

Development of Quality Standards for Compost and Digestate in Ireland

Percy Foster & Dr. Munoo Prasad

'Ireland's Waste Policy – A Waste Action Plan for a Circular Economy' aims to promote the segregation of food waste as outlined in the *Household Food Waste Regulations*¹ and the *Commercial Food Waste Regulations*². The successful implementation of the Regulations will be enhanced by end-of-waste Criteria³ being available for compost and digestate. End-of-waste status would drive the need for high quality feedstocks to produce a compost/digestate which meets end-of-waste criteria.

On a European Level, separate collection of biowaste will become mandatory by 2023 under the new Circular Economy legislative package. Recent EU circular economy, bioeconomy policies and the New Green Deal promote the recycling of nutrients from organic wastes into products that can be used as soil improvers and fertilisers, thereby reducing the use of mineral fertilisers. This has renewed interest in the use of compost and digestate as fertilisers. The mode by which waste compost and digestate is recycled into fertiliser products is set out in article 28 of the European Union (Waste Directive) Regulations 2011-2020 and article 19 of the EU Fertiliser Products Regulation (EU) 2019/1009. At the time of this study it had not been determined whether specified waste streams would cease to be waste via article 19 and/or via article 28 as described above.

In Ireland, there are currently no national end-of-waste criteria defined for compost and digestate derived from source-separated materials. There are varying quality standards being used by composting and anaerobic digestion plants. Overall, the system needs a uniform set of quality standards for compost and digestate, which would replace existing standards being applied and which also would recommend a strategy on how Ireland should use these new standards in order to create nationally recognised standards which could be used as an end-of-waste criterion, according to a new EPA study.

This study collated results from the analysis, of Irish compost and digestate samples, and then compared the Irish data to databases, reports and standards from other European countries. The Joint Research Centre (JRC) *report End-of-waste criteria for biodegradable waste subjected to biological treatment (compost & digestate)* and the new EU Fertiliser Product Regulation 2019/1009 were considered in this study. From this collation and comparison process, an updated compost standard and a new digestate standard (whole, liquid & fibre) were developed.

¹ European Union (Household Food Waste and Bio-Waste) Regulations 2013, Statutory Instrument (S.I.) 71 of 2013 and Amendment Regulations S.I. 251 of 2013.

² Waste Management (Food Waste) Regulations 2009 S.I. 508 of 2009

³ Depending on the feedstocks treated at a facility/installation, not all operators may pursue end-of-waste status for their treated outputs as they may be able to avail of an exclusion from the need from waste authorisation provided by Section 3(1)(g) of the Waste Management Act 1996, as amended.

This study examined best practice in other countries and options for having end-of-waste criteria, recommending an approach that could be undertaken in Ireland.

The research (EPA Report No. 2018-RE-DS-10) report is based on research carried out from Feb 2019 to June 2020.

Developing Solutions

One of the criteria of any application for end-of-waste under article 28 of the above Regulations, is the provision of evidence that the material fulfils the technical requirements for the specified purpose and that the material meets existing legislation and standards applicable to products. It is recommended that the research developed should be used⁴:

- a) by the National Standard Authority of Ireland to update IS 441 and develop a new IS standard for digestate; and/or
- b) by the Department of Agriculture, Food and Marine in any update of the Marketing of Non-EEC Fertilisers Regulations, 1978 to consider the inclusion of the proposed standards for the domestic market, or instead
- c) by the Department of Environment, Climate & Communications to include the standards developed in this project as part of biowaste ordinance legislation.

Once an updated quality standard, or legislation setting a standard, is in place this national standard could then be used to define end-of-waste criteria (Article 28(1)(a)(iii)). This would be done by making an application to the EPA, the competent authority for end-of-waste decisions, on suggested end-of-waste criteria for compost and digestate under the waste regulations. At the time of the publication of this study, it had not yet been determined whether specified waste streams could also cease to be waste via any future updated national Fertiliser Regulations under Article 19 in the EU Fertiliser Product Regulation 2019/1009. This could be considered in future discussions between policy makers.

How compliance is achieved would be determined by the competent authority and would be based on the requirements set out in the relevant legislation. Achieving end-of-waste status, generates a level playing field and supports the development of a circular economy while respecting the precautionary principle in avoiding pollution when compost and digestate is used on soil.

⁴ Note: standards set out in national legislation will likely be mandatory, whereas compliance with an NSAI standard is voluntary. If the legislation is updated, it is enforceable as an end-of-waste criterion for all feedstocks/products/markets within its scope.

Key Insights and Recommendations

Feedstocks

- The establishment of a contamination working group should develop and execute a national campaign to solve the issue of feedstock contamination. This is because the authors determined that the greatest risk to achieving the standards is the presence of contamination in the feedstock.

Monitoring of Process & Quality Assurance

- The recommended approach to be taken in Ireland to define end-of-waste criteria for compost/digestate is by either national Fertiliser Regulation or biowaste ordinance legislation. The authors are of the opinion it should include the requirement for compost or anaerobic digestion plants, that propose to produce an end-of-waste product, be compliant with a Quality Assurance Scheme (QAS) that is monitored by a quality assurance organisation. This would form part of any end-of-waste application and demonstrate that the requirements of article 28(2)(d) have been met.
- A QAS system would monitor the process used in composting and anaerobic digestion plants including acceptable feedstocks, independent sample taking, and the analysis of the compost/digestate by approved laboratories. A QAS system may not be required in a plant which have authorisations in place which regulate these critical control points. In addition, a Quality Assurance organisation would evaluate the results independently and award a QAS certificate to successful plants.

Standards

- Using the information in this report, the National Standards Authority of Ireland (NSAI) should update IS 441 compost standard and develop a new IS standard for digestate placed on the domestic market.
- A review of the impurity standard and limit values should be done in 2025. This should include the latest scientific knowledge on plastics limits, and data on contamination levels in biowaste, compost and digestate.
- The findings of this study can be used in an application to the EPA by industry for national end-of-waste standards for compost and digestate⁵.
- If a compost or digestate product, which has achieved end-of-waste in for use Ireland, is exported to another country, the authorities in the receiving country might take a different view on its Irish end-of-waste status. The recommended approach of the authors would be to have agreements in place with other authorities in Europe, which would recognise the end-of-waste status for compost and digestate products granted in other jurisdictions. In addition, post July 2022, products that conform with the EU Fertilisers Regulations would facilitate trade between EU countries.

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⁵ The standards developed in this project could be used for the domestic market in Ireland. Post July 2022, products that conform to the EU Fertiliser Product Regulation can be traded within the EU. The standards developed in this project do not automatically mean meeting the criterion in Article 28(1)(a)(iii). The standards would have to be assessed by the Agency via an end-of-waste application.