# END-OF-WASTE CRITERIA ON BIODEGRADABLE WASTE SUBJECT TO BIOLOGICAL TREATMENT

# ADDITIONAL INFORMATION FROM THE UK FOR CONSIDERATION AT THE THIRD JRC WORKSHOP ON 26th FEBRUARY 2013

This document provides the UK Government’s response to the JRC’s request for additional information to inform discussion at the forthcoming Technical Working Group in Seville on 26th February.

**Key points:**

**Product quality criteria**

We have included some limited new data on Zinc and Copper levels in composted sewage sludge, and on food-based digestate quality in this response. This data underlines the variability of PTEs in a range of inputs, but does not point to any changes required to our existing limit values which are based on the requirements of the EU Sludge Directive.

On organic pollutants, we do not have any new data to supplement the surveys and reports that we have already submitted. Our view remains that any limit values need to be based on a risk assessment of potential impact and in response to an environmental protection need.

For compost and digestate that meets UK end of waste criteria, we do not consider there to be a need to test for organic pollutants. We note too that there is no requirement for organic pollutant testing in the current Sewage Sludge Directive. We remain very concerned about the costs of introducing such a suite of tests, both in respect of the costs of the tests themselves, but also in accrediting laboratories to undertake them. We have included estimates of such costs in the response below. These additional costs could significantly affect the progress we have made in developing markets for quality recycled compost and digestate.

Equally we have major concerns about the practicality, cost and time that would be required to move to the tests proposed in the third JRC working document. Specifically, we need to ensure that there is a consistent methodology for carrying out tests, such that the results can be compared across the EU. We do not believe this would be the case with the suite of tests suggested in the working document. In addition, **we estimate the costs for a single laboratory of developing and accrediting the proposed tests could be as high as £720,000 (€840,000)**.

**Input Material Criteria**

Materials such as MBT outputs and sewage sludge are inherently more variable than source segregated materials, for which current UK end of waste criteria were designed. Their inclusion in the current JRC working document is therefore problematic for the UK for a number of reasons, including:

* testing and analysis costs would be significantly higher for mixed waste inputs, as an extended testing scheme would need to be developed and introduced;
* significant investment has been made in developing market confidence in quality waste derived compost and digestate, based on source-separated inputs. We are not convinced that a market could be found for these materials should mixed waste be eligible as an input. This would not meet one of the underlying principles of End of Waste, nor would it be compatible with the Waste Framework Directive which seeks to encourage the separate collection of biowaste;
* MBT outputs are not currently allowed to be spread on agricultural land in the UK, even as a waste;
* the proposal to include sewage sludge in end of waste criteria, raises serious questions over the interaction with the Sewage Sludge Directive, which requires the receiving environment to be monitored for accumulation of potentially toxic elements.

**Description of impacts**

We have serious concerns that the costs, some of which are highlighted in this document, will outweigh the benefits that EU End of Waste criteria for biowaste. This is particularly the case when it is remembered that compost and digestate are not widely traded across EU borders.

# Product quality criteria

**Setting limit values for Cu and Zn in compost/digestate**

1. We have limited new data to consider for Cu and Zn concentrations in composts and digestates. We have previously supplied the JRC with a range of recent UK data for composts, sewage sludges, digestates and MBT-derived materials. We are of course more than happy to share this data with other Member States, with the Commission or with other technical experts again if it is needed
2. The limited data that we have collated in the last year includes a brief data set on sewage sludge composts and a fuller data set on the PTE content of manures and slurries as well as a substantial data set on food based digestates.

***Sewage sludge composts***

1. The data in the table below has been collated by the Environment Agency for sewage sludge compost. This data has been supplied by a single operator over a series of months and thus represents a series of spot samples of material from a single site.

[Table Deleted]

1. The data shows that as with other materials, sewage sludge composts demonstrate some temporal variability. There are elevated peaks of individual PTEs which cannot predicted by rises in all PTE values.

***Food based digestate data and data on manures and slurries and other materials that are applied to land.***

1. The second set of data is a newly collated set of data on digestate quality. This has been prepared for a forthcoming review of the PAS110 specification in the UK. A series of graphs that present the data in bar chart format are attached. We would be happy to forward the full report to the JRC when it has been published in the next few weeks.
2. The data clearly shows again that digestates are quite variable. Generally, the majority of whole digestates that were considered comply with the JRC’s suggested limit values and with the existing PAS110 limit values in the UK. However, there are exceptions. One of the recommendations from the report that is that testing for PTEs should be for the whole digestate fraction only.
3. The data comparing food-based digestates with manures and other materials that are spread to land indicates that food waste digestates generally show lower PTE values than other materials.

***UK position on the setting of PTE limit values***

1. The UK does not support raising the limit values for Cu and Zn above those that are currently stipulated in our Sludge (Use in Agriculture) Regulations which are derived from the requirements of the EU Sludge directive (86/278/EEC). We suggest that the Cu and Zn limit values are maintained at such levels and not changed without the opportunity for a great deal more discussion and scientific justification in a much wider context. Changing limit values only for end of waste composts and digestates would create an uneven playing field without sufficient justification for change.

**Setting limit values for organic pollutants (compound selection, limits, cost of analysis, frequency of analysis and exemption possibilities)**

1. We have sent data on composts and digestates derived from source-segregated materials as well as organic pollutant analysis for sewage sludges and for composts derived from non-source segregated materials. Scrutiny of the literature and requests for recent analysis has not revealed any new data on organic pollutants in sewage sludge composts.
2. The results of the JRC sampling programme have shown that it is possible to detect a variety of organic pollutants in a whole range of materials. Putting aside the very small numbers of samples that have been included, we have some difficulty with the conclusion that, because we can find organic pollutants in all materials, we should test for them.
3. We need to be clear about the basis of setting limit values and thus the need to test materials. If we are worried about the potential for a material to be directly toxic or to have an immediate impact in the environment then it is right to set a limit on the end product material. However, if the concern is more about the potential for accumulation of organic pollutants in the environment, it may be more appropriate to look at the receiving environment – in this case the soil. As the end of waste criteria that are discussed in the document do not cover the use of the materials, the latter issue is not addressed.
4. Our end of waste criteria do not require operators to test composts or digestates for organic pollutants. The introduction of such tests would mean a substantial change to existing laboratory testing regimes and a significant increases in costs. We estimate that testing costs would be approximately £500 per sample. In addition there are no UK laboratories that are accredited for these tests; we estimate that it could cost in the region of £100K for a laboratory to undertake the work to become accredited. This would restrict the number of laboratories available to industry and decrease completion in the market place. Ultimately the cost of accreditation would be passed to the operators, again potentially increasing the overall cost of the testing suite.
5. Our major concern with the inclusion of a requirement for the testing for organic pollutants remains the suggested methodologies and testing regimes. For the smaller scale operations this cost will be disproportionate to the overall profitability of the operation.
6. The costs of testing for organic pollutants increase substantially if the 2nd year pool sample exceeds any of the OP parameter limits, triggering testing of a minimum of 4 samples in the next assessment year in terms of all OP parameters.  This appears to be a relatively slow operator response in the event of an OP limit being exceeded and seems disproportionate (return to testing all OP parameters) to the risk in terms of using composts & digestates made from source-segregated biodegradable wastes.

**Use of horizontal standards – with particular reference to stability**

1. The JRC proposal as it currently stands suggests a number of analytical tests not yet accredited, either in the UK or, in some cases, across the EU. The JRC’s working document states “until horizontal standards elaborated under the guidance of CEN Task Force 151 become available, testing and sampling shall be carried out in accordance with test methods developed by Technical committee CEN 223 ‘Soil improvers and growing media’”. We welcome the proposal that other test methods may be used if their equivalence is accepted by National Member states, identifying these methods and giving permission to substitute them by other methods in use.
2. Some of the methods proposed by the JRC are different to those used for UK End-of-Waste criteria under PAS 100 and PAS 110. The criteria where the EU proposed test methods are different from those used in the UK for both digestate and compost include: stability tests, impurities analysis, the plant response test, and viable weeds, seeds and propagules. Changing to the JRC proposed tests will require UK laboratories to develop new suites of tests.
3. The European Compost Network’s Quality Assurance Scheme Manual, section 4.3.2, states that “Analysis should be carried out by reliable laboratories that are preferably accredited for the performance of the required tests in an acknowledged quality assurance system”. The impact described below therefore includes financial and supplier implications of test accreditation as well as test development.
4. We estimate that it would take a single laboratory between six months to one year to develop the capacity to provide the JRC recommended tests for compost or digestate and become accredited to ISO17025, if required. **Test development and initial accreditation for the entire suite would cost approximately £240K (about €280K) per laboratory**, of which ~£23K represents accreditation fees and £217K would cover laboratory test development and in-house training. In addition, the laboratories would be expected to pay annually between £1.6-17K for surveillance and renewal of accreditation.
5. As compost and digestate are different matrices, each would require the development of separate test suites. Also, as digestate may be in a liquid or solid form, a laboratory providing End-of-Waste criteria testing for digestate may need to develop and accredit tests for both solid and liquid digestate. **The costs for a single laboratory developing and accrediting tests for JRC End-of-Waste criteria for compost, solid and liquid digestate could be as much as £720K (about €840K)** , with a further £16.2-62.4K for ongoing accreditation.
6. One possible effect of the increased costs associated with gaining and maintaining accreditation to deliver the JRC recommended tests is that only the larger laboratories will be able to bear the initial development and accreditation costs. In the UK we estimate that the number of laboratories providing End-of-Waste criteria test services could be reduced to two.
7. While the MCERTs[[1]](#footnote-1) scheme in the UK has resulted in substantial experience in accrediting test methods such as PTE and hydrocarbons for contaminated soils matrices, the feasibility of accrediting test methods for compost and digestate matrices is unknown. While such accreditation may be achievable for parameters such as total nutrients and PTEs, validation results for parameters such as plant response tests may be harder to achieve. It might be prudent to investigate thoroughly the feasibility of achieving accreditation for such parameters in these matrices before deciding whether accreditation should be mandatory for EU End-of-Waste compost or digestate.
8. Some tests can be accredited but the JRC proposals in their current form would mean the use of analytical tests which are not, at present, accredited in the UK. The current level of quality assurance and control provided by PAS would be lost, as would any comparability between laboratories and/or test results. User, operator and regulator concerns over quality and comparability in results could be further magnified as operators would have access to non-accredited tests from laboratories across the EU.

# Input Material Criteria

**Inclusion of MBT and sewage sludge in the positive list**

1. Materials such as MBT outputs and sewage sludge are inherently more variable and the mechanism that is used to define end of waste should reflect this. The UK Quality Protocols were designed to deal with materials made from source-segregated materials alone. The UK system relies on excellent knowledge of the input streams so that an operator can be confident that he will not need to either analyse the inputs materials or introduce an extended analysis scheme to cover all potential contaminants in the end product. By excluding mixed waste inputs the analysis suite for the product can be safely minimised thus restricting costs to the operator whilst still protecting the environment.
2. The introduction of mixed waste inputs will also have a deleterious effect on the market’s confidence in the use of waste derived materials. The UK has previously put forward a body of evidence that shows the level of work and investment required to build robust markets for the use of waste derived materials. This has been based on source-segregated inputs. We have involved a spectrum of food chain stakeholders in developing markets for composts and digestates and in doing this have addressed a broad range of technical and perceptual issues. We have done this via quantitative risk assessment and by involving the Food Standards Agency who are responsible for the safety of food production in the UK.
3. The introduction of MBT and sewage sludge as allowable inputs for composting and AD will seriously undermine market confidence. Our food chain stakeholders are not as aware of the nature of these materials and are naturally cautious about the introduction of new materials into agreed input listings. We anticipate that composts and digestates that contain MBT will not be acceptable in UK markets unless a similar level of risk assessment to that done for source separated materials can show that the potential environmental and human health risk can be minimised or removed. Given the nature of MBT this exercise would be more extensive and we are not confident that wide markets could be found for these materials. This leads us to then question if these materials can in fact be declared end of waste.
4. The use of MBT residues in the UK is restricted to one off applications for the restoration of brownfield sites and landfills. This use is controlled through waste permits. Widespread use on agricultural land or in any other applications is not allowed. Very recently the Environment Agency has issued guidance for operators who wish to run trials on the use of MBT residues on land.

<http://publications.environment-agency.gov.uk/PDF/GEHO0512BWLS-E-E.pdf>

1. The guidance is extensive and reflects the need for us to know more about the nature of MBT derived materials and their potential effects on soils. Once trials have been established and we are confident about the complex nature of materials derived from mixed wastes then the next step may be a permit for the spreading of individual materials. However, as noted in the third working draft, materials from different plants can have widely varying physical and chemical composition and it is in fact difficult to envisage a point when their use might be permitted via a simple permit, let alone covered via an end of waste position.
2. In the UK, sewage sludge is spread under the requirements of the UK Sludge (Use in Agriculture) Regulations, together with the conditions listed in the UK code of good agricultural practice for the use of sewage sludge in agriculture and the requirements of the Safe Sludge Matrix. The use of sludge is well understood and has been the subject of a similar level of scrutiny by stakeholders as the use of source segregated compost. Sludge is widely used in some agricultural applications. It is not however used widely in horticultural growing media or many other applications.
3. Sewage sludge is more variable than source separated materials and potentially contains a wider range of contaminants. If we were to develop an end of waste position for sewage sludges, we would therefore use a different approach that would allow us to account for additional risk, and would not simply introduce sewage sludge into the same end of waste mechanism that we use for source separated materials.
4. We also need to consider carefully the interface between a potential end of waste position for sewage sludge and the requirements of the sewage sludge directive. The latter has a clear objective to monitor sludge quality and potential accumulation of potentially toxic elements in soil. Whilst an end of waste position would monitor the quality of materials that contain sewage sludge, the use of the material would not be monitored. If an end of waste position allows the use of sewage sludge without such monitoring, it is unclear how Member States would be able to fulfil the reporting requirements of the sludge directive.

**Eligibility of additives**

1. We do not currently include any listing of process additives in either of the UK end of waste positions. We operate with fully accredited certification schemes in place for both composts and digestates and believe that acceptance of products that can be used to enhance a composting of digestion process should be controlled via these schemes. Where a waste material is used as an additive it should only be included on the list of acceptable waste types where proof and evidence support its use and inclusion.
2. The use of a second listing for additive materials will mean that there will need to be EU agreement of the inclusion of new additives. This will add an unnecessary level of administration to the operation of end of waste regulations and also has the potential to stifle innovation in the development of new additives for process improvement

**Eligibility of waste materials on the positive list**

1. We attach a new copy of the annotated positive list that we sent to you in September. This now contains more detailed comments on the inclusion of particular waste inputs.

# Description of impacts

**Costs and savings through EoW/How to ensure market strengthening and technology development for compost and digestate by EoW/Impact for composting and digestion industry by EoW**

1. In our reply to the JRC of January 2012, we enclosed a report which showed the positive effect of introducing end of waste criteria for compost in the UK. The effect of the end of waste criteria is to support use of compliant materials in markets.
2. In April 2012 about half the compost produced in the UK was certified to our end of waste specification. This saved the industry about £1m (about €1.16m) in waste permit costs alone as well bringing additional benefits in a small but real premium for the composts produced.
3. To reach the position where there is market confidence in the UK end of waste standards for compost and digestate has required investment of about £7m (about €8.1m).
4. The existing criteria are frequently built into contracts either for waste treatment or for the use of finished products. Potential changes to the specifications can destabilise markets or slow contract negotiations especially where it is unclear if the changes to the specification will lead to additional costs or to environmental effects. This could also undermine the investment that has already been made into developing robust standards.

1 February 2013

1. http://www.environment-agency.gov.uk/business/regulation/31829.aspx [↑](#footnote-ref-1)