

# **Guide to the Regulation of Outputs from the Composting and Mechanical Biological Treatment of Waste**

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## Introduction

This guidance document has been produced by the Northern Ireland Environment Agency (NIEA) for those involved in composting or the Mechanical Biological Treatment (MBT) of waste.

The guidance document is designed to inform those involved in the treatment of waste of NIEA's position on how the outputs from these treatment options will be regulated. The guidance outlines statutory controls, particularly in relation to issues that affect composting or MBT as a means of diverting Biodegradable Municipal Waste (BMW) waste from landfill.

This guidance is our understanding of the law at the date of this document and is no substitute for obtaining your own independent legal advice. The law may change and the user should ensure they refer to the latest version of this document which will always be available on the NIEA web site [www.ni-environment.gov.uk](http://www.ni-environment.gov.uk)

For clarity, this guidance document has been divided into 2 sections,  
Section 1 Mechanical Biological Treatment and;  
Section 2 Composting  
Consequently, there may be repetition across the sections.

## Glossary

### **MBT**

Mechanical Biological Treatment

### **Compost**

Solid particulate material that is the result of composting source segregated biodegradable waste

### **Composting**

Process of controlled biological decomposition of biodegradable materials under managed conditions, which are predominantly aerobic. Controls by various means within the composting process should ensure there is sufficient air, moisture and which allow the development of temperatures to ensure that, over time, a stabilised compost which will have beneficial effects when added to soil is produced.

### **Stabilised biowaste**

For the purposes of this document stabilised biowaste is waste resulting from the composting of non-source segregated biodegradable waste.

### **BSI PAS100**

The British Standards Institution's Publicly Available Specification for composted material.

## SECTION 1

### 1.0 Mechanical Biological Treatment

Mechanical Biological Treatment (MBT) is an intermediate treatment. MBT plants are used to treat residual waste by a combination of physical and biological processes. The biological processes are aerobic decomposition and anaerobic digestion. The physical processes include size reduction/shredding of the waste, separation of ferrous and non-ferrous metals, size classification, density separation, heat/steam treatment and screening and/or size reduction of outputs. Not all these processes are used in each plant and there are many possible configurations.

There are usually several different outputs from the process: metals; glass; a high heat value fraction; liquid digestate which only arises from anaerobic digestion and a fine, solid fraction.

#### 1.1 MBT Outputs - Establishing when the outputs from MBT cease to be waste

All of the outputs from MBT are waste and any processing or treatment of them must comply with the Waste Management Licensing Regulations(NI) 2003 and any other relevant waste legislation.

Waste can only cease to be waste, and thus no longer subject to waste regulatory control, once it has been fully recovered. Pre-processing, mixing or other operations resulting in a change in the nature or composition of waste may be part of a recovery operation but not sufficient to render it non-waste.

### 1.1.1 Metals

The ferrous and non-ferrous metal output from MBT plant will generally cease to be waste when formed into ingots, sheets or coils of steel.<sup>1</sup>

### 1.1.2 Glass

The facts of each case must be considered, however we can say generally that we consider the point at which glass ceases to be waste is likely to be when the following are produced:

- glass containers or fibreglass; or
- fine glass material such as sand substitute, glass abrasive and fluxing agents; or
- aggregate to recognised standards (e.g. for use in glassphalt) ready for use by or sale to the final consumer; or
- decorative crushed glass ready for sale to the final customer.

### 1.1.3 High heat value fraction

This is separated for potential energy recovery and is often referred to as Refuse Derived Fuel (RDF). The output comes in several forms: crude and loose; shredded; or shredded and compressed into dense fuel pellets. The Environment and Heritage Service considers RDF (e.g. fuel derived from waste) a waste and remains waste until it is burned as fuel<sup>2</sup>. Importantly, installations burning waste as fuel must comply not only with the WFD<sup>3</sup> but also with the requirements of the Waste Incineration Directive (WID).<sup>4</sup>

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<sup>1</sup> Mayer Parry Recycling Ltd, Case C-444/00: In 2003 the European Court of Justice held that 'recycling' within the meaning of article 3(7) of the Packaging Waste Directive is to be interpreted as not including the reprocessing of metal packaging waste when it is transformed into a secondary raw material such as material meeting the specifications of Grade 3B, but as covering the reprocessing of such waste when it is used to produce ingots, sheets or coils of steel. Subsequent case law (Niselli, Case C-457/02) has confirmed that this position also applies to non-packaging scrap metal waste. That is to say, for the purposes of the WFD reprocessing has not been concluded and the scrap metal continues to be classified as "waste" until it has "actually been recycled into steel products".

<sup>2</sup> Where waste is subject to processing of some sort before being burned, the Courts have not yet identified in any of the cases that have come before them a recovery operation which can be said to have been completed before the waste is burned. In each case the primary objective of the processing which is undertaken has been to pre-treat the waste with the aim of improving the way in which it burns. If one asks what is recovered from the waste then the answer is invariably "energy" and if one asks how is it recovered the answer is invariably "by burning".

<sup>3</sup> The WFD classifies as a waste recovery operation "Use of waste principally as a fuel or other means of generating energy" (R1).

<sup>4</sup> In practice, one permit will cover the requirements of both Directives.

#### **1.1.4 Stabilised Biowaste**

**For the purposes of this document, the waste resulting from the composting of non-source segregated biodegradable waste is termed ‘stabilised biowaste’.**

The non-source segregated stabilised organic fraction from an MBT plant will have limited end uses. The end use will be dependent on the quality of this fraction. For regulatory purposes the stabilised biowaste output from MBT processes are considered waste and will therefore require further recovery.

##### **(a) Use of stabilised biowaste in landfill restoration**

Suitably stabilised biowaste from MBT processes may be appropriate for use in landfill restoration. However, the use and quantities of any material used in the restoration of a landfill, must be with written authorisation from NIEA waste management licensing/PPC team. This written authorisation will normally form part of a site closure plan which has been approved by NIEA.

The use of stabilised biowaste in the restoration of former landfills will be considered on a site specific basis. The details and characteristics of individual landfill sites are variable and these specifics must be fully assessed when considering the use of stabilised biowaste in restoration.

NIEA recommends that operators follow the parameters as set out in the PAS100 standard as guidance on the expected standard of material.

Further guidance on designing the restoration scheme of landfills is provided in section 4 of the following guidance document:

“Interim Guidance on Landfill Closure: Capping and Restoration”

[www.ni-environment.gov.uk](http://www.ni-environment.gov.uk)

##### **(b) Spreading of stabilised biowaste to land**

It is unlikely the outputs from MBT processes will be suitable for spreading on agricultural land that is used or potentially will be used for food production.

##### **(c) Use of MBT Outputs for intermediate (daily) landfill cover**

Suitably stabilised compost or biowaste may be considered for use as daily or intermediate cover on landfills, provided it has no noticeable odour, is not attractive to rodents, flies or birds

Any compost, biowaste or indeed any waste used as intermediate landfill cover, will be considered disposed of.

*Any Biodegradable Municipal Waste (BMW) which has been composted and used as intermediate landfill cover will be considered as disposal and will utilise landfill allowances under the Landfill Allowance Scheme (NI) Regulations 2004 (NILAS). However, the reduction in biodegradability as a result of treatment may be taken account of, if a suitable sampling and analysis programme is in place.*

### **1.1.5 Landfilling MBT outputs**

MBT outputs can be sent to an appropriate authorised landfill.

*Any Biodegradable Municipal Waste (BMW) which has been sent to landfill will utilise landfill allowances under the Landfill Allowance Scheme (NI) Regulations 2004 (NILAS). However, the reduction in biodegradability as a result of treatment may be taken account of, if a suitable sampling and analysis programme is in place.*

## SECTION 2

### 2.0 Compost

**For the purposes of this document, compost is the solid particulate material that is the result of composting source segregated biodegradable waste only.**

Waste resulting from the composting of non-source segregated biodegradable waste is termed 'stabilised biowaste' and is referred to in the MBT section.

NIEA's view is that compost is a soil additive or improver. Compost is not a soil substitute and the excessive use of compost, in achieving its objective, will be considered disposal and not recovery.

Compost has a high organic matter content and low structural integrity and blending with soil to achieve optimum physical characteristics will be necessary. Issues such as leachability of Potentially Toxic Elements (PTEs) and liability must be considered.

### 2.1 Composting Operations

For the purposes of this document composting is considered a process of controlled decomposition of biodegradable materials under managed conditions, which are predominantly aerobic and which allow the development of temperatures suitable for thermophilic bacteria as a result of biologically produced heat.

All composting operations must comply with The Waste Management Licensing Regulations (Northern Ireland) 2003. Composting operations may be carried out under exemption 13 of The Waste Management Licensing Regulations (Northern Ireland) 2003.

The provision of exemption 13 will depend on a number of factors and limitations will apply. For example, the total quantity of waste treated or stored at any one time shall not exceed 200 tonnes. Also, the waste streams to be composted must be identified by the EWC Codes found in Column 1 of Table 6, within Schedule 2 of the Waste Management Licensing Regulations (Northern Ireland) 2003.

It should also be noted that any site handling animal by-products must be authorised by the Department of Agriculture and Rural Development (DARD) [www.dardni.gov.uk](http://www.dardni.gov.uk)

## Compost Standards

### 2.2 Compost Produced to BSI PAS 100:2005

BSI PAS 100: 2005 is the British Standards Institution's Publicly Available Specification for composted material. PAS 100 outlines the minimum requirements for the process of composting, the selection of materials from which compost is made, the process of composting and the quality of composted materials. The specification was developed in conjunction with Waste Resources Action Programme (WRAP) ([www.wrap.org.uk](http://www.wrap.org.uk)) and the Composting Association ([www.compost.org.uk](http://www.compost.org.uk)).

Input material for PAS100:2005 shall be biodegradable materials that have not been mixed, combined or contaminated with other potentially polluting wastes, products or materials. In other words, the input materials must be organic and source separated.

Compost which is produced to the PAS 100:2005 standard, and is not disposed of, will cease to be waste once it is dispatched from the site of production.

*Any source segregated Biodegradable Municipal Waste (BMW) which is composted in accordance with the PAS 100 standard will be considered fully recovered and will not utilise landfill allowances under the Landfill Allowance Scheme (NI) Regulations 2004 (NILAS).*

Any compost not meeting PAS 100: 2005 will remain waste and will, therefore, be subject to all waste regulatory control.

### 2.3 Compost which is NOT produced to the PAS 100 standard

**For the purposes of this document non PAS 100 compost refers to source segregated biodegradable waste that is the result of composting,** which has been sanitised and stabilised, and which confers beneficial effects when it is added to soil, used as a component of growing media, or used in another way in conjunction with plants.

It should be noted: Compost is not a soil substitute. It may be used in conjunction with other materials and the ratios and material suitability will be site specific. Compost used excessively will be considered a disposal operation.

Compost, not produced to the PAS 100 standard, may be suitable, if used appropriately, for use in land reclamation, restoration or improvement.

## 2.4 Use of Non-PAS 100 Compost in land reclamation, restoration or improvement.

Compost may be used in land reclamation, restoration or improvement, subject to an approved exemption under the Waste Management Licensing Regulation (NI) 2003.

Paragraph 11 of schedule 2 in the Waste Management Licensing Regulations (NI) 2003 makes provision for an exemption for the use of off-specification compost, derived from biodegradable waste only, for the purpose of reclamation, restoration or improvement of land.

The use of compost for site reclamation under an exemption will only be acceptable where the activity results in benefit to agriculture or ecological improvement and:

1. The spreading is carried out for the purpose of reclamation, restoration or improvement of land which has been subject to industrial or other man made development and the use to which that land could be put would be improved by the spreading;
2. The spreading is carried out in accordance with any planning permission where such a permission is required.
3. The waste is spread to a depth not exceeding the lesser of 2 meters or the final cross sections shown on a plan required to be submitted in accordance with regulation 19 and part II of schedule 2 of the Management Licensing Regulations (NI) 2003;
4. The waste spread does not exceed 20,000 cubic metres per hectare.

Schedule 2 part III of the Waste Management Licensing Regulations (NI) 2003 outlines the assessment of benefit to agriculture or ecological improvement.

The appropriate requirements of Schedule 3 of the Waste Management Licensing Regulations (Northern Ireland) 2003 must also be adhered to.

*Any source segregated Biodegradable Municipal Waste (BMW) which has been composted and used in land reclamation, restoration or improvement **within the limits of an approved exemption** will be considered fully recovered and will not utilise landfill allowances under the Landfill Allowance Scheme (NI) Regulations 2004 (NILAS).*

## 2.5 Use of compost in landfill restoration

Suitably stabilised compost may be appropriate for use in landfill restoration. However, the use and quantities of any material used in the restoration of a landfill, must be with written authorisation from NIEA waste management licensing/PPC team. This written authorisation will normally form part of a site closure plan which has been approved by NIEA.

The use of compost in landfill restoration may be capable of providing a useful amount of organic matter and some plant nutrients, subject to the specification for treatment processes, output quality and end use being met and any negative effects are identified and assessed as being acceptably low.

The use of compost in the restoration of former landfills will be considered on a site specific basis. The details and characteristics of individual landfill sites are variable and these specifics must be fully assessed when considering the use of stabilised biowaste or compost in restoration.

Although it is not essential that compost meets the PAS100 standard, for use in landfill restoration, NIEA recommends that operators follow the parameters as set out in the PAS100 standard as guidance.

Further guidance on designing the restoration scheme of landfills is provided in section 4 of the following guidance document:

“Interim Guidance on Landfill Closure: Capping and Restoration”

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*Any source segregated Biodegradable Municipal Waste (BMW) which has been composted and used in landfill restoration either within the limits of an approved exemption or in accordance with an approved Site Closure Plan will be considered fully recovered and will not utilise landfill allowances under the Landfill Allowance Scheme (NI) Regulations 2004 (NILAS).*

It should be noted: Compost is not a soil substitute and it is not the only material to be used in the restoration of landfill sites or in land reclamation. It may be used in conjunction with other materials and the ratios and material suitability will be site specific. Compost used excessively will be considered disposed of.

## 2.6 Use of Compost as Intermediate (daily) Landfill Cover

Suitably stabilised compost or biowaste may be considered for use as daily or intermediate cover on landfills, provided it has no noticeable odour, is not attractive to rodents, flies or birds

Any compost, biowaste or indeed any waste used as intermediate landfill cover, will be considered disposed of.

*Any Biodegradable Municipal Waste (BMW) which has been composted and used as intermediate landfill cover will be considered as disposal and will utilise landfill allowances under the Landfill Allowance Scheme (NI) Regulations 2004 (NILAS). However, the reduction in biodegradability as a result of treatment may be taken account of, if a suitable sampling and analysis programme is in place.*

## 2.7 Spreading of compost to land

Paragraph 9 of schedule 2 in the Waste Management Licensing Regulations (NI) 2003 makes provision for an exemption for the use of off-specification compost, derived from biodegradable waste only, for use on land used for agriculture where such treatment results in benefit to agriculture or ecological improvement.

## 2.8 Import / Export of waste for composting

Any waste which is transported for composting into or out of Northern Ireland, must comply with the requirements of the Transfrontier Shipment of Waste Regulations 2007 and the UK Management Plan for Exports and Imports of Waste must be adhered to.

Anyone intending to import / export waste from Northern Ireland should contact the Transfrontier Shipment (TFS) Section within the Land and Resource Management Unit of the Northern Ireland Environment Agency.