

# Guide to the Regulation of Outputs from the 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 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 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.doeni.gov.uk/niea](http://www.doeni.gov.uk/niea)

## Glossary

<b>CQP</b>	Compost Quality Protocol sets out criteria for the production of BSI PAS 100 compost from source-segregated biodegradable waste for certain markets leading to it being regarded as having ceased to be waste.
<b>MBT</b>	Mechanical Biological Treatment treats residual waste by a combination of physical and biological processes
<b>Compost</b>	Solid particulate material that is the result of composting source segregated biodegradable waste
<b>Composting</b>	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 and moisture which allows the development of temperatures to ensure that, over time, stabilised compost, which will have beneficial effects when added to soil, is produced.
<b>Stabilised biowaste</b>	<i>For the purposes of this document</i> this is waste resulting from the composting of non-source segregated biodegradable waste.
<b>BSI PAS100:2011</b>	The British Standards Institution's Publicly Available Specification for composted material which was last updated in Jan 2011.

## 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 as amended 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.

#### 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 Northern Ireland Environment Agency considers RDF (e.g. fuel derived from waste) a waste and remains waste until it is burned as fuel<sup>1</sup>. Importantly, installations burning waste as fuel must comply not only with the Waste Framework Directive (WFD)<sup>2</sup> but also with the requirements of the Waste Incineration Directive (WID).<sup>3</sup>

### 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 subject to a written authorisation from NIEA Waste PPC team. This written authorisation will normally form part of a NIEA authorised site closure permit.

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 use the parameters as set out in the BSI PAS100 standard as a guide to the expected standard of material.

Further guidance on designing the restoration scheme of landfills is provided in the guidance document “Interim Guidance on Landfill Closure: Capping and Restoration” [http://www.doeni.gov.uk/niea/interim\\_guidance\\_on\\_landfill\\_closure\\_capping\\_and\\_r.pdf](http://www.doeni.gov.uk/niea/interim_guidance_on_landfill_closure_capping_and_r.pdf)

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<sup>1</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>2</sup> The WFD classifies as a waste recovery operation “Use of waste principally as a fuel or other means of generating energy” (R1).

<sup>3</sup> In practice, one permit will cover the requirements of both Directives.

## **(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 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, if a suitable monitoring programme is in place. The requirements of a programme acceptable to NIEA are outlined in the EA document "Guidance on monitoring of MBT and other treatment processes for the landfill allowances schemes (LATs and LAS) for England and Wales" (product code SCHO1009BREA-E-P at <http://publications.environment-agency.gov.uk> )*

### **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, if a suitable monitoring programme is in place. The requirements of a programme acceptable to NIEA are outlined in the EA document "Guidance on monitoring of MBT and other treatment processes for the landfill allowances schemes (LATs and LAS) for England and Wales" (product code SCHO1009BREA-E-P at <http://publications.environment-agency.gov.uk> )*

Table 1: Comparison of the options for non-source and source segregated biological wastes and their degree of recovery.

Potential use	non-source segregated biological waste	source segregated biological waste	
	stabilised biowaste (e.g. from MBT)	compost	
	non-Compost Quality Protocol material <sup>3</sup>	Compost Quality Protocol material <sup>4</sup>	
Site closure permit (1.1.4.a) Landfill capping and restoration	Allowed on site-by-site basis only (full recovery)	Allowed (full recovery)	Allowed (fully recovered product)
Para 9 exemption <sup>1</sup> (1.1.4.b) Off-specification compost, <i>derived from biodegradable waste only</i> , for use on land as a treatment to benefit agriculture or ecological improvement	Not allowed (n/a)	Allowed (full recovery)	Allowed (fully recovered product)
Para 11 exemption <sup>2</sup> (1.1.4.b) Off-specification compost, <i>derived from biodegradable waste only</i> , for use in the reclamation, restoration or improvement of land which has been subject to industrial or other man made development	Not allowed (n/a)	Allowed (full recovery)	Allowed (fully recovered product)
Authorised landfill (1.1.4.c) Intermediate (Daily) cover provided the material has no noticeable odour, is not attractive to rodents, flies or birds	Allowed (nil or some recovery if biodegradability reduction is monitored)	Allowed (nil or some recovery if biodegradability reduction is monitored)	Not allowed (n/a)
Authorised landfill (1.1.5) Disposal	Allowed (nil or some recovery if biodegradability reduction is monitored)	Allowed (nil or some recovery if biodegradability reduction is monitored)	Not allowed (n/a)

<sup>1</sup> For more details see [http://www.doeni.gov.uk/niea/waste-home/authorisation/exemption/wml\\_complex\\_exemptions/paragraph\\_9.htm](http://www.doeni.gov.uk/niea/waste-home/authorisation/exemption/wml_complex_exemptions/paragraph_9.htm)

<sup>2</sup> For more details see [http://www.doeni.gov.uk/niea/waste-home/authorisation/exemption/wml\\_complex\\_exemptions/paragraph\\_11.htm](http://www.doeni.gov.uk/niea/waste-home/authorisation/exemption/wml_complex_exemptions/paragraph_11.htm)

<sup>3</sup> Such materials are still considered waste & thus subject to all relevant waste regulations e.g. Duty of Care, Registration of Carriers, Exemptions, Licenses, Permits

<sup>4</sup> For more details see [http://www.doeni.gov.uk/niea/index/about-niea/better\\_regulation/waste\\_quality\\_protocols.htm](http://www.doeni.gov.uk/niea/index/about-niea/better_regulation/waste_quality_protocols.htm) specifically [http://www.doeni.gov.uk/niea/compost\\_quality\\_protocol-2.pdf](http://www.doeni.gov.uk/niea/compost_quality_protocol-2.pdf)