evaluated.		

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				<p>Some composting sites do not have the space to stockpile several months worth of output (e.g. if, say for a 15ktpa inputs site, the sample test frequency after the recognition year is 3 samples per year). Storage constraints would force them to sample more frequently, increasing EoW compliance costs and discouraging those producers from participating in EU EoW.</p> <p>This problem with the proposed detail will drive EU EoW to be achieved only in large scale facilities and put pressure on local authorities to agree waste treatment contracts only with large scale facilities (because they want guarantee that their biodegradable waste tonnages will be 'recycled')!</p>	<p><u>Solution:</u></p> <p>After the recognition year and provided the production process has a valid certificate of compliance with EU EoW, each representative sample should be allowed to be taken from <u>one or more</u> batches that have been produced according to the validated operating procedures. We recognise that in the case of AD 'batches' is not the ideal term; you could consider the term 'discrete portion of production'.</p> <p>We prefer that if a sample test result exceeds a limit, this triggers further samples testing, just on the parameter relevant to the exceeded limit, until at least two results from two consecutively taken samples are less than the limit. This kind of approach has been working very well for UK EoW.</p>	
N/A	4.4	Positive lists for composting and digestion, Annex 9.	Te / Ed	<p><u>Positive list for allowed inputs: first topic</u></p> <p>The UK's waste regulators are strict about use of appropriate European Waste Codes, including that there is match between the first four digits of the code and the industry sub-sector from which the waste has arisen.</p> <p>AfOR has recently spent <u>days</u> negotiating with our regulator and drafting derogation rules for our UK EoW certification scheme because the appropriate waste code for seaweed screenings arising at a sea water inlet to an oil-fired power station* (EWC) was not included in our positive list from which UK EoW composts are allowed to be made!</p>	<p>Please ensure that you include '19 09 01 solid waste from primary filtration and screenings' in the EU EoW positive list(s) for composting and digestion. We suggest you include the following description / restriction: 'Seaweed and incidental aquatic animals (e.g. fish) arising from screening of sea water at inlets to oil-fired power stations.'</p>	

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				<p>* Industry sector '19 09 Wastes from the preparation of drinking water or water for industrial use', specific code '19 09 01 solid waste from primary filtration and screenings'.</p> <p>Our 'derogation rules' are a short-term solution. The seaweed waste has been yet another example of why it's so important that the procedure for updating the positive lists can be worked through quickly (when all of the necessary evidence is supplied) and done more than just once per year.</p>		
N/A	4.4	Positive lists for composting and digestion, Annex 9.	Te / Ed	<p><u>Positive list for allowed inputs; second topic</u></p> <p>The positive list wastes allowed to be inputted to EU EoW composting and digestion processes should be the same, because the selection criterion for being on the list is that the waste is biodegradable and not known or suspected to contain potentially harmful concentrations of heavy metals, organic pollutants, macroscopic impurities and radioactive substances, nor contain any antibiotics (risk of spreading natural resistance to man-made antibiotics).</p> <p>Individual treatment plants should be allowed to make their own decisions about which input materials they accept from a single positive list. The waste types allowed in their waste treatment permit (or registered exemption) remain a relevant, legal control and conditions in the permit will control whether the treatment plant can accept liquid and/or solid wastes.</p> <p>We are seeing more hybrid, combined composting and digestion processes than in the past; a single positive list would avoid potential confusion likely to arise when a hybrid</p>	<p>The positive list wastes allowed to be inputted to EU EoW composting and digestion processes should be the same.</p> <p>It is reasonable for the positive lists of allowed <u>additives</u> to be separate for composting and digestion.</p>	

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				treatment process wants to accept a positive list waste that is not included in both of the current lists. The current draft positive lists have some wastes that are on the ‘composting’ list but not on the ‘digestion’ list, and vice-versa.		
114	Table, text in left-hand column	First paragraph from top, and second and fourth bullet points	Te & Ed	<p>3rd WD text: ‘In the case of anaerobic digestion for materials not containing any animal by-products, [the] following time-temperature profiles are allowed:...</p> <p>[2nd bullet point] ‘Thermophilic anaerobic digestion at 55°C followed by pasteurization (70°C, 1h)’</p> <p>[4th bullet point] ‘Mesophilic anaerobic digestion at 37-40°C, followed by pasteurization (70°C, 1h)’</p> <p>Comment: pasteurisation does not necessarily have to occur AFTER the digestion phase. In the UK the majority of AD processes that include pasteurisation have this phase BEFORE the digestion phase, and it would be extremely expensive to re-engineer to change the order of those phases. Many of the UK AD processes with pasteurisation before digestion have achieved full approval from our competent authority to process animal by-products; we expect they would also comply with EU EoW quality criteria.</p>	<p>Change 3rd WD text of second bullet point so it reads: ‘Thermophilic anaerobic digestion at 55 °C, with the treatment process including a pasteurization (70 °C, 1h) step’</p> <p>Change 3rd WD text of fourth bullet point so it reads: ‘Mesophilic anaerobic digestion at 37 – 40 °C, with the treatment process including a pasteurization (70°C, 1h) step’</p>	
201	Annex 9, Positive list for digestate	3.04	Te	<p>3rd WD text says: ‘Only material certified pursuant to EN 13432/EN 14995, in case the anaerobic digestion is followed by aerobic composting. Only material certified pursuant to EN 13432 AND anaerobic biodegradability is certified in accordance with ISO 15985, ISO 11734 or ISO 14853, in case anaerobic digestion is NOT followed by aerobic composting.’</p>	<p>compliant with EN 13432’s ‘compostable’ criteria, ASTM D6400’s ‘compostable’ criteria and any #. HC criteria accepted by the Member State or its Competent Authority.</p> <p>‘Further specifications’ should read: “Only products independently certified compliant with ‘home compostable’</p>	

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			<p>Comments: The named ISOs are methods of test which enable the provision of test results BUT do not include pass/fail criteria. EN 13432 includes pass/fail criteria for 'Anaerobic biodegradation' (biogas production at least 50% compared with the theoretic value for the test material, within a maximum of 2 months) and 'Anaerobic biogasification' (residue of packaging > 2 mm must not exceed 10 % w/w after 5 weeks 'as a combination of anaerobic digestion and aerobic stabilisation'). Thus, where digestion is followed by separation of liquid from fibre, and the fibre undergoes an aerobic composting step, EN 13432 provides pass/fail criteria that should ensure that 'digestible' certified packaging will adequately biodegrade in this kind of biological treatment process.</p> <p>We also believe it is appropriate to allow an anaerobic digestion process to feed in packaging or plastic (e.g. kitchen caddy liner) that is independently certified as 'compostable' or 'home compostable'. This should be allowed regardless of whether the AD process is followed by separation and aerobic composting of the separated fibre. Reasons in support of this are that:</p> <ol style="list-style-type: none"> 1) some AD operators believe they can feed 'compostable' packaging into their process then screen the digestate after treatment, such that the digestate will comply with EoW criteria [compostable packaging/ plastic residue > 2 mm would be counted as macroscopic impurity], 2) AD operators can still choose not to feed the 'compostable' packaging/ plastic into their 	<p>criteria accepted by the Member State or competent authority, EN 14995, ASTM D6400, EN 13432 'aerobic composting' criteria and/or all EN 13432 criteria relevant to 'anaerobic digestion (including A.2.3 'Anaerobic biodegradation' tests and compliance criteria, and A.3.2 'Anaerobic biogasification' tests and compliance criteria). Products independently certified compliant with one or more of these standards are allowed to be fed into the anaerobic digestion process, regardless of whether it is followed by aerobic composting of any of the digestion process outputs."</p>	
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			<p>process, i.e. it should be their choice, taking into account their treatment process and quality management system,</p> <p>3) food waste from households supplied with 'compostable' liners by the municipal authority may be managed via a food waste broker, so could end up at an ABP-approved AD or composting facility,</p> <p>4) food waste from households supplied with 'compostable' liners by the municipal authority go to a site that hosts separate ABP-approved AD and composting processes, but the site operator wants flexibility to choose which process each delivery of food waste is fed into,</p> <p>5) CIC's (Italian Organics Recycling Association) studies have found that when non-compostable bags/liners are used for collecting food waste there is an additional 10% more macroscopic impurities to dispose of,</p> <p>6) trials supported by the Waste and Resources Action Programme found marginally higher yields of food waste per household, where households were supplied with compostable liners for their kitchen caddies and that the majority of householders fund the liners helpful, and</p> <p>7) householders are likely to put 'home compostable' products into their food waste bins if they don't have a home composting heap [millions of households in the UK don't have a home composting heap], and although AIB-Vinçotte's 'Programme OK2' criteria for home compostables allows longer for the biodegradation and disintegration tests they are run at much lower temperatures (20 to 30 °C) than EN 13432's biodegradation and distegration tests and could be expected to disintegrate and biodegrade faster under</p>		
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				<p>commercial scale anaerobic digestion or composting process treatment.</p> <p>Regarding the MS or LA adopting specific restrictions, it is unclear about why this needs to be written in the digestate positive list; restrictions should not be set at MS level, if the specific plant does not have appropriate equipment for processing digestible/ compostable packaging & plastics it will refuse to accept them, and local authorities should always make effort to match waste collected to what the treatment facility is capable of managing.</p> <p>Less comment has been made in AfOR's response in the positive lists Excel document because it's less easy to keep comments separate from recommended text changes in the Excel worksheets.</p>		
185	Annex 9, positive lists for compost	3.04	Te	<p>Similar comments as made above for item 3.04 in the positive list for digestate. Packaging independently certified compliant with all digestion relevant parts of EN 13432 could be included with or package food waste sent to an ABP-approved composting facility; such packaging items could be expected to adequately biodegrade within such a process, the process operator would still have the option to reject such packaging or remove it during a depackaging step.</p>	<p>'Further specifications' should read: "Only products independently certified compliant with 'home compostable' criteria accepted by the Member State or competent authority, EN 14995, ASTM D6400, EN 13432 'aerobic composting' criteria and/or all EN 13432 criteria relevant to 'anaerobic digestion (including A.2.3 'Anaerobic biodegradation' tests and compliance criteria, and A.3.2 'Anaerobic biogasification' tests and compliance criteria). Products independently certified compliant with one or more of these standards are allowed to be fed into the composting process, regardless of whether they have first undergone anaerobic digestion."</p>	

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185, 201	Annex 9, positive lists for compost and digestate	Item 3.04 in compost positive list, item 3.04 in digestate positive list	Te	Reference to 'biobased' in 3.04's 'type of waste material' text is irrelevant because biobased packaging/plastic is not necessarily 'compostable' or 'digestable', e.g. polyethylene made from bioethanol; the key criterion is simply that the packaging/ plastic item IS 'compostable' or 'digestable'. In addition, 'biobased' products can be natural fibre-based; they are not necessarily 'plastics'.	Delete '..and biobased plastics' from 'Type of waste material' descriptions.	
53	2.7.6	Text line 1998	Ed	'Enterococcae' is misspelt.	Change spelling to 'Enterococcaceae'. Do same in other places in document where misspelt.	
107	4.4	Text line 3890	Ed	'..off-speciation compost or digestate..' Misspelling of 'specification'.	Change spelling to 'specification' and do same in other places in document where misspelt.	

(please insert more table rows if needed: mark the whole row and click in the top menu to *Table/insert/rows below*)