**Aerobic Composting**

**Content Changes 2016-2018 Revision Guide**

***All page numbers refer to the 2016-2018 Revision Guides with red covers.***

*Section 1: Waste Reception and Rejection, page 17*

**New learning outcome added:** 1.5 Know the procedures for emergency waste acceptance.

Where facilities provide an emergency service, pre-acceptance procedures are not always possible. Under these circumstances, the operator should ensure all information regarding contracts/auditing is supplied, the regulator should be notified and the waste quarantined while suitability is assessed.

*Section 2: Contaminated Feedstocks, page 21*

The control of feedstock quality is a critical part of a successful process. It is important to maintain a consistent quality of the outputs without giving rise to pollution (e.g. odour).

*Section 3: Catering Waste, page 26*

The standard rules permit for composting in open systems states that permitted waste does not include any catering waste and other wastes containing animal by-products.

*Section 3: Hazard Analysis Critical Control Point Plan, page 28*

**New learning outcome added:** 3.4 Know what is required for sampling and testing of pathogens.

During validation, samples of compost or digestate must be sent to laboratories for testing to check that treatment is removing bacteria. The samples must be stored and transported to the analytical laboratory at 5°C and 3°C for analysis, within 24 hours of sampling.

The testing must look for Salmonella and either E.coli or Enterococcaceae. Samples must pass 12 consecutive tests for each bacteria before a site is validated and must keep the results for at least two years.

*Section 4: Producing and reducing odour, page 31*

Minimising the storage periods of feedstocks can reduce the risk of odour problems. It is recommended that putrescible wastes are processed within 48 hours and other feedstocks are processed within 5 days.

Other methods of minimising odour include avoiding windy conditions, not stockpiling wastes, deep cleaning vessels and modular biofilters etc.

*Section 4: Methods, page 32*

For sites with on-going odour problems, it may be beneficial to recruit individuals in the community to undertake periodic offsite odour surveys or to keep odour diaries.

The diary should include times and dates, location, temperature, wind strength, wind direction, intensity, duration etc. when they detect smells to start building up a pattern of odour problems over time which may be associated with other factors e.g. wind direction.

*Section 4: Odour Management Plans, page 34*

The effectiveness of odour control measures should be reviewed once a year (unless there are complaints or changes). If the regulator considers an odour management plan to be deficient:

* It may be approved subject to additional requirements.
* It may be approved and accompanied by a letter noting its deficiencies.
* A requirement may be imposed on the operator.

*Section 5: Risk Assessment and Control Methods, page 38*

Bioaerosols consist of airborne particles that contain living organisms (e.g. bacteria, fungi, viruses or parts of living organisms).

One of the factors affecting bioaerosol generation is moisture. Without sufficient moisture (less than 40%) there is an increased chance of bioaerosol and dust generation.

If a facility is within 250m of a sensitive receptor, an operator must monitor bioaerosols and carry out specific bioaerosol risk assessment. Sampling locations should be downwind of the site to ensure that measurements are made in the emission plume.

*Section 5: Consequences of Exposure, page 39*

Bioaerosols have been also known to cause gastrointestinal illness, eye irritation, inflammation of the respiratory system, coughs, fever and dermatitis.

**New learning outcome added:** 5.7 Know what information should be received in a bioaerosol monitoring report.

A bioaerosol report should contain:

* Monitoring organisation and personnel.
* Details of the commissioning laboratory.
* Site name and description.
* Reasons for monitoring.
* Dates of monitoring visits.
* Sampling approach used.
* Any deviations from sampling approach.
* Any other relevant information.

The monitoring report should also include a map of the site with labelled features (e.g. site boundary, emission sources, activities outside operations that may influence results etc.).

*Section 6: Products and Regimes, page 42*

**Sanitisation** is the biological processes used to eradicate human and animal pathogens from compost or reduce them to acceptable levels through increased temperatures (above 55°C).

*Section 6: PAS 100: Quality Protocol and Outputs, page 44*

As a minimum, operators must keep a record of each load delivered to site which includes date, EWC code, description, place of origin, quantity, carrier and supplier.

*Section 7: Moisture and Temperature, page 50*

If a pile is too moist, there is insufficient aeration for heat removal and the pile could overheat to temperatures greater than 70°C.



*Section 8: Fires, page 55*

To prevent and manage this risk, operators should undertake monitoring activities to control composting temperatures, moisture levels and maintain aerobic conditions. For example, ventilating air through compost to control temperature and maintain aerobic conditions.

*Section 8: Noise and Dust, page 57*

Dust emissions may arise from composting activity or vehicle movements associated with the process when moisture content is lower than 30%.

*Section 8: Controlling Leachate, Surface, Sewer and Groundwater, page 58*

A site plan must show the foul and combined drainage facilities marked in red, while surface water drainage facilities should be marked in blue.

Contamination of surface water, sewer and groundwater can occur when material is poorly handled, when the operator overfills/overstocks feedstocks and/or when equipment fails.

*Section 9: Accident Management Plan, page 61*

An accident management plan should consider:

* Storage areas.
* Arrangements for receiving and checking incoming waste.
* Procedures for transfer.
* Emissions from plant and equipment.
* Failure of containment.

*Learning Outcome Amendments*

The wording for the following learning outcomes have been amended:

* 1.2 Know the acceptance procedures for waste that arrives at the aerobic composting facility including identification of contamination.
* 2.1 Know the characteristics that should be tested as part of a detailed feedstock characterisation as specified as Best Available Techniques (BAT).
* 3.2 Know the requirements for record keeping regarding Animal By-Products Regulations relating to food waste/catering waste delivered to the site.
* 4.5 Know the limitations of using sniff testing for monitoring odours.
* 4.6 Know the information required in an odour management plan and why it is necessary.
* 4.7 Know how to ensure a biofilter is appropriately designed to meet the need of an aerobic treatment facility.
* 4.8 Know the optimal operating conditions for biofilters and how these can be designed/maintained.
* 6.1 Know what is required to ensure that a fully recovered product may be used without being classed as waste.
* 6.3 Know the requirements of a Hazard Analysis Critical Control Point plan for a PAS 100 certified facility.
* 6.4 Know the maximum contaminant concentrations permitted under PAS 100.
* 6.6 Know under what conditions a compost or compost-like output can be applied to land from a non PAS 100 certified facility.
* 7.3 Know the importance of pH during the process and how to manage it.
* 7.6 Know the effects of temperature on an aerobic composting process and how to manage it.
* 7.7 Know how to manage feedstocks in relation to:
  + Optimum size of input materials.
  + Preventing anaerobic conditions.
  + Moisture levels.
* 7.8 Know how to manage the aerobic composting process in accordance with regulatory and process requirements to prevent or in the event of:
* Plant breakdown.
* Equipment breakdown.

*Revised List of Sources*

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| --- | --- |
| **Page** | **Source** |
| 14,16,17,2021,26,27,2831,32,34,3539,45,48,4950,51,52,5556,57,58,61 | Environment Agency (2013) How to comply with your environmental permit. Additional technical guidance for composting and aerobic treatment sector |
| 20,42,44 | [Environment Agency (2012) Quality protocol: compost](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/297215/geho0812bwpl-e-e.pdf) |
| 22 | [DEFRA (2013) Mechanical Biological Treatment of Municipal Solid Waste](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/221039/pb13890-treatment-solid-waste.pdf) |
| 23 | [SR2012 No7: Composting in open systems (waste operation – no more than 75 tonnes per day)](https://www.gov.uk/government/publications/sr2012-no7-composting-in-open-systems) |
| 23 | [Natural Resources Wales Standard Rules Sets](https://naturalresources.wales/permits-and-permissions/waste/waste-permits/apply-for-a-new-standard-permit-for-waste-operations/?lang=en) |
| 26,28 | [Gov.uk (2014) Using animal by-products at compost and biogas sites](https://www.gov.uk/guidance/using-animal-by-products-at-compost-and-biogas-sites) |
| 26 | [DEFRA (2014) Guidance on Composting and Biogas (Anaerobic Digestion) of Animal By-Products](http://adbioresources.org/uploads/adverts/APHA_Guidance_on_Composting__Biogas_(AS)_of_ABP.pdf) |
| 27 | [DEFRA (2018) Animal by-product categories, site approval, hygiene and disposal](https://www.gov.uk/guidance/animal-by-product-categories-site-approval-hygiene-and-disposal#keeping-records-and-labelling) |
| 28 | [DEFRA (2018) Laboratory testing requirements for animal by-products (ABPs)](https://www.gov.uk/guidance/laboratory-testing-requirements-for-animal-by-products-abps#what-bacteria-you-need-to-test-for-and-when-to-take-samples) |
| 28,42,43 | [BSI PAS 100: producing quality compost](http://www.wrap.org.uk/content/bsi-pas-100-producing-quality-compost) |
| 28 | [Regulation (EC) 852/2004 on the hygiene of foodstuffs](https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:139:0001:0054:en:PDF) |
| 31,32,33,34 | [Environment Agency (2011) H4 Odour Management](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296737/geho0411btqm-e-e.pdf) |
| 31,32,33,34 | [Natural Resources Wales (2014) How to comply with your environmental permit Additional guidance for: H4 Odour Management](https://naturalresources.wales/permits-and-permissions/environmental-permits/horizontal-guidance/?lang=en#documentDownloads) |
| 34 | [Environment Agency (2010) Odour Management Plans for Waste Handling Facilities](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296738/geho0112bwat-e-e.pdf) |
| 35 | [Organics Recycling Group (2007) An industry guide for the prevention and control of odours at biowaste processing facilities](http://www.organics-recycling.org.uk/dmdocuments/Industry_guide_for_prevention_and_control_of_odours.pdf) |
| 38 | [Environment Agency (2010) Composting and potential health effects from bioaerosols](http://webarchive.nationalarchives.gov.uk/20140328084622/http:/www.environment-agency.gov.uk/static/documents/Research/Composting__bioaerosols.pdf) |
| 38,39 | [Environment Agency (2018) M9 – Environmental monitoring of bioaerosols at regulated facilities](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/730226/M9_Environmental_monitoring_of_bioaerosols_at_regulated_facilities.pdf) |
| 44 | [DEFRA (2013) Mechanical Biological Treatment of Municipal Solid Waste](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/221039/pb13890-treatment-solid-waste.pdf) |
| 61 | [DEFRA (2018) Develop a management system: environmental permits](https://www.gov.uk/guidance/develop-a-management-system-environmental-permits#accident-prevention-and-management-plan) |
| 61 | [Natural Resources Wales (2018) Environment Management Toolkit](https://naturalresources.wales/permits-and-permissions/environmental-permits/environment-management-system/?lang=en) |

***Please note:*** *this information was correct at the time of publishing. If you find these links are broken, type the document title into a search engine.*

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| **About this sheet**  *The Continuing Competence Free Update Sheet is designed to be used by purchasers of the Continuing Competence Revision Guides for the 2016-2018 period.*  *It will highlight any changes in technical guidance and sources used as a basis for the Continuing Competence question bank to support the revision of users.* |

**Frequently Asked Questions (FAQs)**

*How much does the test cost?*

Each test costs **£139** irrespective of the number of Activity Specific Tests chosen (a maximum of three activity specific tests can be taken at one time).

*What form of personal identification can I use at the test centre?*

* A valid signed passport of any country with your photograph and signature.
* A valid signed UK photo card driving licence (full or provisional).
* If you have none of these, you may present a Citizen’s ID Card.

*How can I find out if I have passed the test?*

At the end of the test you will receive your score report which provides the scores for each component of the Generic Knowledge Test and the score for each Activity Specific Test you have taken.

There is an example on the back of your score report showing how to work out if you’ve passed. Alternatively, you can go to <https://wamitab.org.uk/competence/continuing-competence/test-score-calculator/> and type in your scores.