

Compost

End of waste criteria for the production and use of quality
compost from source-segregated biodegradable waste



This Quality Protocol was funded by Defra, the Welsh Government and the Northern Ireland Environment Agency (NIEA) as a business resource efficiency activity. It was developed by the Environment Agency and WRAP (Waste & Resources Action Programme) in consultation with Defra, the Welsh Government, industry and other regulatory stakeholders. The Quality Protocol is applicable in England, Wales and Northern Ireland. It sets out the end of waste criteria for the production and use of quality compost from source-segregated biodegradable waste.

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Foreword

Background

Uncertainty over the point at which waste has been fully recovered and ceases to be waste within the meaning of Article 3(1) of the EU Waste Framework Directive (2008/98/EC) has inhibited the development and marketing of materials produced from waste which could otherwise be used beneficially without damaging human health and the environment. In some cases, this uncertainty has also inhibited the recovery and recycling of waste and its diversion from landfill.

Interpretation of EU legislation is ultimately a matter for the Courts and there is now a substantial body of case law on the interpretation of the definition of waste in Article 3(1) of the Waste Framework Directive. Drawing on the principles established in this case law, it is possible to identify the point at which certain wastes cease to be waste and thus when the Waste Framework Directive's waste management controls no longer apply.

What is a Quality Protocol?

A Quality Protocol sets out end of waste criteria for the production and use of a product from a specific waste type. Compliance with these criteria is considered sufficient to ensure that the fully recovered product may be used without undermining the effectiveness of the Waste Framework Directive and therefore without the need for waste management controls.

In addition, the Quality Protocol indicates how compliance may be demonstrated and points to good practice for the storage, handling, application and use of the fully recovered product.

The Quality Protocol further aims to provide increased market confidence in the quality of products made from waste and so encourage greater recovery and recycling.

1. Introduction

Definitions of terms that appear in *italics* when they are first used in this *Quality Protocol* are given in Appendix A.

1.1 What is this Quality Protocol?

- 1.1.1 This Quality Protocol has been developed by the *Environment Agency* and WRAP (Waste & Resources Action Programme) in consultation with *Defra*, the *Welsh Government*, industry and other regulatory stakeholders including the *Northern Ireland Environment Agency* (NIEA). The Quality Protocol is applicable in England, Wales and Northern Ireland.
- 1.1.2 The Quality Protocol sets out the end of waste criteria for the production of *quality compost* from *source-segregated biodegradable waste* destined for use in *designated market sectors*. If these criteria are met, the resulting outputs will normally be regarded as having been fully recovered and to have ceased to be waste.
- 1.1.3 *Producers* and users are not obliged to comply with the Quality Protocol. If they do not, the *compost* produced will normally be considered to be waste and *waste management controls* will apply to its handling, transport and application.
- 1.1.4 This Quality Protocol does not affect the obligation of producers to hold an *environmental permit* and to comply with its conditions when receiving, storing and processing waste.

1.2 The purpose of the Quality Protocol

- 1.2.1 The Quality Protocol has four main purposes:
- i. clarifying the point at which waste management controls are no longer required;
 - ii. providing users with confidence that the quality compost from source-segregated biodegradable waste they purchase conforms to an *approved standard*;
 - iii. providing users with confidence that the quality compost from source-segregated biodegradable waste is suitable for use in designated market sector(s) including by conforming with the approved standard; and
 - iv. protecting human health and preventing pollution of the environment (including soil).
- 1.2.2 In addition, the Quality Protocol describes good practice for the storage, handling, application and use of quality compost from source-segregated biodegradable waste (see Appendix F).

1.3 Complying with the Quality Protocol

- 1.3.1 Quality compost from source-segregated biodegradable waste will normally be regarded as having ceased to be waste and therefore no longer subject to waste management controls provided it:
- has been produced using only those source-segregated *input materials* listed in Appendix B;
 - meets the requirements of an approved standard¹ for use in the market it is destined for;

1 See Appendix C.

- is destined for appropriate use, in accordance with Section 4 of this Quality Protocol, in one of the designated market sectors;
- requires no further processing including *maturation or re-screening* for use in a designated market sector in accordance with Section 4; and
- meets any additional customer specifications, as agreed between the supplier and the customer, which involve further processing.

1.3.2 Producers must demonstrate that these criteria have been met. They must do this in the ways set out in Section 3 of the Quality Protocol, that is:

- by obtaining *certification* from an approved certification body; and
- by producing and keeping copies of customer *supply documentation* that includes a declaration that the quality compost meets the approved standard, the Quality Protocol and any additional customer specifications (as agreed between the supplier and the customer).

1.3.3 This Quality Protocol will be adopted as a technical regulation under Technical Standards and Regulations Directive (98/34/EC) as amended.² We recognise that there may be codes of practice or standards which apply in the European Economic Area (EEA) States other than the UK setting out requirements for the production and use of quality compost. We accept that quality compost may cease to be waste provided it has been produced in compliance with:

- a relevant standard or code of practice of a national standards body or equivalent body of any EEA State; or
- any relevant international standard recognised for use in any EEA State; or
- any relevant technical regulation with mandatory or de facto mandatory application for marketing or use in any EEA State.

These must give levels of product performance and protection of human health and the environment, equivalent to those required by this Quality Protocol.

1.4 When Quality Protocol compliant material may become waste

1.4.1 Producers and users of quality compost should note that, even if the Quality Protocol is complied with, the material will become waste again and subject to waste management controls if it is at any stage it is discarded or there is a requirement or intention to discard it, for example if:

- it is disposed of; or
- it is stored indefinitely with little prospect of being used; or
- under the rules of the certification scheme, or the approved standard or for any other reason the material has to be reprocessed or disposed of as waste.

The material may also become waste again if prior to use it is stored for such a time or in such a manner that it is no longer suitable for the use it is destined for.

1.4.2 In addition, if Quality Protocol compliant material is mixed with waste materials, the resulting mix will normally be considered to be a waste and subject to waste management controls. If Quality Protocol compliant material is mixed with non-waste materials, the resulting mix will not, as a result of this, be waste.

² The Technical Standards and Regulations Directive 98/34/EC seeks to ensure the transparency of technical regulations and is intended to help avoid the creation of new technical barriers to trade within the European Community.

- 1.4.3 Digestate (whole digestate, separated fibre or separated liquor) that complies with the Quality Protocol for Anaerobic Digestate³, or that is made from only input materials in Appendix B of the Compost Quality Protocol are the only digestates allowed to be used as an input material to the *composting* process or as a composting process additive.

If the compost being produced is to meet the requirements of the Compost Quality Protocol, the digestate does not need to be certified as compliant with the Compost Quality Protocol, but meet the requirements of the Anaerobic Digestate Quality Protocol (or equivalent in Scotland⁴) or be made from only input materials in Appendix B of the Compost Quality Protocol. If the digestate is produced from other input materials, the compost to which it is added will normally be considered to be a waste.

- 1.4.4 Digestate shall only be used as a composting process additive if it complies with the criteria in 1.4.3 and it has undergone a pasteurisation step during anaerobic digestion treatment that precedes its use in the Compost Quality Protocol composting process.
- 1.4.5 Figure 1 explains how outputs from the Anaerobic Digestate Quality Protocol can be fed into a Quality Protocol compliant compost.

1.5 Failure to comply with the Quality Protocol

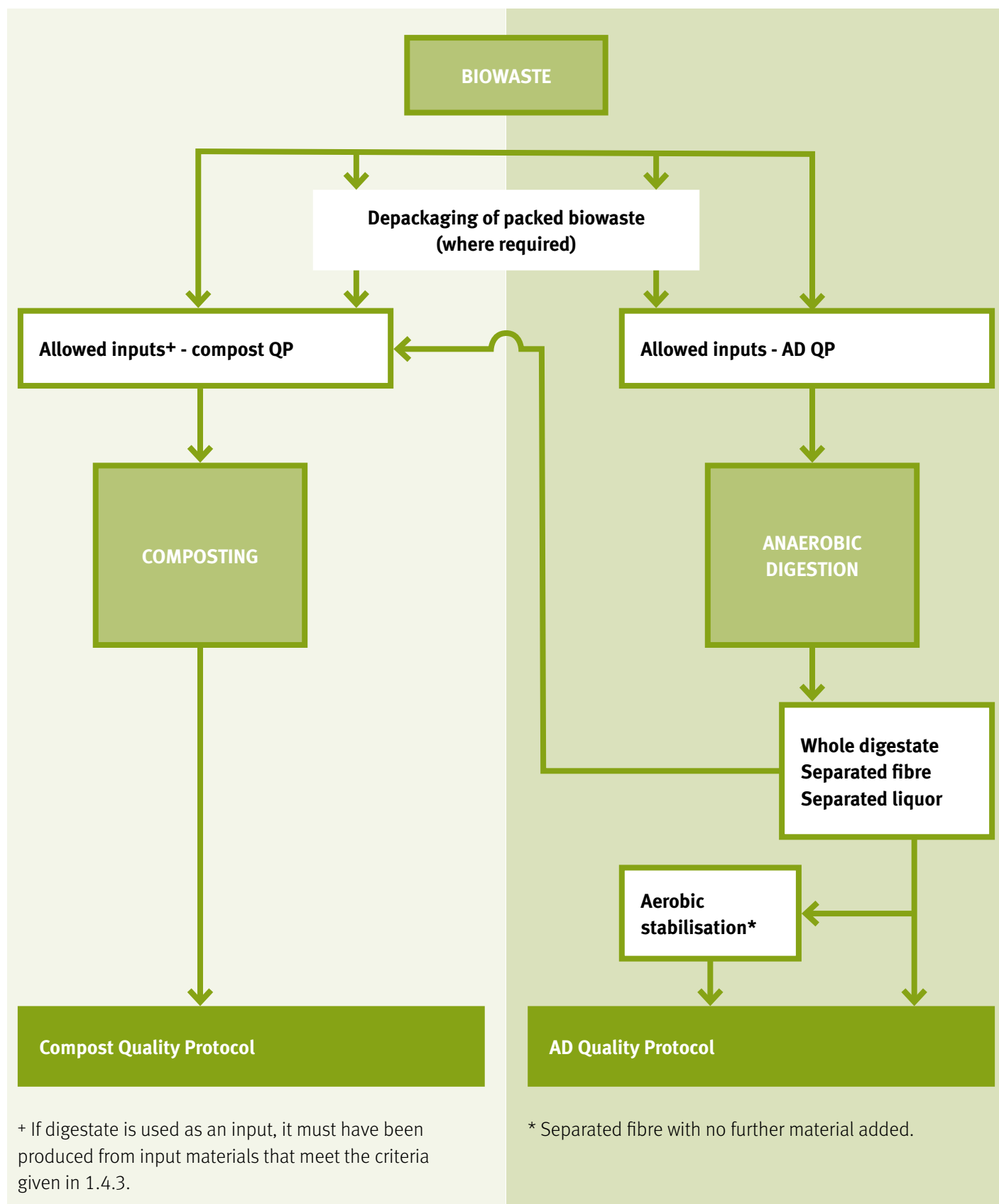
- 1.5.1 Where this Quality Protocol is not complied with, for example the compost does not meet the requirements of the approved standard or the producer cannot demonstrate evidence of compliance, the material produced will normally be considered to be waste. In such circumstances, the producer or user must comply with the appropriate waste management controls⁵ for the transportation, storage and use of the material and may be committing an offence if they do not do so.
- 1.5.2 Detailed guidance on waste management controls can be obtained from the Environment Agency's National Customer Contact Centre on 08708 506 506, from its website (<http://www.environment-agency.gov.uk/subjects/waste/>) or NetRegs (<http://www.netregs.gov.uk/>). In Northern Ireland guidance can be obtained from NIEA's website (<http://www.ni-environment.gov.uk/waste-home/authorisation.htm>) or by phoning 0845 302 0008.

3 Quality Protocol. Anaerobic Digestate. End of waste criteria for the production and use of quality outputs from anaerobic digestion of source-segregated biodegradable waste

4 SEPA Regulatory Position Statement: Classification of Outputs from Anaerobic Digestion Processes: http://www.sepa.org.uk/waste/waste_regulation/guidance__position_statements.aspx

5 For example, in compliance with Article 11 of the Waste Framework Directive, the user might need to obtain an environmental permit from the Environment Agency (or in Northern Ireland a waste management licence or a Pollution Prevention Control (PPC) permit from the NIEA).

Figure 1: Relationships between the two Quality Protocols (QPs)



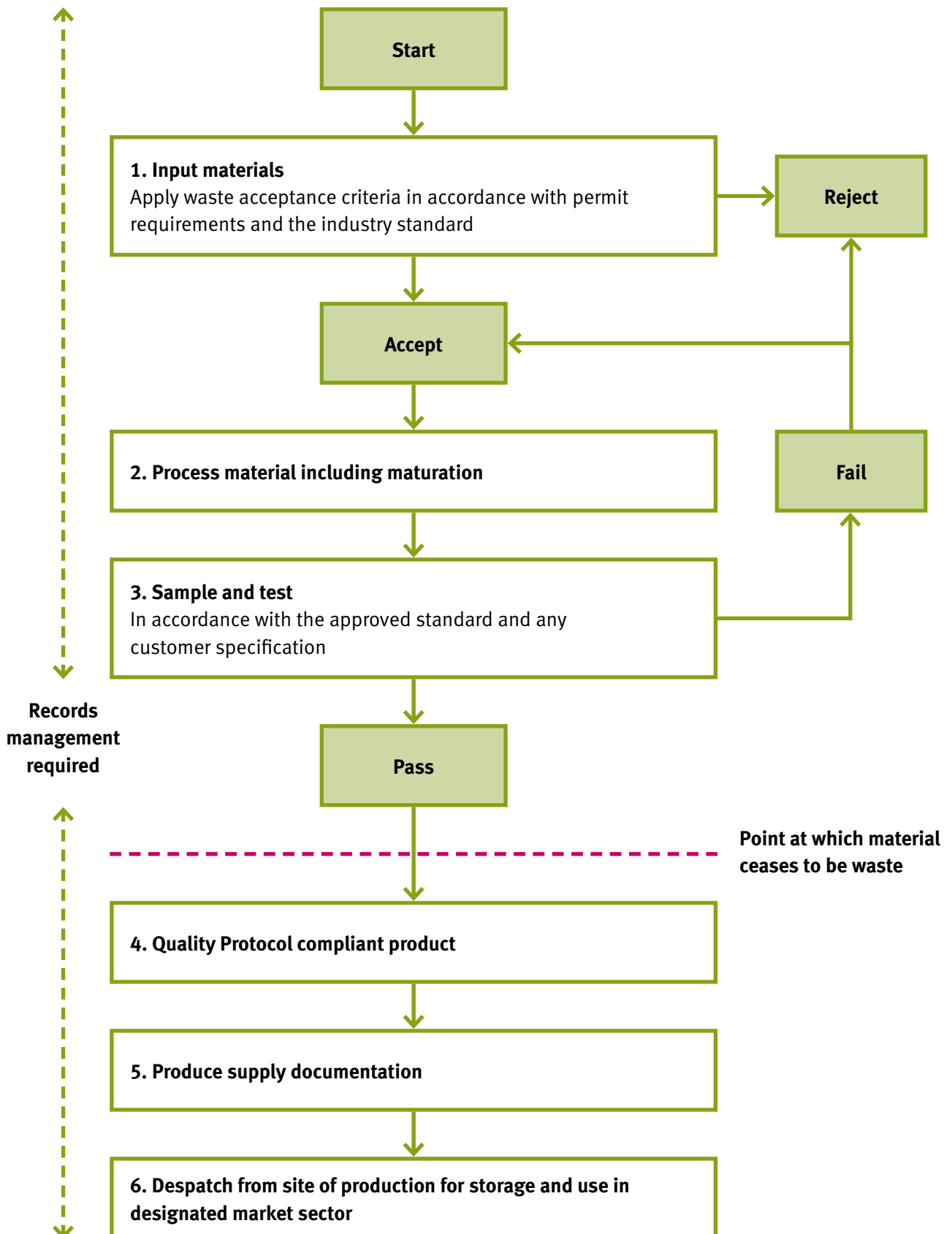
1.6 Updating the Quality Protocol

- 1.6.1 We plan to review and update this document every two years from the date of its final publication.
- 1.6.2 However, this document may be subject to change before these review dates. Triggers for such a change could include:
- pollution incidents;
 - development in scientific understanding;
 - a change in the market;
 - a change in legislation or case law; or
 - a change to the agreed industry standard or input materials.
- 1.6.3 The Environment Agency may seek support from industry in reviewing this document.
- 1.6.4 This Quality Protocol may be withdrawn if it becomes apparent that it is generally being misapplied and/or misused.
- 1.6.5 An outline of the main stages and control mechanisms of the Quality Protocol is presented in Figure 2. These are described in Sections 2 and 3.

1.7 Importing and exporting Quality Protocol compliant material

- 1.7.1 Producers intending to export material that complies with this Quality Protocol should be aware that, although the material may cease to be waste in England, Wales and Northern Ireland, the country of destination may take a different view. If the competent authority in the country of destination considers the material to be waste, the shipment will be subject to the controls set out in the Waste Shipment Regulation.
- 1.7.2 Those intending to import Quality Protocol compliant material into England, Wales or Northern Ireland should be aware that, if the country of despatch regards the material as waste, the controls set out in the Waste Shipment Regulation will apply to the shipment. This is the case even though the material may be regarded as having ceased to be waste in England, Wales and Northern Ireland.
- 1.7.3 Before importing or exporting such material it is prudent to check with the competent authority for the country of despatch or destination. A list of the competent authorities can be found at: http://ec.europa.eu/environment/waste/shipments/pdf/list_competent_authorities.pdf

Figure 2: Main stages and control mechanisms of the Quality Protocol



2. Producing quality compost from source-segregated biodegradable waste

2.1 Regulating the production process

2.1.1 The process of turning waste into compost is classified as a waste recovery operation and is subject to the waste management controls in the Waste Framework Directive and domestic legislation. This Quality Protocol does not affect the obligation for producers to hold an environmental permit that authorises the storage and processing of waste into compost.

2.2 Criteria for producing compost that has ceased to be waste

2.2.1 To comply with this Quality Protocol, the compost must:

- be produced using only those source-segregated input materials listed in Appendix B;
- meet the requirements of an approved standard⁶ for use in the market it is destined for;
- be destined for appropriate use, in accordance with Section 4, in one of the designated market sectors;
- require no further processing including maturation or re-screening for use in a designated market in accordance with Section 4: and
- meet any additional customer specifications, as agreed between the supplier and the customer which involve further processing.

2.3 Input materials

- 2.3.1 (i) Only those waste types listed in Appendix B may be used and they must be source-segregated, that is, they must have been kept separate from any other wastes. (The conditions of the producer's environmental permit may further restrict the waste types that can be used.)
- (ii) The transformation of any waste types listed in Appendix B that are *classified as animal by-products* must be carried out in accordance with animal by-products controls.⁷

2.4 Processed in accordance with the approved standard

2.4.1 The producer must also comply with all the requirements of an approved standard. Appendix C lists the only approved standard at the time of publishing this Quality Protocol. Additional standards may be approved by the Environment Agency for inclusion in this Quality Protocol when it is reviewed.

2.4.2 Producers should be aware that standards are subject to regular periodic review and should ensure they comply with the latest version. Any changes to the agreed standard may trigger a review of the Quality Protocol (see Section 1.6).

⁶ See Appendix C.

⁷ Animal by-products are subject to the requirements and controls in Regulation (EC) 1069/2009 and its corresponding implementing Regulation (EC) 142/2011 (as amended). These are enforced through The Animal By-Products (Enforcement) (England) Regulations 2011 No. 881, The Animal By-Products (Enforcement) (No2) (Wales) Regulations 2011 No. 600 (W.88) and The Animal By-Products Regulations (Northern Ireland) 2011 No. 124. Further information on the controls relating to animal by-products can be found on Defra's website and Animal Health and Veterinary Laboratories Agency's (AHVLA) website.

2.5 Destined for use within one of the following market sectors

2.5.1 The compost must be destined for appropriate use within:

- *land* restoration and *soft landscape operations*;
- *horticulture* (this includes *domestic use*);
- *agriculture* and *soil-grown horticulture*; or
- *forestry*.

2.6 Require no further processing

2.6.1 The compost must:

- meet the requirements of an approved standard⁸ for the market it is destined for; and
- require no further processing, including maturation or re-screening, for the market it is destined for.

2.7 Meets any additional customer specification

2.7.1 In addition to the requirements set out in Sections 2.3 to 2.6, any additional requirements specified by the customer which involve further processing must be met.

3. Providing evidence of compliance with the Quality Protocol

3.1 Certification

- 3.1.1 Producers must demonstrate compliance with the requirements of this Quality Protocol and of the approved standard. Compliance must be demonstrated from an approved certification body operating according to scheme rules agreed with the Environment Agency and NIEA. The approved certification body must also obtain *accreditation* on an annual basis from the United Kingdom Accreditation Service (UKAS) to BS EN 45011: 1998 *General requirements for bodies operating certification systems* (or any subsequent amendments). The certification and accreditation process is illustrated in Appendix D.
- 3.1.2 As part of the certification process, the producer will be required to:
- keep and retain specified records for a minimum of four years; and
 - make them available to the certification body for certification purposes.
- Details of the records to be kept are given in section 3.2.
- 3.1.3 Scheme rules will not be agreed by the Environment Agency and NIEA unless they make provision to ensure that:
- the method of certification demonstrates that users have met both the requirements of the approved standard and those of the Quality Protocol;
 - compliance with both the standard and the Quality Protocol are certified annually by an independent certification body accredited by UKAS to BS EN 45011: 1998 (or any subsequent updates) to the relevant scopes;
 - certification verifies source documentation, evidence of site management procedures (including compliance with the *quality management system*) and laboratory test results;
 - the certification body or its authorised contractor carries out at least one site inspection per year to verify on site documentation; and
 - the certification process is overseen by an impartial committee.

3.2 Records management

- 3.2.1 To be able to demonstrate compliance with the Quality Protocol, producers must maintain copies of supply documentation provided to the customer for each sale or supply of Quality Compost in accordance with an approved standard and any approved certification scheme.⁹
- 3.2.2 The documentation must include:
- date of supply;
 - customer's name, contact details and nature of business;
 - the name and contact details of the producer, including the address of the site of production;
 - quantity supplied by weight/volume;
 - the designated application the material is destined for;
 - a statement that the processed Quality Compost was produced in compliance with this Quality Protocol;

⁹ Supply documentation is not required for each delivery, only for each application/project.

- a statement of the approved industry standard(s) it meets;
- a statement that it has been certified by an appropriate certification scheme; and
- confirmation that information on good practice relating to the storage, handling, application and use of quality compost (as set out in Appendix F) has been highlighted to the customer.

3.2.3 A supply document template that producers may choose to use or adapt is given in Appendix E.

3.2.4 Records must also be kept of incoming wastes. As a minimum, a record of each load delivered to site must be kept giving:

- date;
- *European Waste Catalogue* (EWC) code and description;
- place of origin (where known);
- quantity of weight/volume;
- carrier;
- supplier; and
- whether the load was accepted.

3.2.5 Records of all testing carried out to demonstrate compliance with the approved standard must be made and retained.

3.2.6 For the purposes of this Quality Protocol the producer must make records available for inspection by the regulator, farm auditor or certification body (if requested).

3.2.7 These requirements are additional to any statutory record-keeping obligations. However, some records may be used to fulfil both a regulatory obligation and evidence of compliance with this Quality Protocol.

4. Storage, application and use of quality compost from source-segregated biodegradable waste

4.1 General

- 4.1.1 As for all fertilisers, producers and users of quality compost should:
- take full account of any environmental impact resulting from its use; and
 - ensure that its use does not compromise the future sustainable use of water resources and/or the integrity of designated conservation areas.

4.2 Storage of quality compost

- 4.2.1 Quality compost produced in accordance with this Quality Protocol, which is regarded as having ceased to be waste, may need to be temporarily stored either on-site, in an off-site storage facility before delivery to the customer, or at the customer's premises. The materials will not be waste at that point so waste management controls will not apply.
- 4.2.2 Producers, distributors and users should follow good practice for the storage, handling, application and use of quality compost as an agricultural fertiliser and in soil-grown horticulture. Details of good practice are given in Appendix F.
- 4.2.3 If it appears that the material is being stored indefinitely with little prospect of use, the material will revert to being a waste and waste management controls will apply as specified in Section 1.4.

4.3 Application of compost

4.3.1 Designated market sectors

This Quality Protocol only applies to compost that is destined for use in one of the following designated market sectors:

- land restoration and soft landscape operations;
- domestic or professional horticulture;
- agriculture and soil-grown horticulture; or
- forestry.

- 4.3.2 If good practice is followed, the Environment Agency and NIEA considers that quality compost will not pose a risk to human health or the environment in the quantities and frequencies at which it is likely to be applied in these sectors. Good practice means the measures set out in Appendix F.

4.4 Land restoration and soft landscape operations

- 4.4.1 Examples of the ways in which quality compost may be used in these sectors are:
- soil manufacture and/or blending operations (including manufacture of turf dressings and root zone media);
 - *land reclamation* and *land remediation*; and
 - soft landscape operations (including soil improvement, turf maintenance, turf establishment and as a *mulch*).

4.5 Horticulture

4.5.1 Examples of the way in which quality compost may be used in this sector are:

- as a direct *soil improver/soil conditioner* for domestic use; and
- blending with other non-waste materials to produce a horticultural grade *growing medium* for domestic use and professional applications.

4.6 Agriculture and soil-grown horticulture

4.6.1 Quality compost can be used in agriculture and soil-grown horticulture as a soil improver or mulch provided it is used in such a way that:

- it does not pose a risk to the environment; and
- its use does not compromise the future sustainable use of the soil to which it is applied.

4.6.2 The compost user must be able to demonstrate that they have taken full account of any environmental impact resulting from its use.

4.6.3 Details of good practice for the testing and storage, handling, application and use of quality compost as an agricultural fertiliser and in soil-grown horticulture are given in Appendix F.

4.7 Forestry

4.7.1 Examples of the ways in which quality compost may be used in this sector are:

- improvement of in-situ soil in the planting area prior to tree planting,
- blending with in-situ soil for use as backfill for planting pits during preparation for tree planting, or
- applying coarse particle compost as a surface mulch to suppress weeds during tree establishment.

Appendix A Definitions

In this Quality Protocol, the words and phrases below have the following meanings.

Accreditation: Third-party verification related to a conformity assessment body conveying formal demonstration of its competence to carry out specific conformity assessment tasks.¹⁰

Animal by-products: Animal by-products are defined in Article 3 of Regulation (EC) 1069/2009 as ‘entire bodies or parts of animals, products of animal origin or other products obtained from animals that are not intended for human consumption’. This includes catering waste (including used cooking oil when intended for composting), former foodstuffs, butcher and slaughterhouse waste, blood, feathers, wool, hides and skins, fallen stock, pet animals, zoo and circus animals, hunt trophies, manure, ova, embryos and semen not intended for breeding purposes.

Animal Health and Veterinary Laboratories Agency (AHVLA): The purpose of AHVLA is to:

- help safeguard animal health and welfare, and public health;
- protect the economy; and
- enhance food security through research, surveillance and inspection.

Approved standard: The standard listed in Appendix C that has been approved for inclusion in this Quality Protocol.

Biodegradable waste: Any waste such as food and garden waste, paper and paperboard that is capable of undergoing anaerobic or aerobic decomposition. This includes biowaste as defined in PAS100.

Certification: Third-party attestation related to products, processes, systems or persons.¹¹

Note: In the context of this Quality Protocol, the scope of assessment by the independent certification body must cover compost product, the composting process, the producing organisation’s *quality management system* and training of those persons who affect compost quality. Certification provides verification that the product meets the approved standard and the requirements of the Quality Protocol.

Compost: Solid particulate material that is the result of composting, that has been sanitised (see definition of *sanitisation*) and *stabilised* (see definition of *stabilisation*), and which confers beneficial effects when added to soil, is used as a component of a growing medium, or is used in another way in conjunction with plants.

Compost Certification Assessment Code: A unique certification number awarded to the producer annually by a certification body.

Composting: Process of controlled biological decomposition of biodegradable materials under managed conditions that are predominantly aerobic and which allow the development of thermophilic temperatures as a result of biologically produced heat.

Defra: Defra is the UK government department responsible for policy and regulation on the environment, food and rural affairs.

Designated market sector(s): The sector(s) listed in Section 4 in which this Quality Protocol enables quality compost to be used.

Domestic use: Compost used by members of the public in their own gardens, communal or shared gardens, and allotments.

¹⁰ EN ISO/IEC 17000: 2004 Conformity assessment. Vocabulary and general principles.

¹¹ EN ISO/IEC 17000: 2004 Conformity assessment. Vocabulary and general principles

Environment Agency: The Environment Agency is the leading public body for protecting and improving the environment in England and Wales. Its job is to make sure that air, land and water are looked after by everyone in today's society, so that tomorrow's generations inherit a cleaner, healthier world.

Environmental permit: Environmental permit issued or exemption registered under the Environmental Permitting (England and Wales) Regulations 2010 No. 675 or, in Northern Ireland, a waste management licence or exemption under the Waste Management Licensing Regulations (Northern Ireland) (as amended) 2003 SR493 or a Pollution Prevention and Control permit under the Pollution Prevention and Control Regulations (Northern Ireland) 2003 SR46.

European Economic Area (EEA): The EEA States consist of the members of the EU (Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the UK) together with Iceland, Liechtenstein and Norway. The Crown Dependencies of Jersey, Guernsey and the Isle of Man are not part of the UK or EU and businesses registered there are subject to different licensing legislation.

European Waste Catalogue (EWC): The European Waste Catalogue (EWC 2002 and amendments) is a comprehensive list of waste codes and descriptions based on waste source and type.

Growing medium: Material, other than soils *in situ*, in which plants are grown.¹²

Hazard Analysis and Critical Control Point (HACCP): A system which identifies, evaluates and controls hazards that are significant for safety.

Horticulture: The growing of crops in a growing medium. This includes vegetables for human consumption, fruit, flowers and bulbs, hardy and other nursery stock, protected crops and herbs. Note: For the purposes of this Quality Protocol, horticulture is split into two parts – the use of growing medium and soil-grown horticulture.

Input material: Source-segregated biodegradable material intended for feeding or that is fed into a composting process.

Land manager: Natural or legal person (or a group of natural or legal persons, of whatever legal status is granted to the group and its members by national law) whose holding is situated within the EU and who exercises a land management activity.

Land reclamation: The recovery of land from a brownfield or underutilised state to make it suitable for reuse achieved through the stabilisation, contouring, maintenance, conditioning, reconstruction and re-vegetation of the land.

Land remediation: The process of making a site fit-for-purpose through the destruction, removal or containment of contaminants. Environmental damage is reversed or treated through the management, removal, sealing or treatment of dangerous substances or stabilisation in order to render the site safe for a specific use, but not necessarily for all possible uses.

Land restoration: The process of making a site fit-for-purpose through, among the activities carried out, amelioration of the site's soil or soil-forming materials.

Note: In the context of this Quality Protocol, this definition includes land reclamation and land remediation.

List of Wastes (LoW): The List of Wastes contains the 'waste codes', that is, the six-digit EWC codes for different types of waste in accordance with the List of Wastes (England) Regulations 2005 or List of Wastes (Wales) Regulations 2005 (as appropriate). For hazardous waste, the code includes an asterisk.

Maturation: Period of lower rate biodegradation than in the preceding steps of composting (sanitisation and stabilisation). This step occurs after the actively managed period, either before or after any compost screening.

MCERTS: MCERTS is the monitoring certification scheme established by the Environment Agency to deliver high quality environmental measurements. The scheme includes a performance standard for laboratories undertaking chemical testing of soil.

Mulch: Material spread and allowed to remain on the soil surface to conserve soil moisture, suppress weeds and shield soil particles from the erosive forces of raindrops and runoff.¹³

Northern Ireland Environment Agency (NIEA): The Northern Ireland Environment Agency is the leading public body in Northern Ireland responsible for protecting, conserving and promoting the natural environment and built heritage in Northern Ireland.

Potentially Toxic Element (PTE): Chemical element that has potential to have toxic effects on humans, flora or fauna, or can do so in combination with other chemical elements.

Producers: The operator(s) undertaking compost processing.

Quality compost: Material which is produced in compliance with this Quality Protocol and which is normally regarded as having ceased to be waste.

Quality management system (QMS): A system that demonstrates effective control of all operations and the associated quality management activities necessary to achieve compost that is fit for its intended purposes. Where specific controls are applied, they must be monitored and recorded, and their efficacy evaluated both during and after process validation. Corrective actions must be defined.

Quality Protocol: A Quality Protocol sets out criteria for the production of a product from a specific waste type. Compliance with these criteria is considered sufficient to ensure that the recovered product can be regarded as having ceased to be waste and therefore no longer subject to waste management controls. In addition, the Quality Protocol indicates how compliance may be demonstrated and points to good practice for the use of the recovered product.

Re-screening: The process whereby compost is required to be screened for a second time to ensure it meets the grade and customer specifications.

Sanitisation: A biological process that together with the conditions in the composting mass give rise to compost that is sanitary.

Soft landscape operations: These include:

- the preparation and cultivation of soils or other growing media;
- the manufacture of soils, turf dressings and root zone media;
- planting and aftercare in respect of plants, seed and turf.

Subject to the suitability of the product for site conditions and future use, compost may be used to improve soil structure, or as a mulch or top-dressing, in commercial and amenity landscape operations.

Soil-grown horticulture: The commercial production of horticultural crops in soil, in a field, or under protective cover.

Soil improver/soil conditioner: Material added to soil *in situ* primarily to maintain or improve its physical properties, and which can improve its chemical and/or biological properties or activity.¹⁴

Source-segregated: Materials or biodegradable wastes of the types and sources sought that are stored, collected and not subsequently combined with any other non-biodegradable wastes, or any potentially polluting or toxic materials or products, during treatment or storage.

Stabilisation: Biological processes that together with conditions in the composting mass give rise to compost that is nominally *stable*.

Stable, stabilised: Degree of processing and biodegradation at which the rate of biological activity has slowed to an acceptably low and consistent level and will not significantly increase under favourable, altered conditions.

Supply documentation: Records of who the quality compost is supplied to, including the documentation provided to the customer for each sale or supply of Quality Compost. It details the standard to which the product complies and states that the product was produced in conformance with this Quality Protocol.

Technical Standards and Regulations Directive 98/34/EC: Seeks to ensure the transparency of technical regulations and is intended to help avoid the creation of new technical barriers to trade within the European Community.

User(s): User means farmers, growers, application contractors and all those organisations or individuals responsible for the end use of quality compost.

Waste management controls: Controls under legislation that govern the treatment, handling, containment, transportation and storage of waste.

Welsh Government: The Welsh Government is the devolved Government for Wales. This means that Wales has its own government to make policy and laws for the people of Wales. The Welsh Government is responsible for most of the day-to-day issues, including education, health, local government, transport, planning, economic development, social care, culture, environment, agriculture and rural affairs. The role of the Welsh Government is to:

- make decisions on matters regarding these areas, for Wales as a whole;
- develop policies and implement them; and
- propose Welsh laws (Assembly Measures and in the future Assembly Bills).

WRAP (Waste and Resources Action Programme): WRAP's vision is a world without waste, where resources are used sustainably. It works with businesses and individuals to help them reap the benefits of reducing waste, develop sustainable products and use resources in an efficient way.

Appendix B Biodegradable waste types acceptable for the production of quality compost

- B1 Table B1 lists all the input materials – together with their *List of Wastes* ‘waste code’ or EWC code – considered to be biodegradable wastes and acceptable for the production of quality compost.
- B2 To be accepted under this Quality Protocol, input materials are required to:
- be biodegradable materials that have been separately collected from non-biodegradables and which have not been mixed, combined or contaminated with other potentially polluting wastes, products or materials; and
 - be described by a 6 digit waste code in Table B1, meeting any additional requirements specified.
- B3 ‘Compostable’ packaging and plastic wastes – discarded ‘compostable’ packaging and plastic products made of biodegradable material are permitted only if the product is independently certified as conforming to all composting-relevant parts of a standard accepted by the Environment Agency or Northern Ireland Environment Agency. Standards accepted at the time of publishing this Compost Quality Protocol are BS EN 13432, BS EN 14995, ASTM D6400 and AIB-Vinçotte International S.A.’s ‘Program OK 2’ criteria for ‘home compostable’ packaging and plastics.
- B4 Animal by-products - some inputs listed in Appendix B are animal by-products. The handling and treatment of animal by-products in the compost process is subject to both environmental permitting controls and animal by-products controls.¹⁵ Not all animal by-products can be used as a feedstock for compost plants. Compost plants can treat category 3 animal by-products and category 2 animal by-products provided they have been pressure rendered. Some category 2 materials such as manure, digestive contract, milk and milk products, eggs and egg products can be used as feedstock for compost plants without prior treatment unless there is a risk of spreading any serious transmissible disease.¹⁶
- B5 The waste must not contain Japanese knotweed.¹⁷
- B6 Input materials must be compliant. If producers have any doubt about whether an input material is compliant, they should discuss the issue with the certification body.

15 Animal by-products are subject to the requirements and controls in Regulation (EC) 1069/2009 and its corresponding implementing Regulation (EC) 142/2011 (as amended). These are enforced through The Animal By-Products (Enforcement) (England) Regulations 2011, The Animal By-Products (Enforcement) (No2) (Wales) Regulations 2011 and The Animal By-Products Regulations (Northern Ireland) 2011.

16 Further information on the controls relating to animal by-products can be found on Defra’s website and Animal Health and Veterinary Laboratories Agency’s (AHVLA) website.

17 Refer to guidance, Managing Invasive Non-Native Plants, available at <http://publications.environment-agency.gov.uk/PDF/GEH00410BSBR-E-E.pdf>

Table B1: Permitted input materials**1. Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing**

Type	EWC code ¹⁸
Sludges from washing and cleaning	02 01 01
Food preparation and processing waste, food washing waste only.	
Animal tissue waste	02 01 02
Plant tissue waste	02 01 03
Includes straw, other crop residues, riverine vegetation and spent growing media based on plant tissues such as compost derived from source-segregated biodegradable waste, peat and bark. See B5.	
Animal faeces, urine and manure	02 01 06
Slurry and used animal bedding of the following types are allowed: straw; shredded paper; paper pulp; sawdust; wood shavings; and chipped wood. Not allowed if treated, for example, contains veneers, other coatings or preserving substances. Farmed animals (livestock) are the main source.	
Wastes from forestry	02 01 07
Green waste and plant tissue only.	

2. Wastes from the preparation and processing of meat, fish and other foods of animal origin

Type	EWC code
Sludges from washing and cleaning	02 02 01
Process water and food washing waste only.	
Animal tissue waste	02 02 02
May include animal blood and animal gut contents.	
Material unsuitable for consumption or processing	02 02 03
May include gut contents, shells and shellfish wastes.	
Wastes not otherwise specified	02 02 99
Allowed only if animal manure, slurry or bedding of the types referred to in section 1 above.	

3. Wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing, conserve production, yeast and yeast extract production, molasses preparation and fermentation

Type	EWC code
Sludges from washing, cleaning, peeling, centrifuging and separation	02 03 01
Sludges from food processing only.	
Materials unsuitable for consumption or processing	02 03 04
Allowed only if no chemical additives or toxin residues present.	

4. Wastes from the dairy products industry

Type	EWC code
Materials unsuitable for consumption or processing	02 05 01
Includes raw milk.	

5. Wastes from the baking and confectionery industry

Type	EWC code
Materials unsuitable for consumption or processing	02 06 01

6. Wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)

Type	EWC code
Wastes from washing, cleaning and mechanical reduction of raw materials	02 07 01
Wastes from spirits distillation	02 07 02
Materials unsuitable for consumption or processing	02 07 04
Wastes not otherwise specified	02 07 99
<p>Only:</p> <ul style="list-style-type: none"> • Malt husks, malt sprouts, malt dust • Hops • Spent grains • Sludge from the production process • Yeast and yeast-like residues <p>Waste types in this section allowed if biodegradable material only. Any chemical additives or contaminants present must comply with EU Regulations, for example, Commission Regulation (EC) No 1881/2006 of 19 December 2006 setting maximum levels for certain contaminants in foodstuffs.</p>	

7. Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard

Type	EWC code
Waste bark and cork	03 01 01
Sawdust, shavings, cuttings, wood or particle board other than those wastes in EWC 03 01 04	03 01 05
Not allowed if contains veneers, other coatings or preserving substances. EWC code 03 01 04 is 'sawdust, shavings, cuttings, wood, particle board and veneer containing dangerous substances'. Untreated wood only.	

8. Wastes from pulp, paper, and cardboard production and processing

Type	EWC code
Waste bark and wood	03 03 01
Fibre rejects, fibre-, filler- and coating-sludges from mechanical separation	03 03 10
Only allowed if not mixed with, or does not contain, de-inking sludge.	
Sludges from on-site effluent treatment other than those mentioned in 03 03 10	03 03 11
Only allowed if not mixed with, or does not contain, de-inking sludge.	

9. Wastes from the leather and fur industry

Type	EWC code
Fleshings and lime split wastes	04 01 01
Fleshings may also be described as leather shavings. Allowed only if hides and skins, or parts of them, originating from animals that did not show clinical signs of any disease communicable through that product to humans or animals.	

10. Wastes from the textile industry

Type	EWC code
Organic matter from natural products (for example grease, wax)	04 02 10
Waste types in this section allowed if biodegradable material only.	
Wastes from unprocessed textile fibres	04 02 21
Waste types in this section allowed if biodegradable material only.	

11. Wastes from the manufacture, formulation, supply and use of plastics, synthetic rubber and man-made fibres

Type	EWC code
Waste plastic	07 02 13
Unused and uncontaminated excess production only. See B3.	

11. Waste packaging; absorbents, filter materials wiping cloths and protective clothing

Type	EWC code
Paper and cardboard packaging	15 01 01
Not allowed if any non-biodegradable coating or preserving substance present.	
Plastic packaging	15 01 02
See B3.	
Wooden packaging	15 01 03
Not allowed if any non-biodegradable coating or preserving substance is present. Untreated wood only.	
Composite packaging	15 01 05
Allowed only if all components comply with requirements of the chosen standard. See B3.	
Textile packaging	15 01 09
Allowed only if entirely natural fibres.	

13. Wastes not otherwise specified in the list

Type	EWC code
Aqueous liquid wastes other than those mentioned in 16 10 01	16 10 02
Allowed only if digestate or liquor from an aerobic digestion process that accepts only the waste input types allowed by this Quality Protocol.	

12. Wood from construction and demolition wastes

Type	EWC code
Wood	17 02 01
Not allowed if treated, for example contains veneers, other coatings or preserving substances.	
Waste types in this section allowed if biodegradable material only, with no chemical additives or preservative, and no persistent organics present. Untreated wood only.	

13. Soil (including excavated soil from contaminated sites), stones and dredging spoil

Type	EWC code
Dredging spoil other than that in 17 05 05	17 05 06
<p>Only riverine vegetation allowed (and not associated dredged mineral material). Only dredged vegetation is permitted.</p> <p>EWC 17 05 06 dredging spoil allowed only if <i>Hazard Analysis and Critical Control Point (HACCP)</i> assessment considers pollutants that may be present and adequate risk control is decided feasible.</p> <p>EWC 17 05 05 is defined as ‘dredging spoil containing dangerous substances’. For more information about ‘dangerous’ substances, refer to the latest version of WM2 Technical Guidance, <i>Hazardous waste: Interpretation of the definition and classification of hazardous waste</i>.¹⁹</p> <p>See B5.</p>	

14. Wastes from aerobic treatment of solid wastes

Type	EWC code
Premixed wastes composed only of non-hazardous wastes	19 02 03
<p>Acceptable only if derived solely from input types allowed by this Quality Protocol and remains segregated from, and uncontaminated by, any other waste type.</p>	
Sludges from physico/chemical treatment other than those mentioned in 19 02 05	19 02 06
<p>Acceptable only if derived solely from physical treatment and/or pH adjustment of input types allowed by this Quality Protocol and remains segregated from, and uncontaminated by, any other waste type.</p>	
Off-specification compost	19 05 03
<p>Allowed only if the compost is derived from input types allowed by this Quality Protocol. This includes oversize material resulting from screening such compost.</p>	
Wastes not otherwise specified	19 05 99
<p>Allowed only if:</p> <ul style="list-style-type: none"> • liquor/leachate from a composting process that accepts only the waste input types allowed by this Quality Protocol; or • digestate from an aerobic digestion process that accepts only the waste input types allowed by this Quality Protocol. 	

19 See <http://www.environment-agency.gov.uk/business/topics/waste/32200.aspx>

15. Wastes from anaerobic treatment of waste

Type	EWC code
Liquor from anaerobic treatment of municipal waste	19 06 03
Waste types in this section are allowed only if derived from input types allowed by the Anaerobic Digestate Quality Protocol and are derived from a facility independently certified as complying with BSI PAS 110. For example, the waste must not contain wastes derived from mechanical biological treatment (MBT) facilities or any compost-like outputs (CLO).	
Digestate from anaerobic treatment of municipal waste	19 06 04
Waste types in this section are allowed only if derived from input types allowed by the Anaerobic Digestate Quality Protocol and are derived from a facility independently certified as complying with BSI PAS 110. For example, the waste must not contain wastes derived from mechanical biological treatment (MBT) facilities or any compost-like outputs (CLO). Any digestate accepted under this waste code must only contain waste inputs identified in Appendix B (Biodegradable waste types acceptable for the production of quality digestate) of the Anaerobic Digestate Quality Protocol. ²⁰ This includes any anaerobic digestate produced in Scotland.	
Liquor from anaerobic treatment of animal and vegetable waste	19 06 05
Waste types in this section are allowed only if derived from input types allowed by the Anaerobic Digestate Quality Protocol and are derived from a facility independently certified as complying with BSI PAS 110. For example, the waste must not contain wastes derived from mechanical biological treatment (MBT) facilities or any compost-like outputs (CLO).	
Digestate from anaerobic treatment of animal and vegetable waste	19 06 06
Waste types in this section are allowed only if derived from input types allowed by the Anaerobic Digestate Quality Protocol and are derived from a facility independently certified as complying with BSI PAS 110. For example, the waste must not contain wastes derived from mechanical biological treatment (MBT) facilities or any compost-like outputs (CLO).	
Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	19 12 12
Acceptable only if derived solely from input types allowed by this Quality Protocol and remains segregated from, and uncontaminated by, any other waste type.	

16. Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions

Type	EWC code
Paper and cardboard	20 01 01
Not allowed if any non-biodegradable coating or preserving substance present.	
Biodegradable kitchen and canteen waste	20 01 08
See B3.	
Edible oil and fat	20 01 25
Wood other than that mentioned in 20 01 37	20 01 38
20 01 37 is described as 'wood containing dangerous substances'.	
Non treated wood waste.	
Not allowed if any non-biodegradable coating or preserving substance present. Waste types in this section allowed if biodegradable material only, with no chemical additives or preservative, and no persistent organics present.	
Plastics	20 01 39
See B.3.	

18. Garden and park wastes (including cemetery waste)

Type	EWC code
Biodegradable waste	20 02 01
Animal faeces, manure, garden waste, green waste, horticultural waste, plant tissue, parks and garden waste, hedge and tree trimmings, grass cuttings and leafy materials.	
Waste types in this section allowed if biodegradable material only, with no chemical additives and no toxin residues present.	
Excludes road sweepings and gully waste.	
See B5.	

19. Other municipal wastes

Type	EWC code
Mixed municipal waste	20 03 01
Allowed only if separately collected biodegradable wastes otherwise allowed by this Quality Protocol. If former foodstuffs are packaged, the restrictions given in section 12 above on packaging wastes apply. An example is unsold food wrapped in compostable packaging that arises as waste from a retail food store.	
Waste from markets	20 03 02
Allowed only if biodegradable fractions. Examples are plant material, fruit and vegetables.	
Packaging waste from a market source is allowed only if it complies with the restriction for the corresponding waste type in section 11 above.	
See B.3.	

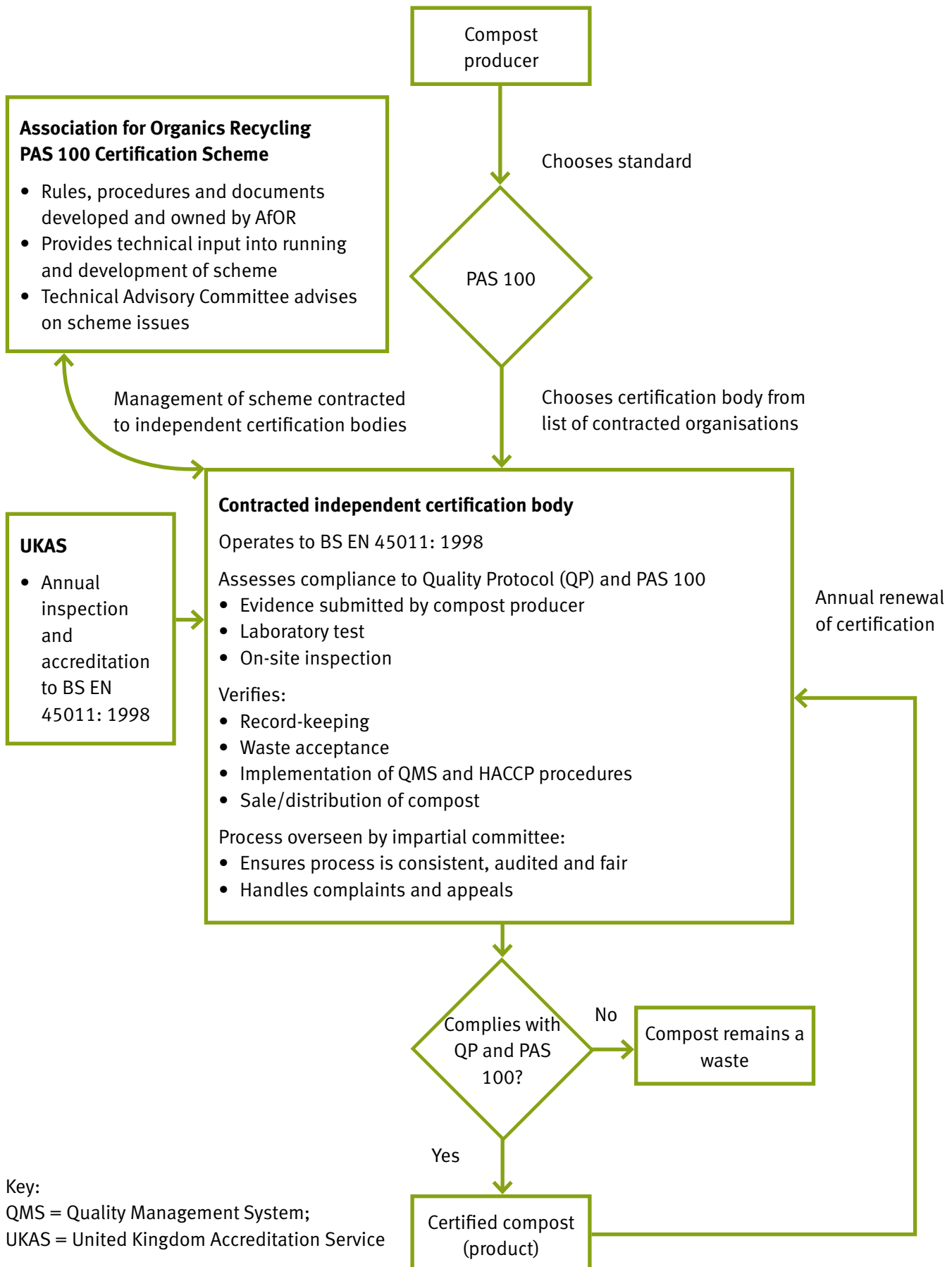
Appendix C: Standards and specifications to which this Quality Protocol applies

At present this protocol applies only to the latest version of British Standards Institution's Publicly Available Specification for composted materials (BSI PAS 100).

Electronic copies of BSI PAS 100 documentation can be obtained free from:

- WRAP – at <http://www.wrap.org.uk> or by phoning 0808 100 2040
- Association for Organics Recycling – at <http://www.organics-recycling.org.uk> or by phoning 01933 446440.

Appendix D: Certification and accreditation diagram



Appendix E: Supply documentation template

An example template showing the minimum information to be supplied by the producer

Producer organisation name

Address line 1

Address line 2

Address line 3

Telephone:

Fax:

Website:

Site of production (address):	
Date of supply:	
Customer name and contact details:	
Customer nature of business:	
Delivery address (if different from above):	
Quantity supplied (weight/volume):	

This product has been produced in accordance with the following approved standards:	<i>e.g. PAS 100</i>
This product has been produced in compliance with the Compost Quality Protocol.	
Information on good practice for use as compost as set out in Appendix F of the Compost Quality Protocol has been highlighted.	

Appendix F: Good practice for the storage, handling, application and use of compost as an agricultural fertiliser and in soil-grown horticulture

NB All links to documents in this appendix were accessible at the time of writing.

Storage and handling

- Follow the joint Environment Agency/Fertilisers Manufacturers Association (FMA) guidance, *Protect the environment: the essential guide for storing solid and liquid fertilisers*,²¹ to ensure the compost is stored in a manner that protects the environment.
- Handle the compost as described in the FMA's *Code of practice for the prevention of water pollution from the storage and handling of solid fertilisers*²² to ensure that its storage and handling does not cause harm to human health or the environment.

Application and use of quality compost

- Seek advice from an advisor qualified under the Fertiliser Advisers Certification and Training Scheme (FACTS).
- In areas of England and Wales designated as Nitrate Vulnerable Zones (NVZs) (i.e. areas designated under legislation to implement the Nitrates Directive), applications of quality compost must comply with the relevant mandatory Action Programme measures. These include various requirements for maximum rates of application and permitted application windows for different types of manures and quality compost. In all other areas these requirements should be followed wherever practical.
- In Northern Ireland, any application of compost to agricultural land must comply with the crop nitrogen limits and land application restrictions set out in The Nitrates Action Programme Regulations (Northern Ireland) 2010 (NAP).

For more information about NVZs, see the Defra website

<http://www.defra.gov.uk/food-farm/land-manage/nitrates-watercourses/nitrates/>

For more information about the Northern Ireland NAP, see the NIEA website

http://www.ni-environment.gov.uk/water/agri_regs/nitrate.htm

- Ensure any application of quality compost conforms to the requirements set out in the *Protecting our water, soil and air: a code of good agricultural practice for farmers, growers and land managers* (2009) (CoGAP)²³ (or subsequent guidance) for air, water and soil. This covers all aspects of agricultural activities including nutrient use. In particular, do not spread compost on frozen, snow-covered or waterlogged ground, or within 10 metres of a watercourse.
- Apply the compost as described in the Defra guidance, *Single Farm Payment Scheme – cross compliance guidance for soil management*.²⁴
- Match compost applications to the nutrient status of the receiving soil, crop nutrient requirement, growth stage and prevailing weather conditions and make them as per the guidance given in the Defra *Fertiliser Manual* (RB209) 8th edition (and subsequent issues).²⁵

21 http://www.agindustries.org.uk/document.aspx?fn=load&media_id=2024&publicationId=248

22 http://www.agindustries.org.uk/document.aspx?fn=load&media_id=2018&publicationId=248

23 <http://www.defra.gov.uk/publications/2011/06/16/pb13558-cogap/>

24 <http://www.defra.gov.uk/crosscompliance/files/sps-cross-compliance-2010.pdf>

25 <http://www.defra.gov.uk/publications/files/rb209-fertiliser-manual-110412.pdf>

- Compost applications should adhere to the soil *Potentially Toxic Element* (PTE) limit values set out in the revised *Code of Practice for the agricultural use of sewage sludge*.²⁶
- When applying compost for land reclamation or land restoration, follow the guidance and information in the *Code of practice for the use of sludge, compost and other organic materials for land reclamation*.²⁷
- Follow Animal Health and Veterinary Laboratories Agency guidance on composting animal by-products²⁸ and the use of animal by-product derived organic fertilisers and soil improvers.²⁹

Sampling and analysis

- Ensure all chemical analysis are carried out by laboratories using appropriate methods that are accredited by UKAS to ISO/IEC 17025 for the Environment Agency's *MCERTS* performance standard for the chemical testing of soil.³⁰
- Sample soils for major nutrients regularly. Do not apply compost unless the soil has been analysed within the last five years (in accordance with RB209).
- Include extractable phosphorus (Olsen method), available potassium, available magnesium in nutrient analysis.
- Calculate nitrogen using soil nitrogen supply except where RB209 requires soil analysis.
- Sulphur should be calculated using the methodology given in RB209.
- The compost producer should arrange for the compost to be analysed, and the land manager if in England or Wales, or the controller of the land if in Northern Ireland, should arrange for the receiving soil to be analysed for PTEs (lead, cadmium, chromium, mercury, copper, zinc, nickel) to ensure that the compost limit values set in PAS100 are not exceeded by the compost and the soil limit values set in the Sludge Code³¹ are not exceeded in the receiving soil.
- Soil analysis for PTEs should be carried out before the first application of compost and again when any predicted soil PTE concentration becomes equal to or greater than 75 percent of its corresponding limit value set out in the Sludge Code.

26 <http://archive.defra.gov.uk/environment/quality/water/waterquality/sewage/documents/sludge-cop.pdf>

27 <http://www.sniffer.org.uk/Webcontrol/Secure/ClientSpecific/ResourceManagement/UploadedFiles/ER11%20Code%20of%20Practice.pdf>

28 <http://animalhealth.defra.gov.uk/managing-disease/animalbyproducts/compost-biogas-manure/index.htm>

29 <http://animalhealth.defra.gov.uk/managing-disease/animalbyproducts/compost-biogas-manure/use-of-organic-fertilisers-soil-improvers.htm>

30 <http://www.environment-agency.gov.uk/business/regulation/31835.aspx>

31 <http://archive.defra.gov.uk/environment/quality/water/waterquality/sewage/documents/sludge-cop.pdf>

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