CCS Position on Technical Requirements

The Compost Certification Scheme interpretation of PAS100, the Compost Quality Protocol and the CCS Scheme Rules requirements

This document has been developed to assist you to comply with the Compost Certification Scheme requirements. The aim of this note is to provide clarification on some of the technical aspects of PAS100, CQP and the CCS Scheme Rules (latest version). The interpretations given in this document have been discussed and agreed with the certification bodies.

Please note that this is an open document and we will add new sections when required.

We recommend that you liaise with your certification body if you need any further clarification.

Contents

Changes from previous version

- Addition of section 20 (Checking and agreeing quality requirements with customers) – added in June 2019
- Addition of section 21 (Test failures during certification renewal) – added in June 2019

1 Temperature monitoring system calibration

Clause 7.3 of PAS100 states: 'The composter's appropriate QMS document(s) shall:

a. state the routine frequency and procedure for checks on the monitoring system, those carried out by the composter and any carried out by an organization independent of the composter;'

Section 11 of this document provides clarification that:

'Calibration of equipment used for monitoring temperature shall be carried out at least once per year by an independent third party calibration service provider.'

REAL CCS's interpretation

Based on the outcome of the consultation with CCS TAC and the comments provided, clause 7.3 of PAS100 should be interpreted as follows:

The monitoring system, not each single part of the system, needs to be independently calibrated e.g. the composter could send one probe for independent calibration and check all other probes against the calibrated probe. However the whole monitoring system needs to calibrated (not just the probes). The composter need to keep paperwork/records to demonstrate that this had been done, to the satisfaction of the CB auditor.

The equipment should be calibrated according to the manufacturer's instructions.

2 Sampling procedures & hand sieving under specific circumstances

Clause 11.1 of PAS 100 states: 'Any batch of the composter's principal compost grade selected for sampling and testing (see Clause 12) shall be sampled and sent for testing:

a. during the week after the batch has completed the minimum composting process applicable to the grade (including a maturation step if applicable);
b. after particle size screening, if applicable [see Note to 9.1 item a)]; and
c. before any blending with wastes, materials, composts, products or additives.

When looking at the definition of screening in PAS 100, this says:

Clause 11.2 states: 'each sample shall be representative of the compost batch from which it is obtained'.

Clause 3.61 defines screening (of composted material) as:

'Process stage that separates compost particles according to their size, in order to achieve one or more separate grades of compost in terms of particle size range'

REAL CCS's interpretation

Based on the above clause, our interpretation is that:

Hand sieving is not specifically referred to or included in the above clauses of PAS 100, which suggests it was not intended to be routinely allowed.

However we consider that, under exceptional circumstances (extreme weather conditions, screen breakdown, considerable space constraints etc.) and following consultation with the relevant CB, hand sieving should be allowed to be carried out for the purpose of sampling provided that:

a. the composter can demonstrate to the CB that the circumstances are exceptional;
b. any hand sieved sample is representative of the batch from which the sample is obtained, and reflects the characteristics of the relevant compost grade normally produced from the mechanical screening step. The type and shape of the holes, the shape of the mesh of the hand sieve must be equivalent to those of the mesh of the mechanical screen.
c. for batches that have been hand sieved, extra samples after mechanical screening must be sampled and tested to verify the content of physical contaminants.

3 Stability testing exemption

Clause 13.3 of PAS100: 'Exemption from Table 3 item 10's stability test and upper limit for stability shall be allowed for an additional compost grade if it consists of particles too coarse to pass through a screen with 20 mm apertures (whether square, round or other shaped apertures).

NOTE An example is a coarse mulch grade of compost derived from particles that have passed through a screen with 40 mm apertures, from which most particles smaller than 20 mm are removed by passing through a screen with 20 mm apertures. Such a grade would have a nominal particle size range of 20 mm to 40 mm. If stability tested, its result is expected to be

very low and certainly lower than stability results for any compost grade with a higher proportion of particles smaller than 20 mm, such as a 0 mm to 40 mm soil conditioning grade.'

REAL CCS's interpretation

Based on the above clause, our interpretation is that exemption from the stability test and limit is allowed under specific circumstances and following consultation with the relevant certification body, provided that;

a. the laboratory's reports of the particle size distribution test results for samples* of this grade show that it mostly 'consists of particles too coarse to pass through a screen with 20 mm apertures (whether square, round or other shaped apertures)',
b. the composter demonstrates to the certification body that the same appointed laboratory has been unable to stability test the samples* because each one contained insufficient particles of less than 20 mm (for example letters or emails from an appointed laboratory clearly stating that each sample of this grade contained fewer 20 mm particles than is necessary for undergoing the stability test), and
c. the certification body has reviewed all of the evidence and is satisfied that compost grade contains too few less than 20 mm particles to undergo the stability test.

* Regarding point a., b. and c., evidence must be provided and reviewed for a minimum of 3 samples, each taken from a different batch of the same grade of compost. A sufficient quantity of each sample must have been supplied to the laboratory.

Records of the laboratory's evaluations and each sampled and tested compost batch's results for the grade must be kept at the compost production site and made available to the certification body when requested.

We consider that a grade should not become permanently exempt after the certification body grants the initial exemption. This means that if the operator changes their screen and/or screen settings, they should re-consider whether the grade could now undergo the stability test. This also means that an exemption confirmed in writing by the certification body is only valid for twelve months. Any renewal of an exemption for the same compost grade from the same production process must be based on evidence generated and evaluated during the corresponding assessment period.

4 Sampling and testing during process validation / revalidation

Refer to clause 4.7.3 and section 12 of PAS 100. Refer to clauses 14.1, 14.2, and 14.3 of PAS 100 and section 13 of this technical guidance for non-conforming material.

REAL CCS's interpretation

Based on the above clauses, our interpretation is that during process validation or process revalidation, the full suite of PAS 100 tests need to be requested and three consecutive passes obtained on all PAS 100 parameters. However, if there is a failure on a parameter for one of the three different batches then the producer could test for just that failed parameter to achieve three passes in a row for that parameter. The producer has to continue sampling and testing more batches for the relevant parameters only, in accordance with clause 14 of PAS 100 until three passes in a row are achieved for each parameter.

Following process validation/revalidation, the testing regime would begin again from the point of validation of that particular parameter and in accordance with the minimum frequencies required in Table 2 of PAS 100 ('After validation').

Important note: only one sample can be tested representative of one batch. 'Retesting' cannot take place following a failure unless corrective actions have been implemented.

Example

One site is sampling and testing to verify the continued efficacy of their PAS 100 quality management system and compost compliance with PAS 100 minimum quality criteria. The producer decides to reduce their process time from 20 weeks to 8 weeks. This is considered a significant change by their certification body so they are required to revalidate their process and make changes to their quality management system. They then begin sampling and testing batches for the full suite of PAS 100 tests to achieve revalidation.

During process revalidation they had passed on all parameters, except *E. coli* on their third test report. So they begin their investigation to explore the cause for this failure. They discover that the sampling equipment had not been sanitised so they implement a corrective action on the process by introducing a sanitising step on their equipment and then they implement a corrective action on the failed batch by using the sanitized equipment for re-sampling. They then test for *E. coli* only on a sample taken from the failed batch, and they get a pass. Thus they are able to dispatch the initially failed batch as PAS 100 compliant. However, they need to test a further three samples in order to achieve three passes in a row for *all parameters,* as required. Since other parameters (not *E. coli*) have already achieved three passes in a row, they are required to test for *E. coli* only in the next three batches in order to achieve the full suite of passes.

Once three passes in a row have been achieved for *all parameters*, the process completed revalidation. The producer could then begin sampling and testing again to verify the

continued efficacy of the revised PAS 100 quality management system in accordance to section 12 of PAS 100. They had to begin from the point of revalidation following three passes in a row for *E. coli*.

5 Reprocessing oversize arising from the composting process

Note 2 under Clause 14.3 of PAS100 states: 'the oversize, woody particles that arise when screening compost can be dispatched for disposal, supplied for use as non-PAS 100 conforming material, or reprocessed if physical contamination is low or is reduced before reprocessing.'

REAL CCS's interpretation

BSI PAS 100 does not list 'oversize' in its Terms and Definitions of Section 3. However, 'oversize' is considered to be the residual material that is left at the end of a composting process after separation of pre-defined grades. The oversize does not form part of any pre-defined grades and usually consists of large woody particles and residual contamination such as plastics.

As set in PAS 100 above, there are three options for dealing with oversize:

1. disposal,
2. dispatch as non-conforming material, or
3. reprocessing, providing the level of contamination is low or reduced.

Based on the above clause, our interpretation is that in order to reprocess oversize, it should be virtually free from contaminants such as plastics, and any other non-compostable materials. The assessment of oversize to establish the level of contamination before reprocessing should be carried out using the same input materials acceptance criteria. If the level of contamination is found to be high, it could be reduced in order to be able to accept the material back into the process as input.

6 Splitting samples for pathogen testing

Clause 11.3 in PAS 100 states: 'Each sample shall be representative of the compost batch from which it is obtained'. Refer also to Table 2 for the minimum frequencies for routine compost sampling and testing.

REAL CCS's interpretation

Based on the above clauses, our interpretation is that only single representative samples can be sent for analysis to an appointed laboratory and the approach of splitting representative samples for specific test(s) is not considered acceptable for certification purposes. Table 2 shows that for routine compost sampling and testing (both for and after validation), 1 sample should be taken for all relevant parameters.

A subsample of a single representative sample might not be representative of the whole and therefore it would not be compliant with PAS 100. Splitting samples on site and sending a subsample for specific test(s) also creates a situation where the subsample could be manipulated in order to pass the requirements of specific test(s) (e.g. pathogens).

To ensure these single samples are representative of the sampled batch, they should be taken in accordance with PAS 100 and the sampling guidance available on the CCS website at www.qualitycompost.org.uk/upload/files/f40_32_Compost_sampling_guidelines.pdf.

Subsampling of a representative sample for the various analytical tests is carried out by competent personnel at the appointed laboratory, following standard operating procedures.

7 Principal compost grade

The definition of principal compost grade in clause 3.54 of PAS 100 states: 'grade of compost for which PAS 100 conformance is claimed, or intended to be claimed, normally the one that is composted for the shortest total time and includes sufficient particles less than 2 mm to support plant germination and growth.

NOTE For example, the principal grade could not be a 10 mm to 40 mm mulch grade because it would not contain the fine particles that are necessary for plant response and weed seed tests. Although not necessarily made from every batch of compost production, the principal grade should be made on a frequent basis and the quantity made over a year should be at least as much as any additional compost grade (see 3.4) for which PAS 100 conformance is claimed.'

REAL CCS's interpretation

Based on the above definition, our interpretation is that the principal grade should be produced in larger to or equal quantities over a year as any additional compost grades, and contain sufficient fine particles to support plant growth. Additional compost grade(s) should not be produced in larger volumes than the principal compost grade.

8 Allowed input types

1. Digestates are allowed as an input material to a PAS 100 and CQP certified composting process only if:
   a) 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; or
   b) derived from input materials in Appendix B of the Compost Quality Protocol.'

2. Any skip waste stream that mixes biowaste with inert and/or any other types of non-biodegradable waste or materials, at any stage, are not acceptable as inputs under this certification scheme, even after the biowaste has been separated from the mixture.

3. 'Compostable' packaging and plastic products made of biodegradable material are permitted only if the product is independently certified as conforming to the criteria within the standards accepted at the time of publishing BSI PAS 100:2018, which are BS EN 13432, BS EN 14995, or ASTM D6400. 'Home compostable' plastics, packaging, and non-packaging products are only acceptable if also certified as conforming to the criteria within the standards accepted at the time of publishing BSI PAS 100:2018. REAL CCS requires that the valid certificate has been issued by an independent certification body.

4. The following 'pre-treated' waste types are allowed under the Appendix B of the Compost Quality Protocol:

   - 19 02 03 Premixed wastes composed only of non-hazardous wastes. 'Acceptable only if derived solely from input types allowed by this Quality Protocol and remains segregated from, and uncontaminated by, any other waste types' (e.g. wastes bulked up at a waste transfer station).
   - 19 02 06 Sludges from physico/chemical treatment other than those mentioned in 19 02 05. '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 types' (e.g. wastes that have been sanitised at a third party supplier site).
   - 19 12 12 Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11. 'Acceptable only if derived solely from input types allowed by this Quality Protocol and remains segregated from, and uncontaminated by, any other waste types' (e.g. wastes that have been de-packaged or shredded at a third party supplier site).

5. In the event the composting process accepts any of the pre-treated waste types from a supplier site, the composter shall ensure that:

a) the input materials pre-treated at the supplier site are only those allowed in Appendix B of the Compost Quality Protocol and comply with section 5 of PAS 100; and
b) appropriate procedures are in place to audit the supplier site and ensure the above requirements are satisfied. Such procedures must be documented and the outcome of such audits recorded and made available to the certification body when requested.

9 Composting process

1. The composter's criteria for completion of the composting process shall be clearly defined in the compost producer's Standard Operating Procedures. The criteria shall be specific to each relevant compost grade.

2. Composting process duration shall be evaluated as follows:

   A. If the composting process does not include any maturation phase after screening, the composting process is considered to start when the batch formation has been completed and to finish on the date of the start of any screening activities.
   B. If the composting process includes a minimum maturation period after screening, the composting process duration is considered to start when the batch formation has been completed and to finish when the minimum maturation period has been completed.

3. Any batch that is dispatched before composting process completion shall be dispatched as non-PAS 100 conforming material.

4. Composting process with different, parallel sanitisation phases

A compost producer may operate two different, parallel sanitisation phases within a single composting process and produce one or more compost particle size grade(s) from that composting process only if:

a) the sanitized batches coming from the two different sanitisation phases are combined at the start of the stabilisation phase,
b) at the start of the stabilisation phase the batches are combined in a defined, consistent proportion specified in the Standard Operating Procedures,
c) the entire composting process and the compost particle size grades it produces are described in one Standard Operating Procedures document,
d) traceability is maintained between the different sanitisation phases as well as through the rest of the process,

e) records are kept that enable traceability checks to be carried out by the certification body, and
f) the certification body's inspection includes each sanitisation phase and the related QMS records.

5. Addition of allowed input waste types after first sanitisation

A compost producer is allowed to add input materials after a first sanitisation phase only provided that:

a) the added input materials are allowed under the CCS QA, CCS EoW, or CCS EoW Scotland (according to the scope of certification sought);
b) an additional sanitisation takes place after the new input materials are added to the process;
c) the entire composting process and the compost particle size grades it produces are described in one Standard Operating Procedures document;
d) traceability is maintained between the different sanitisation phases as well as through the rest of the process;
e) records are kept that enable traceability checks to be carried out by the certification body; and
f) the certification body's inspection includes each sanitisation phase and the related QMS records.

6. Composting process location

All activities of a composting process[1] shall take place at the same site, on a specifically designated area, or areas, within a single site's boundaries unless the circumstances match those defined in rule 7.

7. Activities within the same composting process taking place at different locations

This clause applies to a compost producer who, for a single composting process, carries out some of the activities listed under the definition of composting process[12] at separate sites. This is allowed provided that:

a) the compost producer clearly states on his/her Standard Operating Procedures and any other relevant QMS documents where each of the activities take place; and
b) all sites where activities take place have an environmental permit / waste management licence / pollution prevention control permit / exemption authorised by the regulator for carrying out the relevant activities; and

[1] See definition of 'Composting process' under the Definitions section of the CCS Scheme Rules document

c) all sites where activities take place comply with the animal by-product regulations if input materials include animal by-products; and
d) traceability is maintained between the different locations for the composting process and records are kept that enable traceability checks to be carried out by the certification body; and
e) the organisation nominates one person who oversees all the activities of that composting process and is responsible for implementing and maintaining the certification scheme procedures for all sites. This person shall take responsibility for the all composting process, from the input waste delivery to the dispatch of a fit for use product; and
f) each location shall be inspected by the certification body; and
g) the different sites that comprise the single composting process are supervised by the same organisation, which is responsible for PAS and Protocol compliance at those sites; this is the organisation that will be awarded with certification and is responsible for the entire composting process, from the reception of input materials to the dispatch of compost products; and
h) if any of the sites are operated by organisations sub-contracted to the main organisation, a formal partnership arrangement is agreed between the relevant organisations to ensure that all conditions above are adhered to at all times. Under this scenario the sub-contracted organisation shall also nominate a person responsible for PAS 100 compliance at the sub-contracted site.

Any additional related cost incurred by the CB for inspecting different locations shall be borne by the compost producer.

10 Composting process additives and other products

1. Under this scheme incorporation of a mineral-based (e.g. rock dust) or biodegradable additive during the composting process is allowed provided that the conditions specified in clause 5.2 of PAS 100 are met.

2. The additive shall be used according to the following conditions:

a) The additive is used according to the product manufacturer‘s recommendations and guidelines for use and the composting process is carried out as per the producer’s Standard Operating Procedures.
b) The producer’s record of the additive use clearly states the proportion / rate, how and when the additive has been used.
c) The producer identifies any potential risks to compost quality or the environment(s) in which the compost is likely to be used deriving from the use of the additive. If

necessary to show that such risks have been mitigated, compost batches are sampled and tested corresponding with the identified potential risks.

d) A record of the above evaluation and each sampled and tested compost batch results shall be kept at the compost production site and made available to the certification body when requested.

3. The certification body shall review the records and test results associated with the use of the additive and must be satisfied that compost compliance quality and compliance with PAS 100 requirements were not adversely affected.

4. The compost producer shall include in the Standard Operating Procedures the name of any composting process additive used. The SOPs or a linked QMS document shall also state how often the additive is used (or exceptional circumstances in which it would be used if not used on a regular basis), how much is used 'per use', and how it would be applied / incorporated into the composting process (including the stage(s) at which it is applied).

5. Any pesticide or biocide (e.g. fly control product, disinfectant etc.) applied on the input materials to the composting process, the material undergoing composting, composted materials or surfaces coming into contact with any of these materials shall:

   a) must be authorised/registered under The Biocidal Products Regulations (http://www.hse.gov.uk/biocides/bpd/index.htm and http://www.hse.gov.uk/biocides/bpd/prodauth.htm).
   b) The following HSE search database allows you to search for approved non-agricultural pesticide products in different ways: http://webcommunities.hse.gov.uk/connect.ti/pesticides/view?objectId=2308
   c) be approved by the HSE[2] under Control of Pesticides Regulations (COPR) for professional use[3] (http://www.hse.gov.uk/biocides/copr/copr.htm) or,

[2] As the regulatory authority for biocides HSE is responsible for administering the COPR regulatory scheme in relation to non-agricultural pesticides. In the UK, before a non-agricultural pesticide can be advertised, sold, supplied, stored or used, it has to be approved under the Control of Pesticides Regulations 1986 (COPR) (as amended 1997) or must be authorised/registered under The Biocidal Products Regulations. Products controlled under COPR are gradually moving over to be regulated under the BPR, with COPR eventually becoming redundant. Details of agricultural pesticides/plant protection products approved by the Chemicals Regulations Directive (Pesticides) are available on the CRD (Pesticides) website.

[3] Professional - means that the product can only be used by people who are required to use pesticides as part of their work and who have received appropriate information, instruction and training.

6. Any pesticide or biocide (e.g. fly control product, disinfectant etc.) applied on the input materials to the composting process, the material undergoing composting, composted materials or surfaces coming into contact with any of these materials shall be used in accordance with the product manufacturer's instructions.

7. All the conditions specified in section 14.3 for additives must also be met for fly control products.

11 Temperature monitoring equipment calibration

Calibration of equipment used for monitoring temperature shall be carried out at least once per year by an independent third party calibration service provider.

12 Re-sampling

If the re-sampled batch test result(s) for the failed parameter is / are pass(es), the batch can be released as PAS 100 compliant. However, any such pass does NOT count towards regaining the passes for proving the efficacy of the routine composting process.

13 Dealing with non-conforming batch and investigating the cause

1. Options for dealing with a sampled and tested compost batch that does not conform with PAS 100's minimum quality and/or plant response requirements are set out in clause 14.2 of the PAS.

2. During the investigation required in clause 15.1 of PAS 100 no batch of compost produced after the batch that failed shall be dispatched as PAS 100 conforming unless it is sampled, tested on the parameter(s) corresponding with the failure(s), and found to have passed the test(s).

3. During the investigation, if the batch sampled and tested after the 'triggering fail batch' fails on the same parameter, the composter shall immediately inform the certification body and supply details of the failures and actions taken to date. The composter shall do the same if any other incident of two or more consecutive failures on the same parameter occurs during the investigation. The certification body shall evaluate such information within 10 working days of its receipt and decide whether to suspend the certificate of compliance, having taken account of the severity of the failures and progress of the investigation. *N.B.: Suspension of certification may be actioned before the composter has*

completed the investigation, as appropriate to the severity of the failures and progress of the investigation. In the case of where failed batches have already been dispatched the recipient must be informed and a record kept of that communication. Information may be shared with the regulator.

'Re-testing' cannot take place unless corrective actions have been implemented.

REAL's guidance on 'Actions you are expected to undertake in the event of any test failure' is available in Section 22 of this document.

14 Composts visual assessments

1. Each batch shall be visually assessed by the composter's relevant personnel for conformance with PAS 100 minimum quality criteria covering physical contaminants and stones. Visual assessment of each batch may be replaced by testing each batch for, physical contaminants and stones, as long as the test methods /procedures used for the assessment are documented.

   Note e.g. the composter may wish to use a sieve test to check particle size distribution and physical contaminant content
2. Within three working days of completing the minimum composting process and screening, the composter shall record their own assessment of whether the batch can be dispatched as conforming or not.

15 Dispatch information

1. Any compost producer that supplies compost **with a 'waste' status** for use in:

- agriculture & soil/field-grown horticulture,
- soft landscaping,
- land restoration,
- professional & amateur horticulture,
- forestry and
- any other market

shall ensure that compost is supplied in accordance with waste regulatory controls.

Any such compost producer shall ensure that the compost recipient is informed that compost dispatched is a 'waste' and, thus, that it has to be transported, stored and used according to waste regulatory controls[4].

2. When dispatching / supplying / selling any of his / her certified compost grade(s) the compost producer shall ensure that the information supplied for each consignment about the specific compost grade includes:

    a) REAL's conformity mark for this scheme (the version appropriate to the scope of certification),
    b) the compost grade's unique certification number,
    c) all the information required in section 16 of PAS 100 on 'Labelling and Marking', in sections 3.2 and Appendix E of the Compost Quality Protocol,
    d) one of the following:
        A. a declaration of conformance with the PAS 100 & Compost Quality Protocol if the compost is to be used in England, Wales or Northern Ireland, or
        B. a declaration of conformance with PAS 100, in connection with the relevant compost grade.

3. Compost supply to manufacturers of growing media, turf dressings, root zone mixes, topsoils, soil improvers and mulches

When compost is dispatched to an organisation that uses compost as an ingredient in the manufacture of products such as topsoils, turf dressing, root zone mixes and growing media, or generate a soil improver and/or mulch grade of compost as part of their own product manufacturing, the composter shall supply a Contract of Supply (in countries where the CQP applies) or a Product Information Sheet to the manufacturer which contains clear terms and

[4] For example, compost of 'waste' status should be transported by a registered waste carrier, and the recipient should be supplied with a duty of care notice and hold an environmental permit / waste management licence / pollution prevention and control permit / exemption in order to store or use the compost. Waste regulatory controls should apply to supply chain organisations / individuals as well as the user of a 'waste' compost. These requirements apply, whether the compost recipient is a distributor, wholesaler, retailer, anyone / any other organisation in the compost supply chain, or the compost user.

conditions for product storage and use. In countries where the CQP applies, it is advisable that the composter obtains and keeps a copy of the contract that has been signed by both parties. The composter is not be liable if the compost is not stored, manufactured, transported and used according to Terms and Conditions in the Contract of Supply.

Note

REAL acknowledges that, after the compost has been supplied by a composter to a product manufacturer, the manufacturer may need to:

a) *store the compost for a period of time depending on customer demand (this should be done according to good practice for storage);*
b) *move the compost to maintain an open and stable structure while the material is being stored;*
c) *re-grade the material into different particle size ranges appropriate to the range of products that will consist of or include compost (as per the manufacturer's particular specifications), to ensure that the product(s) supplied to the end user is/are fit-for-purpose;*
d) *blend the compost with other materials that are not controlled wastes, if the manufacturer does not have an appropriate authorisation for managing controlled wastes); and/or*
e) *blend the compost with other materials that include controlled wastes, if the manufacturer has an appropriate authorisation for managing controlled wastes*

REAL acknowledges that any one or more of the above activities may result in change of the compost's characteristics after receipt by the product manufacturing customer. However, provided that the composter has supplied the certified compost grade that conforms to any specification agreed with the manufacturer and the grade complies with PAS 100 requirements, at the time of dispatch the compost is regarded as conforming to the Compost Quality Protocol. Thus, the composter has fulfilled his/her part of the contractual agreement, which is to dispatch 'product' status compost to the customer.'

When compost is dispatched directly to a contractor that spreads compost on behalf of a farmer/end user (third-party contractor), the operator shall supply a Contract of Supply or a Product Information Sheet to the company which contains clear terms and conditions for product storage and use. This should be accompanied by a Declaration Form.

The Declaration Form should be signed by the company declaring that all the required information has been passed on by the composter and the contractor will commit to minimising any risks associated with spreading. It is advisable that the composter obtains and keeps a copy of the Contract that has been signed by both parties and the Declaration Form that has been signed by the contractor.

REAL CCS recommends that operators use assured / certified contractors that have been independently audited and certified to a quality standard for land-based contractors. (One scheme recognised by REAL CCS is the Assured Land-Based Contractor (ALBC) Scheme run by the National Association of Agricultural Contractors (NAAC).) REAL also recommends that operators provide contractors with Defra's Code of Good Agricultural Practice (COGAP) for Reducing Ammonia Emissions, available here:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/729646/code-good-agricultural-practice-ammonia.pdf

16 Storage of compost on an un-authorized area, on-site or off-site in England, Wales and Northern Ireland

1. The clauses under this section are applicable in England, Wales and Northern Ireland. It does not apply to Scotland.

2. With regard to England and Wales, the EA's briefing note 'Waste Protocols Project, Change to end of waste criteria – notice to local authorities (April 2009) explains that quality waste-derived products can be stored outside waste management controls on the site of production or off-site, providing that the relevant Quality Protocol's criteria are met. The Northern Ireland Environment Agency (NIEA) has not published to date an equivalent briefing note; however REAL obtained a written confirmation from NIEA that the same position adopted in England and Wales applies to Northern Ireland.

3. In effect, this allows compost certified to the Compost Quality Protocol to be stored on an unpermitted / unlicensed area of the site or off-site, only provided that:

   A. The requirements of the Compost Quality Protocol, including conditions described in clauses 1.3.1 and 2.2.1, are complied with;
   B. the composting process and resulting compost grade(s) that are moved into the unpermitted / unlicensed area are certified to PAS 100 and the Compost Quality Protocol;
   C. the certificate of compliance with PAS 100 & Compost Quality Protocol is valid during the period the compost is stored on the unpermitted / unlicensed area;
   D. prior to being moved onto the unpermitted / unlicensed storage area:

      i. the compost batch(es) have completed the minimum composting process duration that the process has been validated for; this includes any maturation applicable to the graded compost;

ii. the compost batch(es) have been screened to one or more of the certified compost grades;
iii. the resulting compost grade(s) are fit for all their intended purposes throughout the storage before dispatch to the customer;

E. if sampled and tested, test results for those graded compost batch(es) show compliance with all Quality Policy's minimum quality criteria;
F. the graded compost batch(es) stored have not become contaminated such that Quality Policy's minimum quality criteria are no longer met;
G. the compost is stored awaiting dispatch or to be used in a market sector designated by the Compost Quality Protocol; and
H. the records kept enable traceability checks.

4. Traceability means the compost producer must keep records that show which graded compost batches have been delivered / moved to storage, which location(s) they have been delivered / moved to and the dates when these activities took place. Please refer to the Compost Quality Protocol for 'contract of supply' requirements that apply when compost is dispatched to a customer.

5. Please note that this position exempts the storage of compost 'product ONLY from waste management controls'. The compost shall be stored and used according to any other regulatory controls that are relevant, including any specific requirements applicable to the land where the compost is stored.

17 Compost producer's record of complaints

Each participating compost producer shall make and keep a record of any complaint relating to the compost(s) under assessment. These records shall be reviewed by the inspector, as part of the audit, and taken into account during evaluation of compost quality. Their influence on non-conformance decisions will depend on the number and nature of any such complaints.

18 Consecutive failures on the same parameter

During the investigation, if a batch sampled and tested after the 'triggering fail batch' fails on the same parameter, the composter shall immediately inform the certification body and supply details of the failures and actions taken to date. The compost producer should also keep records of any consecutive failures.

The certification body shall evaluate such information within 10 working days of its receipt and decide whether to suspend the certificate of compliance, having taken account of the severity of the failures and progress of the investigation.

N.B.: Suspension of certification may be actioned before the composter has completed the investigation, as appropriate to the severity of the failures and progress of the investigation.

19 Non-conforming batches

The composter shall have a clear, written contingency plan to deal with non-conforming batches. Providing that the HACCP and quality management system are designed and implemented correctly, non-conforming batches should not be produced.

20 Checking and agreeing quality requirements with customers

Clause 4.2 of PAS 100 states: 'The composter shall check and agree with the customer (e.g. specifier, buyer in the supply chain or if supplied directly, the end user) any quality requirements that are more stringent or wider ranging than the minimum baseline specified in this PAS. There shall be a written agreement with customers of any quality requirements other than the minimum baseline specified in this PAS. The composter shall ensure that the compost supplied meets the written agreement.'

The definition of 'customer' in PAS 100 is: 'first point of contact from the compost producer that receives compost

NOTE They may be acting on behalf of the end user, part of a supply chain or may be the end user directly.'

The definition of 'end user(s)' in PAS 100 is: 'individuals or organisations that obtain compost from a composter or third party with the intention of using it'.

Clause 4.4.1 of PAS 100 states: 'Safety and Quality Control System shall consist of:

a) a HACCP study (see 4.6.1 and 4.7.1);
b) the team members and their training and experience (see 4.5);
c) the essential characteristics of the product, that is, description of the product and its intended use [(see 4.1.2, 4.3 and Clause 16 a), b), f) and i)];
d) the steps in the production operation (see 4.6.1);
e) keeping the HACCP plan up-to-date (see 4.8.1, 4.11 and 4.12).

NOTE For general guidance refer to the Codex Alimentarius Commission's relevant publications [o] and to organisations that own certification schemes aligned to the requirements in this PAS.'

REAL CCS's interpretation

Based on the outcome of the consultation with the CCS Technical Advisory Committee and REAL's workshops held for the appointed Certification Bodies on assessing a Safety and Quality Control System, clause 4.2 of PAS 100 should be interpreted as follows:

The composter shall check what the intended end use of the product is and inform the customer (first point of contact) whether their product is suitable. The composter shall always check whether the customer has any additional quality requirements to those specified in PAS 100 and ensure that the check is evidenced in writing.

If the customer has any additional quality requirements, then there must be a written agreement in place detailing so between the composter and customer. This will inform the HACCP study and the process, to produce fit-for-purpose compost.

If the customer does not have any additional quality requirements and is supplied with compost that only meets the (minimum) quality criteria specified in PAS 100, the composter shall retain written evidence that the customer is satisfied to take the compost. The composter needs to retain this paperwork/record to demonstrate that the check has been carried out, to the satisfaction of the Certification Body auditor.

These actions will contribute to ensuring that the compost is fit-for-purpose and may provide an opportunity to explain to the customer the benefits of PAS 100 certification.

Example I

A composter supplies compost directly to a garden centre, where the compost is purchased by several the garden centre's customers. The customer in this scenario is the garden centre. The composter must check and agree with the garden centre whether it has any quality requirements that are more stringent or wider ranging than the minimum baseline specified in PAS 100. The garden centre requires that the level of plastic is lower than the limit specified.

A written agreement detailing these quality requirements is put in place with the garden centre and the composter commits to producing compost that meets the minimum quality criteria specified in PAS 100 and the additional, more stringent limit for plastic.

Example II

A customer arrives on site for a load of fresh compost, which only meets the minimum quality criteria of PAS 100. The customer is only interested in taking a load and is unlikely to have any additional quality requirements. However, the composter checks with the customer whether they are satisfied that the compost meets only the PAS 100 quality criteria and the customer agrees. Therefore, the composter provides a pro forma/declaration form (or other suitable form of paperwork) to sign/tick to acknowledge that they are satisfied with compost certified to PAS 100. This paperwork is retained by the composter.

Example III

A composter supplies compost to household owners by delivering bagged compost to their back gardens in the middle of the week. The household owners are unavailable at the time of delivery, but the order was placed online, on the company website. Before the customer purchased the bagged compost, they must answer a question on the webpage and tick a box to confirm that they are satisfied the compost meets the PAS 100 quality criteria. The composter records a copy of this confirmation to demonstrate the check.

21 Test failures during certification renewal

Section 12 in PAS 100 specifies the minimum frequencies for routine compost sampling and testing. Section 15 of PAS 100 sets the requirements for investigating the efficacy of the Quality Management System in the event of a test result failure after validation.

REAL CCS's interpretation

The minimum number of routine samples to take over 12 months is calculated based on the requirements of the 'After validation' section of Table 2 in Section 12 of PAS 100. From the certificate 'valid from' date and the certificate 'valid to' date, the total number of routine samples taken should reflect production. Before the certificate expires, the minimum number of routine samples should have been taken.

If a composter receives a test result failure before the audit date, for a sample sent for routine testing, the operator must adhere to the requirements of Section 15 of PAS 100 (see Section 22 of this document).

If the composter cannot sample and test further batch(es) following the implementation of corrective actions because batch(es) are not available, before the audit date, then operators must confirm that they plan to take them by signing a declaration note issued by the

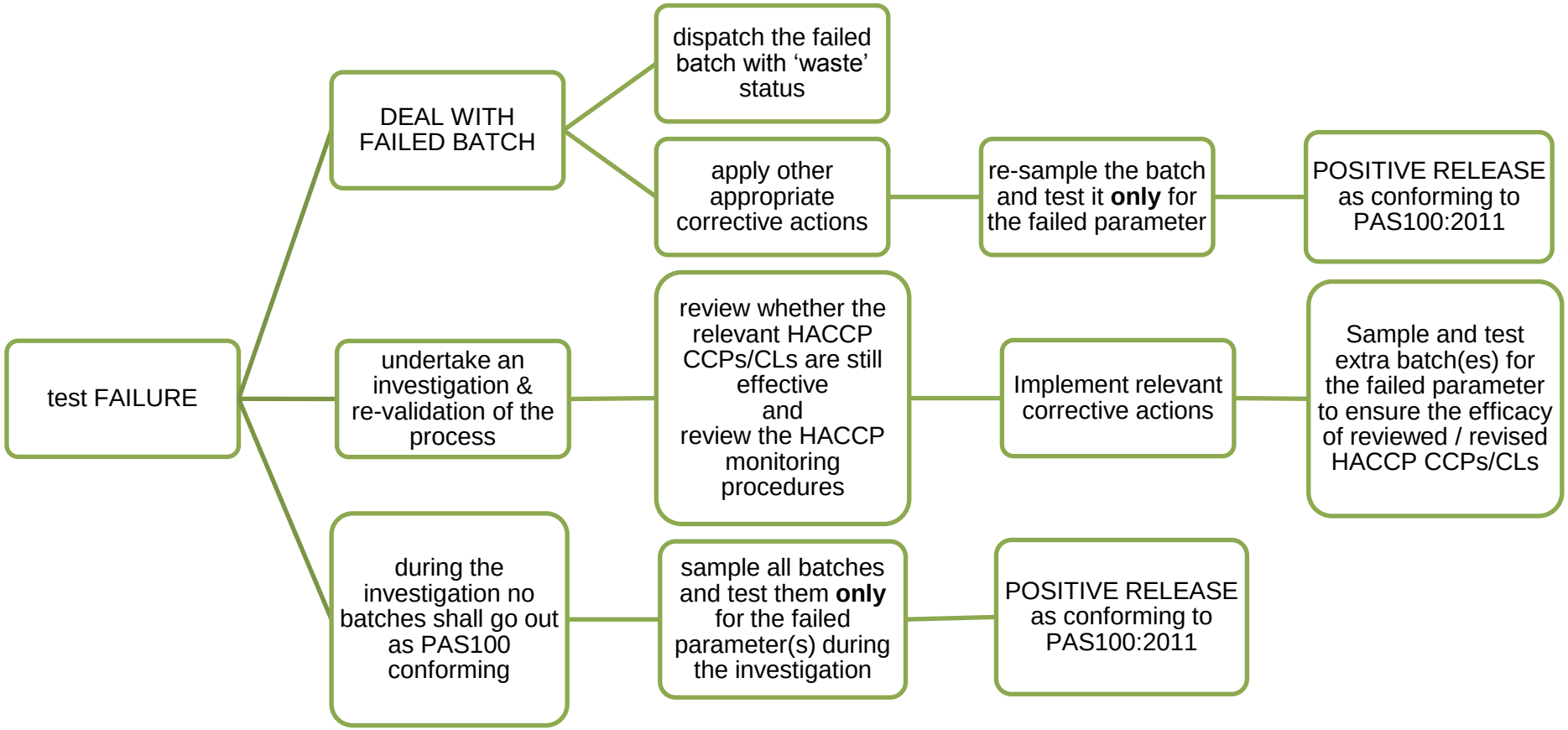
Certification Body. The declaration note will be signed and returned to the Certification Body to confirm that they will take another sample(s) when the batch is available.

Non-conformances will be identified and may hold up the certificate if the required number of routine samples is not taken and/or actions have not been taken to address test failures.

If an operator does not achieve 'positive release' prior to their audit date, then this will not be considered a non-conformance and will not hold up the certificate. Similarly, if an operator is waiting for re-sample verification test results prior to their audit, then this will not be flagged as a non-conformance and will not hold up the certificate. Providing the operator can demonstrate that they are complying with PAS 100 when addressing a sample test failure and taking the minimum number of routine samples, the certificate will not be withheld.

22 Actions you are expected to take in the event of any test failures

during routine sampling regime for all parameters [as per section 15 of PAS100:2018]



In the event the batch failed on any parameter, the following corrective actions should be carried out by the composter and checked by the CB during the annual inspection.

Description of the diagram, the composter should:

- Deal with the failed batch in one of the following ways:
  - dispatch the failed batch with 'waste' status, OR
  - apply other appropriate corrective actions (e.g. rescreen the failed batch or remove the excessive level of contaminants in the event of a physical contaminant failure). Then re-sample the batch and test it only for the failed parameter(s); only if the re-test passes, the batch can be dispatched as PAS 100 conforming. This is called **positive release**.
    Please do not re-test the archive sample, as the archive sample test results do not count under the current rules.
- Undertake an investigation to establish the reason for the failure/s;
  - Review whether the relevant HACCP CCPs/CLs are still effective;
  - Review the HACCP monitoring procedures to ensure these are effective in flagging when the system is not performing as expected.
- Implement relevant corrective actions to address any concern raised during the review process.
- Sample and test extra batch(es) for the failed parameter/s to prove the efficacy of the relevant CCP/CLs or your HACCP monitoring procedures and the effectiveness of the implemented corrective actions (REAL would recommend testing another two or three extra batches but it does depend on the significance of the failure. See case studies below).
- **Positive release.** During the investigation no batches shall go out as PAS100 conforming, unless they are sampled and tested for the failed parameter/s and the associated test results show a pass.

Case study 1 – Failure on *E.coli*, by a large margin (300,000 CFU/g)

Following the diagram, the composter should:

1. Deal with the failed batch in one of the following ways:
    - dispatch the failed batch with 'waste' status, OR
    - apply other appropriate corrective actions:
        - reprocess the failed batch;
        - re-sample the reprocessed batch and test it only for the failed parameter(s);
        - only if the re-test passes, the batch can be dispatched as PAS 100 conforming.

2. Undertake an investigation to establish the reason for the failure/s:
    - Batch monitoring record shows that at one monitoring point, temperature was not sustained at or above CL for required minimum period.
    - Potential causes:
        - high proportion of grass clippings in batch,
        - C:N was too low,
        - batch slumped and not heated up properly.
        - *E. coli* eradication was patchy.
3. Implement relevant corrective actions: Retrain person responsible for batch evaluation. Retrain person responsible for batch formation. Supervisor to check those persons carrying out activities & checks

4. Recommended number of extra tests: 3 more batches sampled and tested for *E. coli*. If 3 passes shown, corrective actions can be deemed to be effective

5. Positive release. During the investigation no batches shall go out as PAS100 conforming, unless they are sampled and tested for the failed parameter/s and the associated test results show a pass.

Case study 2 – Failure on *E.coli*, by a small margin (5,000 CFU/g)

Following the diagram, the composter should:

1. Deal with the failed batch in one of the following ways:
    - dispatch the failed batch with 'waste' status, OR
    - apply other appropriate corrective actions:
        - reprocess the failed batch;
        - re-sample the reprocessed batch and test it only for the failed parameter(s);
        - only if the re-test passes, the batch can be dispatched as PAS 100 conforming.
2. Undertake an investigation to establish the reason for the failure/s:
    - Sample has been taken incorrectly e.g. dirty spade was used and caused contamination of the sample
3. Implement relevant corrective actions: Retrain person responsible for taking samples. Next sampling activity is supervised.
4. Recommended number of extra tests: 2 more batches sampled and tested for *E. coli*. If 2 passes shown, corrective actions can be deemed to be effective.
5. Positive release. During the investigation no batches shall go out as PAS100 conforming, unless they are sampled and tested for the failed parameter/s and the associated test results show a pass.

Case study 3 – Failure on physical contaminants and plastics by a large margin (e.g. 1.5 % PC, 1 % plastics)

Following the diagram, the composter should:

1. Deal with the failed batch in one of the following ways:
    - dispatch the failed batch with 'waste' status, OR
    - apply other appropriate corrective actions:
        - reprocess the failed batch;
        - re-sample the reprocessed batch and test it only for the failed parameter(s);
        - only if the re-test passes, the batch can be dispatched as PAS 100 conforming.
2. Undertake an investigation to establish the reason for the failure/s:
    - The quality of input materials delivered by a specific supplier has become significantly worse; the validated SOPs are no longer sufficient to cope with increased levels of contaminants and ensure the resulting compost is fit for purpose in terms of PC.
3. Implement relevant corrective actions:
    - Inform biowaste supplier that PCs must be reduced in the input materials delivered;
    - Install a picking line (is it practical and cost-effective?);
    - Wind sifter installed on screen;
    - Screen settings changed (e.g. speed, amplitude, incline of drum / plate)
4. Recommended number of extra tests: 3 more batches sampled and tested for PC and plastics. If 3 passes shown, corrective actions can be deemed to be effective.
5. Positive release. During the investigation no batches shall go out as PAS100 conforming, unless they are sampled and tested for the failed parameter/s and the associated test results show a pass.

Case study 4 – Failure on sharps (e.g. 1 % m/m, against Quality Policy limit of 0.10 % m/m)

Following the diagram, the composter should:

1. Deal with the failed batch in one of the following ways:
    - dispatch the failed batch with 'waste' status, OR
    - apply other appropriate corrective actions:
        - reprocess the failed batch;
        - re-sample the reprocessed batch and test it only for the failed parameter(s);
        - only if the re-test passes, the batch can be dispatched as PAS 100 conforming.
2. Undertake an investigation to establish the reason for the failure/s:
    - HACCP plan only identifies screening as critical control point for sharps;
    - this control point does not sufficiently remove sharps.
3. Implement relevant corrective actions: Change the HACCP plan. An effective CCP and associated CLs need to be identified and validated.
4. Recommended number of extra tests: 3 more batches sampled and tested for PC and plastics (includes sharps). If 3 passes shown, corrective actions can be deemed to be effective
5. Positive release. During the investigation no batches shall go out as PAS100 conforming, unless they are sampled and tested for the failed parameter/s and the associated test results show a pass.

Case study 5 – Failure on plant response test because of abnormal plant leaves and shoots (curled leaves, bent shoots)

Following the diagram, the composter should:

1. Deal with the failed batch in one of the following ways:
    - dispatch the failed batch with 'waste' status, OR
    - apply other appropriate corrective actions:
        - reprocess the failed batch;
        - re-sample the reprocessed batch and test it only for the failed parameter(s);
        - only if the re-test passes, the batch can be dispatched as PAS 100 conforming.
2. Undertake an investigation to establish the reason for the failure/s:
    - EC values normal; possible presence of herbicide residues (e.g. clopyralid, aminopyralid or picloram).
    - Composter has not signed contractual agreements with waste suppliers (e.g. landscapers, farmers) with declaration plant tissue waste was not treated with aminopyralid, clopyralid or picloram
3. Implement relevant corrective actions:
    - Composter to set up Input Material Supply Agreements with each supplier of plant tissue waste (except for LAs).
    - Composter to ask LA to flag to householders the importance of following instructions on herbicide product labels.
4. Recommended number of extra tests: 3 more batches sampled and tested for plant response test. If 3 passes shown, corrective actions can be deemed to be effective.
5. Positive release. During the investigation no batches shall go out as PAS100 conforming, unless they are sampled and tested for the failed parameter/s and the associated test results show a pass.