



Green wastes contractual specification

For composting processes working towards initial certification or already certified to PAS 100 and the Compost Quality Protocol

1. Purpose

The purpose of this input specification is to provide a standard for the quality and types of input materials that can be delivered for composting to White Moss Horticulture under contractual arrangements. This specification shall be defined so that it enables the Contractor to produce marketable compost compliant with the requirements of BSI PAS 100 Specification (PAS 100)¹ and the Compost Quality Protocol². This input specification also provides guidance on how the input materials delivered to the composting facility shall be compared to the quality standard and defines the actions to be taken if it is established that the material does not meet the required standard.

2. Specification variation

This specification shall be reviewed at least once per year, to ensure the maximum acceptance criteria specified in this schedule continue to be adequate.

Note:

The adequacy of the maximum acceptance criteria in table 2 should be reviewed at least on an annual basis or more frequently if appropriate. A maximum acceptance limit is considered adequate when it enables the cost effective production of quality compost compliant with PAS 100 minimum quality criteria and any other additional, more stringent quality criteria required by compost customers. PAS 100 specifies the following upper limits for the compost produced: 0.25 % (mass/mass of air-dry sample) for the total amount of physical contaminants > 2 mm, 0.12 % (mass/mass of air-dry sample) for the amount of plastics > 2 mm and 8 % (mass/mass of air-dry sample) for the amount of stones > 4 mm. In addition, PAS 100 specifies that 'physical contaminants that are "sharp" are unacceptable in any application where compost is bagged or supplied for any use where it is handled without protective gloves. Tolerances for physical contaminants, including those that are sharp, can vary between other compost end markets.' Particularly demanding market sectors (e.g. potato growers) require that the content of sharps in the compost is nil.

If, as a result of the above review, it is established that the maximum criteria specified in this document are inadequate (e.g. they do not deliver the compost quality required, given the processes, infrastructure and labour employed at the composting site), the Contractor and the Local Authority shall review this input specification and define new, adequate acceptance criteria, or additional processing must be employed to reduce the contaminants to acceptable levels. Reviewing the adequacy of the 'critical limits' (in this case, the input material maximum acceptance criteria) at regular intervals is a fundamental requirement of PAS 100. Failure to do so results in non-compliance.

3. Targeted input materials

Definitions of targeted material suitable for receipt and composting at the composting facility named above are detailed in table 1.

¹ BSI PAS 100:2011 Specification for composted materials. See <http://organics-recycling.org.uk/Standards>

² EA/WRAP Quality Protocol for the production of composts from source-segregated biodegradable wastes (the 'CQP'). See <http://organics-recycling.org.uk/Standards>. The Protocol specifies End of Waste criteria for composts in England, Wales and Northern Ireland; in other words, only composts that are certified compliant with the CQP can be regarded as product. Please note that the Compost Quality Protocol, which defines End of Waste criteria for composts, requires independent assessment for conformance with all requirements of PAS 100.

European Waste Code	Waste description	Any caveat / rules / restrictions to waste types targeted
20 02 01	<p>Plant-derived wastes from household gardens and public park wastes. These consist of leaves, grass cuttings, hedge and tree, tree cuttings and any either similar vegetable materials arising from gardens.</p> <p>It includes leaf litter from parks and gardens.</p>	<p>It shall not include road sweepings e.g. those collected:</p> <ul style="list-style-type: none"> • from urban areas, where it is expected that grit or other contaminants would form a high or majority of the waste; • when the roads have been gritted; • from gully pots (gully suckings); • from areas where road resurfacing works are being undertaken; • from areas where it is likely that pollution has occurred (e.g. traffic accident).

Input materials accepted by the Contractor for composting shall meet the above definitions. There shall be no limit to the proportion of any one constituent of targeted materials within any one load unless it can be proven by the Contractor that the inclusion of excessive amounts of that constituent prejudices the composting operation.

4. Maximum acceptable criteria for contaminants

Incidental contaminants are defined as any material contained in Table 2 and which, when included within waste can potentially prejudice the ability of that load to be handled and processed into marketable compost complying with PAS 100 specification. They can also be referred to as 'Non-compostable' materials (NCM).

Prohibited materials are any material which, in processing, would put the Contractor in breach of any site licence / permit, other regulatory consent, compliance with PAS 100 Specification, or the Compost Quality Protocol.

Prohibited material type	Incidental contaminant type	Maximum proportion of organic waste load % (by weight) or maximum number of items³
-	Paper <i>(except for paper bags as specified in Table 1)</i>	Total contamination per load 5%
-	Card ⁴	Total contamination per load 5%

³ For some contaminant types, the Contractor may wish to specify a maximum number of items. This is especially recommended for contaminant like plastic bags and packaging, which would normally weigh relatively little e.g. 3% plastic bags by weight does not sound much but equates to approximately 3500 bags / tonne.

⁴ Although there are some types of card that are compostable (e.g. plain cardboard or certified 'compostable' to one of the relevant standards), this template is for 'garden wastes' only; hence, any type of card is considered to be a non-target material.

-	Plastics ⁵ <i>(Except for plastic bags/sacks/liners that are certified 'compostable' and/or 'home compostable' in compliance with one of the relevant standards⁵ if their use is allowed within the collection service.</i>	Total contamination per load 5% <i>(by volume)</i>
-	Textiles	Total contamination per load 5%
-	Metals	Total contamination per load 5%
-	Glass	0%
-	Hardcore, concrete, rocks, tiles, ceramics, stones etc.	Total contamination per load 5%
-	Nappies	0%
-	Dog droppings and other faecal matter	0%
-	Sharps	0%
	Any non-source segregated or non-compostable input materials -	0%
Hazardous household waste items	-	0%
Clinical wastes	-	0%
Liquid, sludges, or mixtures of solids and liquids	-	0%
Leaf litter	-	0%

NOTE: In addition to the individual thresholds above, as an additional requirement the total contamination shall not be more than 5% in aggregate.

Many of the current contractual arrangements with Customer specify a maximum of 5 %of physical contaminants or plastics in input loads delivered to composting plants. It is often unclear whether this percentage

⁵ The maximum amount of plastics, metals, card, paper, other physical contaminants and the overall amount of physical contaminants allowed to be accepted for composting will depend on the type and level of processes and labour employed before and after composting. For example, a picking station prior to composting, or a wind-sifting unit installed on the screen will enable to achieve a better reduction in the amount of contaminants than a simpler composting operation with no picking station or wind-sifting unit. These levels will also vary upon the compost particle size that the compost is screened to e.g. if the compost is screened down to 0 -10 mm particle size, the reduction in plastics and other physical contaminants will be far greater than if the compost is screened to 0 -40 mm particle size. However, where contaminant levels are higher, not only the cost of processing will be greater (as more processing will be required to remove contaminants), but there will also be significant higher costs associated with disposing the associated rejects. When the Contractor and the Local Authority agree maximum acceptance criteria, consideration should be given to these aspects. Additional processing costs associated to decontaminating loads prior or after composting should also be carefully considered (see Table 3 in this contract).

⁶ 'Compostable' means independently certified compostable to the "compostable" criteria within BS EN 13432, BS EN 14995, ASTM D6400, ISO 17088, ISO 18606 or Vinçotte's 'Program OK 2' criteria for "home compostable" packaging, plastics or equivalent. See <http://organics-recycling.org.uk/page.php?article=1991>.

is expressed on a weight or on a volume basis. AfOR has estimated that 5 % (on a fresh weight basis) of physical contaminants in the input materials may result approximately in 18 % (on an air-dry weight basis) of contaminants in the compost product. This is significantly above the PAS 100 upper limit for physical contaminants (0.25 % on an air-dry weight basis) and plastics (0.12 % on an air-dry matter basis). This calculation is only approximate and does not take into account any reduction in physical contaminants and plastics achieved with pre-composting (e.g. picking lines) and/or post-composting steps (e.g. screening, wind sifting). The calculation is based on the following assumptions:

- 40 – 50 % reduction in mass due to CO₂ / H₂O losses during biological treatment (e.g. 5 % of physical contaminants by fresh weight in feedstock results in 9.5 % of physical contaminants by fresh weight in compost product); and
- conversion of 9.5 % by fresh weight into 18 % by air-dry weight to enable comparison with the PAS 100 upper limit for physical contaminants or plastics (this is based on 40% compost moisture content).

5. Garden waste load inspection and associated procedures

Any load containing prohibited materials shall be rejected.

Any load containing incidental contaminants in excess of the proportions given in Table 2 shall be subject to the procedures shown in Flow chart 1. The chart describes the procedure for determining whether a load is to be rejected or subjected to additional treatment to remove the excess of contamination.

A load shall not be rejected where contaminants can be removed, or the level of contamination can be brought within the maximum allowable indicated in Table 2, including the total contamination level, by minimal and safe (assuming normal personal protective equipment e.g. gloves, steel soled boots etc.) hand sorting or picking. Minimal hand sorting shall be undertaken by the Contractor and shall not normally take one person more than five minutes (this is classed as 'Grade B' load).

6. Point of Responsibility

The Contractor is responsible for monitoring each biowaste load for compliance with this input specification.

In cases where the Contractor has identified a potentially rejectable load, the Contractor shall immediately notify the Customer by telephone, and confirm in writing at the earliest opportunity that the Contractor considers the load potentially rejectable. If possible, photographic evidence should be provided to support the decision made by the contractor.

Where the Contractor identifies to the Customer that a load which has not been rejected may have failed to meet the input specification, the Local Authority shall use its reasonable endeavours to ensure that the source of the contamination is identified and future contamination minimised.

7. Joint Inspection

Except in cases of emergency, or regulatory restriction, the potentially rejectable load will be stored separately on site for up to one working day (Monday to Friday) pending a joint inspection by the Contractor and the Customer. Where a joint inspection is not possible or not deemed necessary by the Contractor and the Local Authority, the Contractor will provide the Customer with his/her subjective assessment of the level of contaminants in the load, together with photographic evidence of the contamination.

8. Agreement on contamination

The Local Authority shall not unreasonably withhold or delay its agreement that any relevant load fails to meet this specification and shall in any event respond within a business day of the Authority receiving the notification pursuant to paragraph 6.

Where the Contractor and the Customer agree that any load delivered fails to meet this input specification, the load shall either be removed by the Contractor to energy recovery, landfill or other legitimate disposal means ('Grade D' load), or shall be subject to additional processing at the facility ('Grade C' load).

Where the Contractor and the Customer fail to agree that a load does or does not comply with this input specification the load shall be subject to further analysis of the contamination levels in the load, according to [AfOR's Protocol to measure physical contaminants in biowastes](#) or an equivalent method. The analysis shall involve taking a representative sample of the load followed by an assessment of the levels and types of contaminants in the load.

Where the analysis determines that a load failed to meet this input specification, the costs of the analysis shall be borne in full by the Local Authority.

9. Processing costs and rejection costs

At the Contractor's discretion, loads which are agreed to have failed to meet this input specification may be processed to remove contamination. The Contractor will notify the Customer of the additional costs associated with the additional processing required. These shall include:

- direct cost associated with the additional processing and reduction of contamination to acceptable levels;
- additional costs of processing and/or disposing of the contaminants;
- any ancillary cost such as transportation or labour costs;
- any cost associated with taking samples and assessing the levels of contaminants in the delivered load;
- any cost associated with any agreed on-going monitoring; and
- a margin of 15% on such costs.

Any failure to reach an agreement on these costs within twenty-four hours shall result in disposal of the contaminated load at the current cost of landfill disposal.

Table 3 shows the fees that will be charged according to whether the load is classed as:

- Grade A load – load compliant with the input specification (fee rate 1)
- Grade B load – load not compliant with input specification, but can be dealt with minimal hand picking / sorting (fee rate 1)
- Grade C load – load not compliant with input specification and is subjected to significant extra processing (fee rate 2)
- Grade D load – load not compliant with input specification, is rejected and sent to the agreed method of disposal (fee rate 3).

10. Monitoring the levels of physical contaminant in the input materials

The quality of input materials shall be kept under review by the Contractor.

The Contractor shall be responsible for monitoring the quality of the waste materials against the input specification in table 2 of this Schedule and agree with the customer the method and cost of such a monitoring.

Flow chart 1

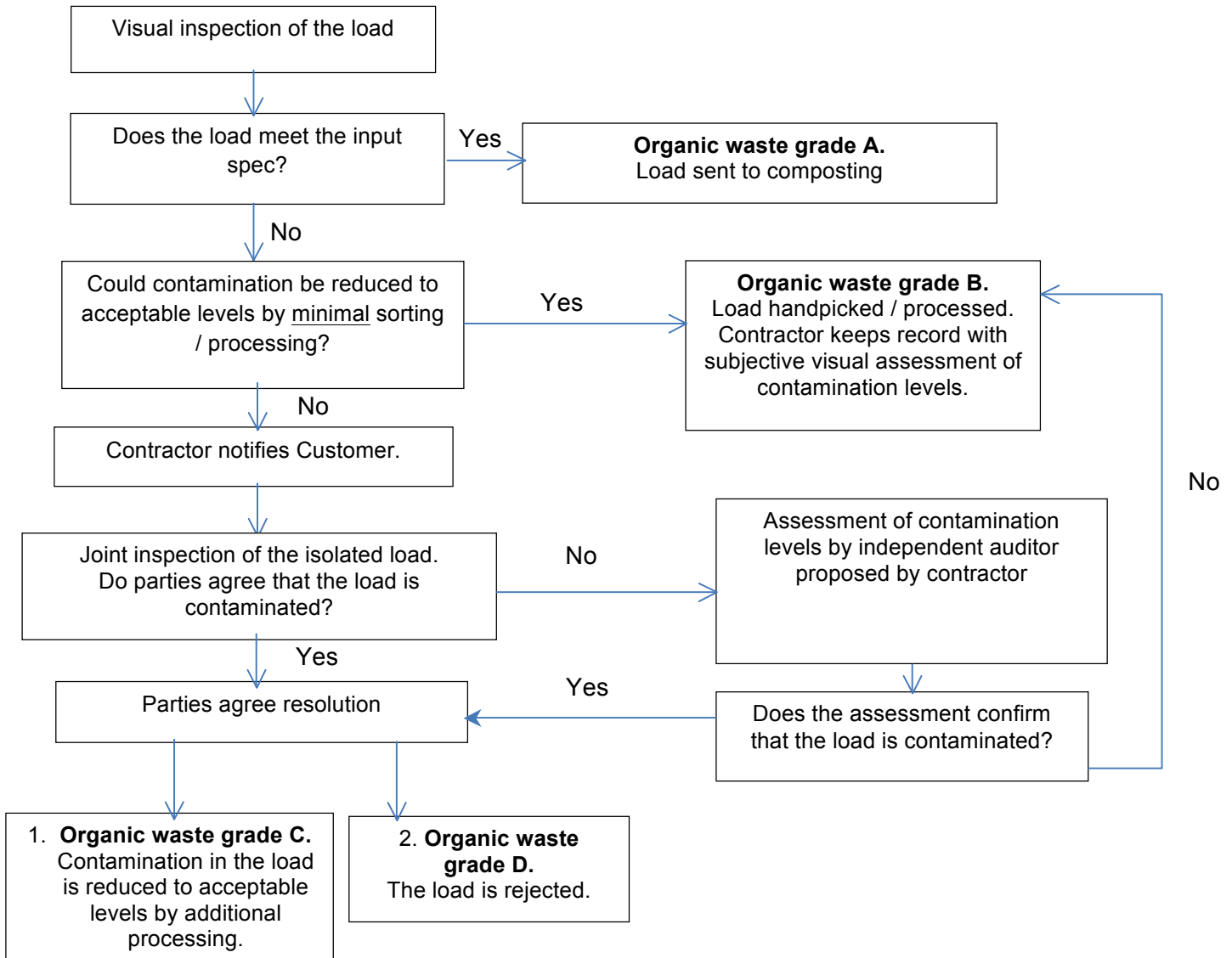


Table 3: Banded fee system based on load quality and the fate			
Organic Waste Grade / Class	Contaminants levels	Fee band	Costs description
A	Waste complies with max levels in Table 1	Fee rate 1	Standard gate fee for this waste type [£/tonne]
B	Waste does not comply with max levels in Table 1, but can be cleaned up with minimal sorting / picking	Fee rate 1	Standard gate fee for this waste type plus additional costs of sorting / hand picking (at Contactor's discretion) [£ / tonne]
C	Waste does not comply with max levels in Table 1, and cannot be cleaned up with minimal sorting / picking. Contractor and LA agree to further process the load to reduce contaminants to acceptable levels	Fee rate 2	Standard gate fee for this waste type plus: <ul style="list-style-type: none"> • Direct cost associated with the additional processing and reduction of contamination to acceptable levels; • The additional costs of processing and disposing of the contaminant materials • Any ancillary cost such as transportation or labour costs • Cost of contamination assessment if performed • Cost of any agreed on-going monitoring • A margin of 15% on such costs [£ / tonne]
D	Waste contains prohibited materials or does not comply with max levels for contaminants in Table 1, and cannot be cleaned up with minimal sorting / picking. Load is rejected and sent for disposal	Fee rate 3	Current cost of disposal plus any transportation and ancillary costs for removal [£ / tonne]

Acknowledgments

AfOR would like to thank Viridor for having provided examples of biowaste specifications that represented the basis for this template.

In addition, we would like to thank Tony Breton at Novamont for his expert contribution and assistance in writing this template.

CONTRACT AGREEMENT AND ENTRY INTO FORCE

Compost producer name:

Green waste supplier name:

Signed on behalf of the compost producer

Signed on behalf of the supplier

Signature:

Signature:

Job title:

Job title:

Date:

Date:
