

Translation of the wording of the Bio-waste Ordinance as valid since 1 August 2012

Notice of initiation of the amendment of the Bio-Waste Ordinance
of 4 April 2013

(Federal Law Gazette Part I p. 658):

**Ordinance -
on the Recovery of Bio-Waste -
on Land used for Agricultural, Silvicultural and Horticultural Purposes -
(Bio-waste Ordinance – BioAbfV)* -**

**Section 1 -
Scope -**

(1) This ordinance shall apply to

1. - both treated and untreated bio-waste and mixtures that are applied as fertiliser on land used for agricultural, silvicultural or horticultural purposes or handed over for the purpose of application, as well as
2. - treatment and investigation of such bio-waste and mixtures.

(2) This ordinance shall apply to

1. - public-law parties responsible for waste management and to any third parties, associations or self-regulatory public bodies to which obligations to recover bio-waste have been assigned in accordance with Section 16 (2), Section 17 (3) or Section 18 (2) of the Closed Substance Cycle and Waste Management Act of 27 September 1994 (Federal Law Gazette Part I p. 2705), most recently amended by Article 5 of the Act of 6 October 2011 (Federal Law Gazette Part I p. 1986) (parties responsible for waste management),
2. - producers or holders of bio-waste or mixtures, insofar as they do not entrust this waste to a party responsible for waste management,
 - 2a. any party which collects and transports bio-waste (collectors),
3. - any party which treats bio-waste (bio-waste handler),

* The obligations in accordance with Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations and of rules on Information Society services (OJ L 204 of 21.7.1998, p. 37), as amended by Directive 2006/96/EC (OJ L 363 of 20.12.2006, p. 81), have been complied with.

4. - any producers of mixtures using bio-waste (mixture producers);
- 4a. -any party which accepts bio-waste or mixtures for application and releases it with no further change (interim distributor), as well as
5. - parties managing land used for agricultural, horticultural or silvicultural purposes on which any treated or untreated bio-waste or mixtures are, or are intended to be, applied.

(3) This ordinance shall not apply

1. - to house and kitchen gardens as well as allotments,
2. - to on-site utilisation of bio-waste of plant origin in agricultural holdings or horticultural and landscape gardening businesses, in cases in which utilisation in accordance with Sections 6 – 8 is guaranteed on self-farmed land,
3. - where the Sewage Sludge Ordinance is applicable,
- 3a. -for animal by-products which are to be picked up, collected, dispatched, stored, treated, processed, used or marketed in accordance with Regulation (EC) No 1069/2009 of the European Parliament and of the Council of 21 October 2009 laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No 1774/2002 (Animal by-products Regulation) (OJ L 300, 14.11.2009, p. 1), most recently amended by Directive 2010/63/EU of 22 September 2010 (OJ L 276, 20.10.2010, p. 33) in its current version, in accordance with the legislation adopted for implementation purposes by the European Union, in accordance with the Animal By-Products Disposal Act of 25 January 2004 (Federal Law Gazette Part I p. 82), most recently amended by Article 2 (91) of the Act of 22 December 2011 (Federal Law Gazette Part I p. 3044) in its current version, or in accordance with legal ordinances enacted on the basis of the Animal By-Products Disposal Act, or
4. - to any substances the management of which is subject to other legal provisions.

(4) The provisions of legislation on fertilisers and plant protection products shall remain unaffected. If bio-waste and animal by-products within the meaning of paragraph (3) number 3a are treated together or used for manufacturing mixtures and applied to soils, the provisions of this ordinance shall apply in addition to the provisions designated in paragraph (3) number 3a.

(5) The parties referred to in paragraph (2) shall ensure that the pollutants are dropping below the limit values for treated and untreated bio-waste and mixtures referred to in this ordinance as far as possible. The fact that any soil values in accordance with Section 9 (2)

have been reached or exceeded shall not in itself give rise to any general restrictions on cropping or any other restrictions not referred to in this ordinance.

Section 2 - Definitions -

For the purposes of this ordinance,

1. - Bio-waste shall mean:

waste of animal or plant origin or from fungal materials for recovery purposes, which can be degraded by microorganisms, soil-borne organisms or enzymes, including wastes for recovery purposes with high organic content of animal or plant origin or fungal materials; deemed to be bio-waste is waste which is stated in Annex 1 number 1 in Column 1, further specified in Column 2 and labelled more specifically based on the supplementary provisions in Column 3; soil material with no significant bio-waste content shall not be deemed to be bio-waste; plant residues that occur on forestry or agricultural land and remain on these types of land shall not be deemed to be bio-waste;

2. Sanitising treatment shall mean:

biotechnological treatment of biodegradable materials for sanitation purposes thanks to

- a) pasteurisation in accordance with Annex 2 number 2.2.1,
- b) aerobic sanitising treatment in accordance with Annex 2 number 2.2.2 (thermophilic composting),
- c) anaerobic sanitising treatment in accordance with Annex 2 number 2.2.3 (thermophilic anaerobic digestion), or
- d) any other form of sanitising treatment in accordance with Annex 2 number 2.2.4;

2a. -Biologically stabilising treatment shall mean:

biotechnological treatment of biodegradable materials for the biodegradation of organic matter under aerobic conditions (composting) or anaerobic conditions (anaerobic digestion), or other measures for the biological stabilisation of organic matter; any form of sanitising treatment in accordance with number 2 (b) and (c) shall also be deemed to be biologically stabilising treatment;

3. - Untreated bio-waste shall mean:

bio-waste that has not been consigned to any treatment;

4. - Treated bio-waste shall mean:

bio-waste that has been subjected to sanitising and biologically stabilising treatment, including treated waste stated in Annex 1 number 2 in Column 1, further specified in

Column 2 and labelled more specifically thanks to the supplementary provisions in Column 3, or treated biodegradable materials stated in Column 2 and labelled more specifically thanks to the supplementary provisions in Column 3;

5. - Mixtures shall mean:

mixture of treated bio-waste and untreated, sanitised or biologically stabilised bio-waste in accordance with Section 10 and waste stated in Annex 1 number 2 in Column 1, further specified in Column 2 and labelled more specifically based on the supplementary provisions in Column 3, or treated biodegradable materials and mineral substances stated in Column 2 and labelled more specifically based on the supplementary provisions in Column 3, as well as the combination of a mixture which contains one of the above named constituents together with lime within the framework of the application process; the mixing together of bio-waste within the framework of common sanitising or biologically stabilising treatment, as well as the mixing together with materials stated in Annex 1 number 2 shall not be deemed to be a mixture;

6. - On-site utilisation shall mean:

application of bio-waste of plant origin arising from self-cultivated farmland on self-cultivated farmland. On-site utilisation shall also include the application of

- a) bio-waste of plant origin arising during horticultural services in third party areas on self-cultivated farmland as part of the service,
- b) - untreated bio-waste of plant origin taken back on a pro rata basis by members of producer associations in wine-growing, as well as fruit and vegetable cropping, on self-cultivated farmland, provided that the plant raw materials have been produced in areas belonging to members of the respective producer association.

Section 3 -

Requirements concerning the sanitising treatment -

(1) Where not covered by an exemption in accordance with Section 10 (1) or (2), parties responsible for waste management, producers and owners must supply bio-waste for sanitised treatment prior to application or production of mixtures in order to ensure epidemic and phytosanitary safety.

(2) Epidemic and phytosanitary safety in accordance with paragraph (1) shall be deemed to be satisfied if no damage is caused to the health of humans or animals as a result of the release or transfer of pathogens, and no damage is caused to plants, plant products or soil

as a result of the spread of harmful organisms. The various sanitising treatment requirements to be complied with in detail, and the materials, are specified in Annex 2.

(3) The bio-waste handler must carry out the sanitising treatment of bio-waste in accordance with the provisions stipulated in Annex 2 in order to ensure the epidemic and phytosanitary safety of bio-waste following treatment as well as during any such release or application on self-cultivated farmland. With respect to the aerobic or anaerobic sanitising treatment of bio-waste in plants with an annual capacity of up to 3,000 tonnes of input materials, in individual cases the competent authority may, in agreement with the competent agricultural and veterinary technical authorities, permit a number of exceptions to the requirements contained in paragraph (4), first sentence, number 1 and Annex 2 for the process inspection. The prerequisite for this is that epidemic and phytosanitary safety is guaranteed by way of compensatory measures, or that there should not be any impact on epidemic and phytosanitary safety issues based on the type, nature, and origin of the bio-waste. In individual cases, the competent authority may, in agreement with the competent agricultural and veterinary technical authorities, permit another form of sanitising treatment in accordance with Section 2 number 2 (d) provided that an equivalent level of sanitation can be demonstrated in line with the requirements of Annex 2. Bio-waste treated in accordance with other provisions shall be deemed to have been subjected to a different form of sanitising treatment in accordance with Section 2 number 2 (d), provided this other bio-waste treatment method is listed in Annex 1 number 1, Column 3, with a reference to this sentence.

(4) Unless covered by an exemption in accordance with Section 10 (1) or (2), bio-waste handlers must allow examinations to be carried out in accordance with paragraphs (5) to (9) on

1. - the effectiveness of the sanitation process thanks to a process inspection which varies for pasteurisation systems by way of technical acceptance,
2. - compliance with the required temperature for the necessary duration of treatment during the sanitising treatment by way of monitoring the process, and
3. - compliance with the maximum permitted limit values for pathogens, viable seeds and budding plant parts following the sanitising treatment of releasable material by way of examining the sanitised bio-waste.

The methods stipulated in Annex 1 number 4 must be applied for the examinations.

(5) The bio-waste handler must allow the process inspection to be carried out in accordance with paragraph (4), first sentence, Number 1 within twelve months following the commissioning of a newly constructed treatment plant for sanitising purposes in accordance with the provisions of Annex 2 number 3.1. This shall apply analogous to plants that have already been examined when using new procedures or in the event that significant technical changes are made to the procedures or to process control. With respect to newly constructed pasteurisation plants, the bio-waste handler must allow technical acceptance to be carried out in place of the process inspection prior to commissioning in accordance with the provisions of Annex 2 number 2.2.1.2, in place of the process inspection, by the competent authority for the plant, which shall issue a certificate of acceptance on this. With respect to newly constructed plants used for other forms of sanitising treatment, the process control and process inspection requirements must be defined in agreement with the authority which is responsible for the plant prior to the implementation of process inspection. Until the process inspection is successfully completed, the bio-waste handler may release materials originating from the treatment plant, and which are used for sanitation purposes, to be used for recovery purposes with the consent of the competent authority if process monitoring requirements in accordance with paragraph (4), first sentence, number 2, and the requirements for inspection of the sanitised waste in accordance with paragraph (4), first sentence, number 3, are met and there is no evidence to suggest that the hygienic safety of these materials has been compromised.

(6) The bio-waste handler must carry out the process monitoring in accordance with paragraph 4, first sentence, number 2 in accordance with the requirements of Annex 2 number 3.2, and must keep the following records:

1. - the temperature profile during pasteurisation,
2. - the temperature profile and the implementation dates for aerobic sanitising treatment (thermophilic composting),
3. - the temperature profile and the feeding and discharging intervals for anaerobic sanitising treatment (thermophilic anaerobic digestion), and
4. - the procedure-specific parameters determined in agreement with the competent authority for other forms of sanitising treatment.

The temperature profile during sanitising treatment must be recorded with a permanent and contact-free direct temperature measurement in the material treated and the temperature must be automatically recorded. With respect to enclosed aerobic sanitising treatment, the competent authority may allow the treatment temperature to be measured in the exhaust air stream of the compost material instead of direct temperature measurements. Deviating from

the second sentence the competent authority may allow, in the case of open aerobic sanitising treatment that the treatment temperature has to be measured and documented at regular intervals, at least once per working day. Devices for temperature measurement must be calibrated regularly, at least once per year; the calibration must be documented. If the bio-waste handler ascertains during the process monitoring that the respective process control requirements have not been met, he has to inform the competent authority promptly about this and about the initiated measures. The competent authority shall assign measures to retain any bio-waste that has not been subjected to sufficient sanitising treatment and to remedy any defects if the measures initiated by the bio-waste handlers are insufficient or inappropriate.

(7) The bio-waste handler must allow examinations to be carried out on sanitised bio-waste in accordance with paragraph (4), first sentence, number 3 for every 2,000 tonnes of fresh weight commenced within the framework of the sanitising treatment of used bio-waste, including any materials stated in Annex 1 number 2 in accordance with the provisions of Annex 2 number 3.3. In agreement with the competent agricultural authorities, the competent authority may allow examinations to be carried out only on volumes of sanitised bio-waste exceeding 2,000 tonnes if the composition has not changed or has barely changed according to the type, nature and origin of the bio-waste used. In the event that there is a significant change to the composition according to the type, nature or origin of the bio-waste used, the competent authority may order examinations to be carried out on volumes of sanitised bio-waste which are less than 2,000 tonnes. Without prejudice to the first to third sentences, the bio-waste handler must carry out an examination of the sanitised bio-waste within an interval not exceeding three months. In the event that the limit values stated in accordance with Annex 2 number 4.2.2 or 4.3.2 are exceeded when examining sanitised bio-waste, the bio-waste handler must inform the competent authority promptly of the examination result and of any measures that have been initiated. If the repetition of the examination leads to the same result, or if the limit values are exceeded again in a number of different samples taken, the competent authority shall order measures in order to remedy the defects.

(7a) By way of derogation from paragraph (7), first sentence, bio-waste handlers who handle more than 24,000 tonnes of fresh bio-waste, including any such materials stated in Annex 1 number 2, and who are exempt from providing examination results or proof of documentation in accordance with Section 11 (3), first sentence, may allow examinations to

be carried out on sanitised bio-waste once a month. Paragraph (7), second to sixth sentences, shall apply accordingly.

(8) The examinations during the process inspection in accordance with paragraph (4), first sentence, number 1 and during the tests on sanitised bio-waste in accordance with paragraph (4), first sentence, number 3 must be carried out by independent investigative bodies selected by the competent authority. The bio-waste handler must submit the examination results to the competent authority within four weeks of the implementation of the examination and must retain them for a period of ten years. The records regarding process monitoring and documentation regarding the calibration of temperature measuring devices in accordance with paragraph (6) must be retained by the bio-waste handler for a period of three years and must be submitted to the competent authority on request. If it is ascertained in the examination of the sanitised bio-waste that the limit values for pathogens, viable seeds and budding plant parts have been exceeded, the examination results shall be transmitted by the investigative body promptly to the bio-waste handler, who shall transmit them promptly to the competent authority. The latter shall promptly forward the examination results to the competent agricultural and veterinary technical authority.

(8a) An investigative body in accordance with paragraph (8), first sentence, shall be determined if the applicant has the requisite expertise, independence, reliability and equipment and submits the necessary documents. The determination shall be made by the competent authority of the federal state in which the applicant has its place of business, and shall apply to the entire federal state territory; if there is no domestic place of business, the federal state shall be competent in which the activity in accordance with paragraph (4) is to be primarily exercised. The determination can be subjected to a reserve of revocation, to a sunset clause, to conditions, to instructions and to a reservation of imposing instructions. The competent authority may require from an applicant operating nationally to submit a valid accreditation of compliance with the requirements of DIN EN ISO/IEC 17025:2005 (available from Beuth-Verlag GmbH, 10772 Berlin, and archived in a secure manner at the German National Library in Leipzig) referring to the parameters and examination procedures in accordance with Annexes 2 and 3. Procedures in accordance with this paragraph can be effected via a single agency. The examination of the application to determine an investigative body must be completed within three months; Section 42a (2), second to fourth sentences, of the Administrative Procedure Act shall apply.

(8b) Equivalent recognition from another Member State of the European Union or from another State which is a party to the Agreement on the European Economic Area shall be deemed to be equivalent to determinations in accordance with paragraph (8), first sentence. When examining the application for a determination in accordance with paragraph (8), first sentence, documentation from another Member State of the European Union or from another State which is a party to the Agreement on the European Economic Area shall be deemed to be equivalent to domestic documentation if it reveals that the applicant satisfies the pertinent requirements of paragraph (8a), first sentence, or the requirements of the issuing state which are essentially comparable in terms of their objectives. The original or a copy of the documentation shall be submitted to the competent authority prior to taking up the activity. Certification of the copy, as well as a certified German translation, may be required.

(9) The additional provisions specified in Annex 1 number 1 Column 3 with regard to separate storage, treatment and application of bio-waste shall be observed.

(10) Paragraphs (1) to (9) shall apply analogously to all materials with respect to the common sanitising treatment of bio-waste with materials stated in Annex 1 number 2. If bio-waste which has already been subjected to sanitising treatment with materials stated in Annex 1 number 2 is subjected to any subsequent biologically stabilising treatment, paragraph (4), first sentence, number 3 shall apply provided that any examinations of sanitised bio-waste are only carried out following the biologically stabilising treatment of releasable material. By way of derogation from the second sentence, the examinations of sanitised bio-waste may be carried out following the sanitising treatment of releasable material if the subsequent biologically stabilising treatment of bio-waste which has already been subjected to sanitising treatment is carried out on an agricultural holding together with any biodegradable materials arising there, and the treated materials are applied on self-cultivated farmland.

Section 3a -

Requirements for biologically stabilising treatment -

Unless covered by an exemption in accordance with Section 10 (1) or (2), parties responsible for waste management, producers and owners must supply bio-waste for biologically stabilised treatment prior to any application or production of mixtures. The bio-waste must be biologically stabilised to the extent, taking into account the intended use, that general

welfare is not impaired, particularly as a result of decomposition processes and odour pollution arising from the applied bio-waste or mixtures.

Section 3b -

Treatment of bio-waste on farms with livestock -

(1) On farms with livestock, the movement of animal-origin bio-waste shall only be permitted subsequent to sanitising treatment. If livestock are kept in separate areas on a farm, the first sentence shall only apply to these particular farm areas.

(2) The treatment of animal bio-waste in accordance with Sections 3 and 3a may only be carried out on farms with livestock if the treatment plant is located far enough away from the farm area in which animals are kept so as to ensure protection against the transmission of disease. The farm area used for the treatment of bio-waste, including the acceptance, processing, storage and release of such waste, must be completely separated by the bio-waste handler from animal, feed and bedding areas in order to ensure that the livestock does not come into contact with the animal bio-waste either directly or indirectly. The first and second sentences shall apply analogously to plants used for the treatment of animal bio-waste in farms which are adjacent to other farms or farm areas with livestock.

Section 4 -

Requirements concerning pollutants and additional parameters -

(1) The bio-waste handler may only use bio-waste and materials stated in Annex 1 number 2 from which it can be assumed on the basis of their nature, quality or origin when in unmixed form that they meet the various requirements in accordance with paragraphs (3) and (4) following treatment, and that there is no evidence of elevated levels of pollutants other than those covered by paragraph (3). Materials stated in Annex 1 number 2 may also be used if they meet the requirements of the Fertiliser Ordinance regarding material composition when in fertiliser, soil improver or crop substrate form, and that there is no evidence of elevated levels of pollutants other than those covered by the Fertiliser Ordinance. Contents of the pollutants specified in the first and second sentences shall be deemed to be elevated if they may endanger the health of humans or domestic animals and livestock, the health, growth and quality of crops and the quality and fertility of the soil or ecosystem during the intended use of bio-waste or of materials stated in Annex 1 number 2 in neat form.

(2) The bio-waste handler may only release bio-waste, including any associated treated materials stated in Annex 1 number 2, in accordance with paragraphs (3) to (5) or apply them to self-cultivated farmland.

(3) The following heavy metal concentrations (expressed in milligrams per kilogram of dry matter of the applied material) shall not be exceeded in the case of application in accordance with Section 6 (1), first sentence:

Lead	150
Cadmium	1.5
Chromium	100
Copper	100
Nickel	50
Mercury	1
Zinc	400.

In the case of application in accordance with Section 6 (1), second sentence, the following heavy metal concentrations (expressed in milligrams per kilogram of dry matter of the applied material) shall not be exceeded:

Lead	100
Cadmium	1
Chromium	70
Copper	70
Nickel	35
Mercury	0.7
Zinc	300.

The values for copper and zinc in accordance with the first and second sentences shall be deemed to have been observed if the respective moving average value of the last four examinations carried out in accordance with paragraph (5) is not exceeded and no analytical result exceeds the value by more than 25 per cent. The competent authority for the application area may, in agreement with the agricultural competent authority, permit individual heavy metal concentrations in accordance with the first sentence of this paragraph with the exception of cadmium and mercury if this is not likely to be detrimental to the common good.

(4) The proportion of physical contaminants, in particular glass, plastics and metal, with a screen mesh of more than 2 millimetres, shall not exceed a maximum value of 0.5 per cent in relation to the dry matter of the material that is to be applied. The proportion of stones with a diameter of more than 10 millimetres shall not exceed a maximum value of 5 per cent in relation to the dry matter of the material that is to be applied.

(5) Unless covered by an exemption in accordance with Section 10 (1) or (2), the bio-waste handler must allow examinations to be carried out on treated bio-waste for every 2,000 tonnes of fresh weight commenced within the framework of the treatment of used bio-waste, including any materials stated in Annex 1 number 2, on the following

1. - the content of heavy metals such as lead, cadmium, chromium, copper, nickel, mercury and zinc, as well as
2. - the pH-value value, salt content, organic matter content (loss on ignition), dry residue and percentage of contaminants and stones.

In agreement with the competent agricultural authority, the competent authority may allow examinations to be carried out only on volumes of treated bio-waste exceeding 2,000 tonnes if the composition has not changed or has barely changed in terms of the type, nature and origin of the bio-waste used. In the event that there is a significant change to the composition in terms of the type, nature and origin of the bio-waste used, the competent authority may order examinations to be carried out on volumes of treated bio-waste which are less than 2,000 tonnes. Without prejudice to the first to third sentences, examinations of treated bio-waste must be carried out within an interval not exceeding three months.

(6) By way of derogation from paragraph (5), first sentence, bio-waste handlers who handle more than 24,000 tonnes of fresh bio-waste, including materials stated in Annex 1 number 2, and who are exempt from providing examination results or proof of documentation in accordance with Section 11 (3), first sentence, may allow examinations to be carried out on treated bio-waste once a month. Paragraph (5), second to fourth sentences, shall apply analogously.

(7) The bio-waste handler shall ensure that additional tests are carried out for the unmixed input materials referred to in paragraph (1), first sentence, above in order to determine their concentrations of the heavy metals referred to in paragraph (5), first sentence, number 1 if there is any indication that the requirements laid down in paragraph (3), first sentence, above are not fulfilled. If the results show that the requirements laid down in paragraph (3), first sentence, have not been fulfilled, these results shall be submitted to the competent authority promptly. The competent authority shall decide on any further action. Treatment of the materials in question shall not be permissible until the competent authority has taken its decision. Paragraph (3), fourth sentence, shall apply analogously.

(8) For unmixed input materials stated in paragraph (1) first sentence or treated waste including any associated treated materials stated in Annex 1 number 2, the bio-waste

handler must allow examinations to be carried out for pollutants other than those covered by paragraph (3) if there is evidence of elevated levels of these pollutants within the meaning of paragraph (1), third sentence, in accordance with the type, nature and origin of the unmixed input materials or treated bio-waste. If elevated concentrations of these pollutants are detected, the relevant results shall be promptly submitted to the competent authority. The competent authority shall decide on any further action. Treatment, handover and application of these materials shall not be permissible until the competent authority has taken its decision.

(9) The sampling, sample preparations and examinations in accordance with paragraphs (5) to (8) must be carried out in accordance with the provisions of Annex 3 and by independent investigative bodies selected by the competent authority. The bio-waste handler must compile the examination results, and must submit them to the competent authority twice a year. The examination results must be retained for a period of ten years. If it is ascertained in the examination of the treated bio-waste that the limit values for pollutants in accordance with paragraph (3) have been exceeded, the investigation results shall be promptly forwarded by the investigative body to the bio-waste handler, and the latter shall promptly forward them to the competent authority.

(10) Section 3 (8a) and (8b) shall apply analogously to the determination of an investigative body in accordance with paragraph (9), first sentence.

Section 5 -

Requirements concerning mixtures -

(1) The mixture manufacturer may use treated bio-waste, or untreated bio-waste in accordance with Section 10, sanitised or biologically stabilised bio-waste as well as materials stated in Annex 1 number 2 from which in unmixed form it can be assumed on the basis of their nature, quality or origin that they meet the requirements in accordance with Section 4 (3) and (4), and that there is no evidence of elevated levels of pollutants other than those covered by Section 4 (3). Materials stated in Annex 1 number 2 may also be used if they meet the requirements of the Fertiliser Ordinance regarding material composition when in fertiliser, soil improver and crop substrate form, and that there is no evidence of elevated levels of pollutants other than those recorded in the Fertiliser Ordinance. Section 4 (1), third sentence, shall apply analogously.

(2) The mixture manufacturer may only release mixtures in accordance with the second to fourth sentences, or apply them to self-cultivated farmland. Section 4 (3) to (6) and (9) shall apply analogously. Section 4 (4), second sentence, shall apply on the basis that the proportion of stones relates to the bio-waste used for mixtures. Section 4s (5) and (6) shall apply on proviso that mixture examinations are to be carried out for every 2,000 tonnes of mixture produced.

(3) The mixture producer shall ensure that additional tests are carried out for the unmixed materials referred to in paragraph (1) in order to determine their concentrations of the heavy metals referred to in Section 4 (5), first sentence, number 1 if there is any indication that the requirements laid down in Section 4 (3), first sentence, are not fulfilled. Section 4 (7), second to fifth sentences, and paragraph (9), shall apply analogously.

(4) For the unmixed materials referred to in paragraph (1) or for the mixtures in accordance with paragraph (2) the mixture producer has to make sure that appropriate tests for other pollutants than those covered by Section 4 (3) are carried out if there is in particular the nature, characteristics or origin of the material any indication that there might be elevated concentrations of other pollutants within the meaning of Section 4 (1), third sentence. Section 4 (8), second to fourth sentences, and paragraph (9), shall apply analogously.

(5) The supplementary provisions stated in Annex 1 numbers 1 and 2 in the respective Column 3 for the separate storage, treatment and use of input materials as well as the application of mixtures must be observed.

Section 6 -

Restrictions and prohibitions concerning application -

(1) Without prejudice to fertiliser regulations, no more than 20 tonnes of dry matter bio-waste or mixtures per hectare may be applied on soils within a period of three years. The permitted application amount in accordance with the first sentence can be up to 30 tonnes per hectare within a period of three years if the heavy metal concentrations measured in accordance with Section 4s (5) and (6) or Section 5 (2) do not exceed the limit values specified in Section 4 (3), second sentence. The competent authority which is responsible for the application area may, in agreement with the competent agricultural authority, allow further exceptions in individual cases if the heavy metal limit values stated in Section 4 (3),

second sentence, have been fallen far short of and no impairment to general welfare is to be expected.

(2) The application onto soil of bio-waste other than that stated in Annex 1 number 1, or of mixtures containing such bio-waste, shall require the approval of the competent authority for the bio-waste treatment plant or mixture production plant in agreement with the competent agricultural authority. Before giving its approval in agreement with the agricultural competent authority, the competent authority shall order the parties subject to the provisions of Section 4 (2) and Section 5 (2) to carry out tests for other pollutants within the meaning of Section 4 (8), first sentence, taking into account the nature, characteristics or origin of the bio-waste, and to submit the results thereof.

(2a) Only bio-waste subject to aerobic sanitising treatment and mixtures containing such bio-waste may be applied on tobacco fields, tomato crops in the field as well as on vegetable and ornamental plant species in greenhouse cultivation areas.

(2b) Bio-waste and mixtures may only be provided either on or close to the application area provided this is necessary for application purposes.

(3) Application of bio-waste and mixtures to soils used for silvicultural purposes shall only be permissible in justified exceptional cases, after obtaining prior permission from the competent authority in agreement with the forestry competent authority.

Section 7

Additional requirements for application on permanent grassland and on land used for field forage and field vegetable cropping

(1) Only bio-waste and mixtures listed in Annex 1 number 1 Column 3 and Annex 1 number 2 Column 3 with a reference to this sentence may be applied to grassland areas and multiple-tiller land used for field forage. In other respects, bio-waste and mixtures may be applied to land used for field forage if they are applied prior to cultivation of the field forage and are incorporated.

(2) Bio-waste and mixtures may be applied on field vegetable areas if they are applied prior to cultivation of the field vegetables and are incorporated.

(3) With respect to their application on grassland areas or land used for field forage cropping, bio-waste and mixtures must not contain any objects that can cause injuries to pets and livestock as a result of ingestion.

(4) If animal bio-waste or mixtures containing such bio-waste are applied on grassland areas or land used for field forage cropping, the area may only be grazed by livestock, or food may only be produced, after a period of 21 days following the application. The competent authority for the application area may extend the period of time in accordance with the first sentence if this is necessary in order to prevent any risks to human or animal health.

Section 8 -

Coincidence of the application of bio-waste and sewage sludge -

Within the period of time specified in Section 6 (1), it shall only be permissible, to apply on the same plot of land only bio-waste and mixtures in accordance with the ordinance or sewage sludge in accordance with the Sewage Sludge Ordinance.

Section 9 -

Soil analysis -

(1) Within two weeks of the first application of bio-waste or mixtures taking place after 1 October 1998, the party managing a given plot of land or any third party acting on its behalf shall specify to the competent authority the receiving plot of land. The competent authority shall notify the agricultural competent authority of such plots of land.

(2) When first applying bio-waste or mixtures, a soil examination shall be carried out for heavy metals in accordance with Section 4 (5), first sentence, number 1 and for the pH-value. The results of the soil examination shall be submitted to the competent authority at the latest three months after application. If a valid soil analysis has been carried out for the application area in accordance with the Sewage Sludge Ordinance, this may be used accordingly. The first sentence shall not apply to the application of bio-waste and mixtures released by bio-waste handlers and producers of mixtures which are exempted in accordance with Section 11 (3), first sentence, from providing examination results or proof of documentation. If there is evidence that the soil values of an application area exceed the precautionary levels for soils in accordance with Annex 2 number 4.1 conjunction with number 4.3 of the Federal Soil Protection and Contaminated Sites Ordinance of 12 July 1999

(Federal Law Gazette Part I p. 1554), most recently amended by Article 16 of the Act of 31 July 2009 (Federal Law Gazette Part I p. 2585), the competent authority shall prohibit the renewed application of bio-waste or mixtures in agreement with the competent agricultural authorities. Sampling, preparation of samples and investigation shall be effected in accordance with Annex 1 of the Sewage Sludge Ordinance of 15 April 1992 (Federal Law Gazette Part I p. 912), most recently amended by Article 9 of the ordinance of 9 November 2010 (Federal Law Gazette Part I p. 1504), and by an independent investigating body to be designated by the competent authority.

(2a) Section 3 (8a) and (8b) shall apply analogously to determining an investigating body in accordance with paragraph (2), sixth sentence.

(3) The competent authority for the application area may, in agreement with the competent agricultural authorities, allow a number of exceptions in individual cases to examination requirements in accordance with paragraph (2) if bio-waste or mixtures are applied within the meaning of Section 6 (1), third sentence.

(4) Where the heavy metal content of the soil is elevated for geogenic reasons, the competent authority may, in agreement with the competent agricultural authority, permit bio-waste or mixtures to also be applied to soils in the context of regional recovery where the values designated in paragraph (2) are exceeded if this is not likely to be detrimental to the common good. The first sentence shall not apply to cadmium.

Section 9a -

Additional requirements for the recovery of specific types of bio-waste -

(1) Parties responsible for waste management, producers and owners may only release bio-waste stated in Annex 1 number 1(b) or apply such bio-waste to self-cultivated farmland with the consent of the competent authority. The bio-waste must be notified to the competent authority in terms of the type, nature, source and collection point prior to the first release or application to self-cultivated farmland, as well as in the event that there is a significant change to the composition in terms of type, nature and origin. In order to assess the suitability of this bio-waste for recovery purposes, the competent authority may require examination results to be submitted regarding heavy metal and contaminants contents in accordance with Section 4 (3) and (4), pollutants other than those covered by Section 4 (3) and additional ingredients, as well as additional documents. The approval of the competent

authority shall not be required for producers if they do not account for a total of more than two tonnes of the bio-waste designated in Annex 1 number 1 (b) (small quantities) per year.

(2) In order to provide information in accordance with paragraph (1), second and third sentences, the disposal certificate cover sheet (DEN), declaration of responsibility (VE), and declaration analysis (DA) forms of Annex 1 to the Ordinance on Waste Recovery and Disposal Records of 20 October 2006 (Federal Law Gazette Part I p. 2298), amended by Article 4 of the Act of 19 July 2007 (Federal Law Gazette Part I p. 1462), must be used. The approval of the competent authority in accordance with paragraph (1), first sentence, is provided using the official confirmation form (BB) of Annex 1 to the Ordinance on Waste Recovery and Disposal Records. Section 28 of the Ordinance on Waste Recovery and Disposal Records shall apply accordingly to the required identification numbers.

(3) The obligated parties in accordance with paragraph (1), first sentence, must hand over a copy of the completed forms in accordance with paragraph (2), first and second sentences, to the bio-waste handler or collector once during the period in which the authority's approval is in force for the first release of bio-waste, or to the mixture manufacturer or farmer in accordance with Section 10 when treating exempted waste.

Section 10

Exemption from the requirements on the treatment and examination of certain types of bio-waste

(1) Bio-waste may be released in unmixed format, used for mixture production purposes or applied insofar as it is listed in Annex 1 number 1 Column 3 and reference is made to one of the following numbers

1. - even without treatment, without sanitising treatment or without biologically stabilising treatment in accordance with Sections 3 and 3a, as well as
2. - in treated form, in sanitising treatment, biologically stabilising treatment or untreated form even without examinations in accordance with Sections 3 and 4.

(2) The competent authority may, in agreement with the competent agricultural authorities, permit a number of exemptions in the context of regional recovery in accordance with paragraph (1) in individual cases for other types of unmixed, homogenous bio-waste. The exemption of treatments in accordance with Sections 3 and 3a may be granted if it can be assumed on the basis of the nature, quality or origin of bio-waste that the requirements

stipulated in Sections 3 and 4 on hygiene, as well as with respect to pollutants and contaminants, are satisfied and that general welfare within the meaning of Section 3a (1), second sentence, is not impaired. The exemption of examination requirements for treated bio-waste, bio-waste subject to sanitising treatment, bio-waste subject to biologically stabilising treatment or untreated bio-waste may only be granted if it can be assumed on the basis of the nature, quality or origin of bio-waste that the various requirements stipulated in Sections 3 and 4 on hygiene as well as with respect to pollutants and contaminants are met. Prior to allowing any exemption of treatments and examinations in accordance with Sections 3, 3a and 4, the competent authority may request that sanitary safety is demonstrated by way of examinations in line with examinations of sanitised bio-waste in accordance with Section 3 (4), first sentence, number 3, Section 3 (4), second sentence, and Section 3 (8), first sentence, as well as the heavy metal contents and contents of other pollutants by way of examinations in accordance with Section 4 (5), Section 4 (8) and Section 4 (9), first sentence. The exemption can be revoked at any time.

(3) Unless covered by an exemption under paragraph (1) or (2), the following provisions shall apply analogously to the release, use for mixture production purposes and application of untreated bio-waste:

1. - for the examination of sanitised bio-waste in accordance with Section 3 (4), first sentence, number 3, Section 3 (4), second sentence, Section 3 (7) and Section 3 (8), first and second sentences,
2. - for examinations in accordance with Section 4 (5), (6), (8) and (9), as well as
3. - for documentation and notification requirements in accordance with Section 11 (1), first and second sentences, Section 11 (1b), second and third sentences, Section 11 (2) and Section 11 (2a), first and third sentences.

The bio-waste handler obligations arising from the first sentence must be met by the parties responsible for waste management, producers and owners of bio-waste. When applying untreated bio-waste requiring approval in accordance with Section 9a, the retention and reporting requirements in accordance with Section 11 (1b), second and third sentences, must be satisfied by the farmer of the application area by using a copy of the complete forms in accordance with Section 9a (3).

(4) Unless covered by an exemption under paragraph (1) or (2), the provisions regarding the examination of sanitised bio-waste in accordance with Section 3 (4), first sentence, number 3, Section 3 (4), second sentence, Section 3 (7) and (8), first and second sentences, shall apply accordingly to the release, use for mixture production purposes and application of bio-

waste subjected exclusively to biologically stabilised treatment. The obligations arising from the first sentence must be met by the bio-waste handler who conducts the biologically stabilised treatment of bio-waste.

**Section 11 -
Obligations to provide proof -**

(1) The bio-waste handler must list the materials used during treatment in terms of the type, source, amount and collection point, from the original collection point to the last owner, as well as divided into batches of treated waste in accordance with the second and third sentences. Each batch of treated bio-waste must be provided with a consecutive batch number, which must at least contain the year and month of treatment as well as consecutive numbering for the treatment year. If it is a treatment plant with a continuous supply and removal of the treated material, the competent authority shall determine a specific period of time in which the bio-waste handler needs to provide batches in accordance with the second sentence. If the bio-waste handler uses materials already subjected to sanitising treatment or biologically stabilising treatment during treatment, he must list them within the meaning of the first sentence along with details of the previous bio-waste handler in accordance with paragraph (2), second sentence. If the materials are delivered to the bio-waste handler by a collector, the latter must list the collected materials in accordance with the first sentence which are divided into the deliveries, and must indicate this to the bio-waste handler in terms of the type and amount. In the case of the fourth and fifth sentences, the documentation requirement for collection points in accordance with the first sentence shall not apply to the bio-waste handler.

(1a) The mixture manufacturer must list the materials used during the mixing process which are divided up in accordance with batches of manufactured mixtures within the meaning of paragraph (1), first sentence. Paragraph (1), second, fourth to sixth sentences, shall apply analogously.

(1b) The obligated parties in accordance with paragraphs (1) and (1a) must attach the delivery notes, commercial documentation or other appropriate documentation received upon handover of materials, as well as a copy of the completed forms in accordance with Section 9a (3), to the lists. They must retain the lists and accompanying documents for a period of ten years starting from the time when the lists are drawn up. These lists and documents must be submitted to the competent authority upon request.

(2) For each release of bio-waste or mixtures to be applied on land, bio-waste handlers and mixture manufacturers must issue a delivery note in accordance with Annex 4 along with details in accordance with the second sentence, and must hand it over to the farmer of the application area or an interim distributor. The delivery note must contain the following information:

1. - name and address of the releasing bio-waste handler or mixture manufacturer (issuer),
2. - name and address of the party farmer of the application area or interim distributor,
3. - batch number and quantity supplied,
4. - release as untreated bio-waste, as bio-waste subjected to sanitising treatment or biologically stabilising treatment, as treated bio-waste or as a mixture, as well as a description of the bio-waste or mixture in accordance with the type of unmixed materials used,
5. - assurance of compliance with the requirements
 - a) for epidemic and phytosanitary safety in accordance with Section 3 paragraphs (2) and (3), as well as
 - b) - for the heavy metal contents in accordance with Section 4 (3), also read in - conjunction with Section 5 (2), second sentence, -
6. - measured heavy metal contents and measured pH value, salt content, loss on ignition, dry residue, and percentage of contaminants and stones in accordance with Section 4 paragraphs (5) and (6), also read in conjunction with Section 5 (2), second and fourth sentences; justification if individual examinations of additional parameters stated in Section 4 (5), first sentences, number 2, are not feasible for untreated bio-waste, bio-waste subjected to sanitising treatment or biologically stabilising treatment,
7. - investigative bodies and implementation times for examinations in accordance with Section 3 (4), first sentence, number 3, Section 3 paragraphs (7), (7a) and (8) and Section 4 paragraphs (5), (6) and (9), also in conjunction with Section 5 (2), second and fourth sentences,
8. - maximum permitted application amount in accordance with Section 6 (1), first, second or third sentence,
9. - permissibility of application on grassland and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence,
10. - date of release and acceptance as well as signatures of the releasing bio-waste handler or mixture manufacturer (issuer) and of the farmer of the application area or interim distributor.

The information in accordance with the second sentence, numbers 5-7 shall not be necessary provided that Sections 3, 3a, and 4 do not apply in accordance with Section 10. The interim distributor must supplement the information in accordance with the second sentence, numbers 2 and 10 contained in the original delivery note prior to the release of the materials, and must hand over the delivery note to the farmer of the application area or to another interim distributor.

(2a) The bio-waste handlers, mixture manufacturers and interim distributors who release the bio-waste and mixtures to the farmer of the application area must send a copy of the completed delivery note to the competent authority for the application area and to the competent agricultural authorities promptly after any such release. The farmer of the application area must enter an unambiguous identification for the application area in the original delivery note along with information on the district, field and parcel number or alternative box number and the size in hectares, as well as the soil sample in accordance with Section 9 (2), and must send a copy of the fully completed delivery note to the competent authority for the application area and the competent agricultural authorities promptly after any such application. The bio-waste handler, mixture manufacturer, interim distributor and the farmer of the application area must retain any copies that they have of the delivery note for a period of ten years starting from when the copy is sent to the competent authority.

(3) The competent authority may exempt bio-waste handlers and mixture manufacturers from the need to submit examination results in accordance with Section 3 paragraphs (4) and (8), Section 4 paragraphs (5) and (9), also read in conjunction with Section 5 (2), second sentence, as well as from the delivery note procedure in accordance with paragraph (2); an exemption from individual requirements may also be granted. With respect to the treatment plant or mixture production plant, an exemption in accordance with the first sentence may only be granted if the bio-waste handler or mixture manufacturer is a member of a regular quality control institution (quality association) whose provisions are complied with in terms of binding and continuous quality assurance, and if the treatment plant or mixture production plant

1. - is certified as a specialist disposal undertaking, or
2. - is registered in the EMAS Register as an EMAS site in accordance with Section 32 (1), first sentence, of the Environmental Audit Act in the version promulgated on 4 September 2002 (Federal Law Gazette Part I p. 3490), most recently amended by

Article 1 of the Act of 6 December 2011 (Federal Law Gazette Part I p. 2509); the registration must be notified to the competent authority.

The competent authority may, in agreement with the competent agricultural authority, also make use of the provision stated in the first sentence for bio-waste handlers and mixture manufacturers that are members of a quality association, but which do not satisfy the conditions of the second sentence, numbers 1 or 2. The competent authority may, in agreement with the competent agricultural authority, also make use of the provisions stated in the first sentence for bio-waste which is exempt from the treatment and examination requirements in accordance with Section 10 paragraphs (1) or (2).

(3a) With respect to an exemption from the delivery note procedure in accordance with paragraph (3), first sentence, bio-waste handlers and mixture manufacturers must label quality-assured bio-waste and mixtures, as well as the bio-waste which is exempted from the treatment and examination requirements in accordance with Section 10 (1) or (2), with the following information when releasing them:

1. - name and address of the releasing bio-waste handler or mixture manufacturer, as well as certification mark from the quality association,
2. - batch number,
3. - release as untreated bio-waste, as bio-waste subjected to sanitising treatment or biologically stabilising treatment, as treated bio-waste or as a mixture,
4. - maximum permitted application amount in accordance with Section 6 (1), first, second or third sentence,
5. - permissibility of applications on grassland and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence.

Bio-waste handlers and mixture manufacturers who are exempt from the delivery note procedure, and who release quality-assured bio-waste and mixtures to the farmers of the application areas, must submit evidence detailing the past 12 months to the competent authority for the application area once a year which must contain the following information:

1. - name and address of the releasing bio-waste handler or mixture manufacturer,
2. - name and address of the user,
3. - released amount in tonnes of dry matter (t DM),
4. date of release.

The second sentence shall apply analogously to interim distributors who release quality-assured bio-waste and mixtures from bio-waste handlers and mixture manufacturers who are exempt from the delivery note procedure to the farmers of the application area; in such cases the name and address of the bio-waste handler or mixture manufacturer who is a

member of a quality association, including all interim distributors, must be specified in addition to number 1. Evidence must be retained for a period of ten years. The competent authority for the application area may request bio-waste handlers, mixture manufacturers, interim distributors or the regular quality control institution to submit examination results in accordance with Section 3 paragraphs (4) and (8) and in accordance with Section 4 paragraphs (5) and (9), also read in conjunction with Section 5 (2), second sentence, and other appropriate evidence, and may revoke the exemption or reduce the period of time available for the submission of evidence in accordance with the second sentence, also in agreement with the third sentence. Promptly after the application of quality-assured bio-waste and mixtures from bio-waste handlers and mixture manufacturers who are exempt from the delivery note procedure, the farmer of the application area must document the materials applied, the volumes applied in tonnes of dry matter (t DM) and the unique identification for the application area along with information on the district, field and parcel number or alternative box number and the size in hectares, and must submit the documentation to the competent authority upon request.

(4) The provisions of the Ordinance on Waste Recovery and Disposal Records, with the exception of Section 2 (1) number 2 and Section 23 number 2 thereof, shall not apply to the recovery of bio-waste subject to the provisions of this ordinance.

Section 12 -

Exemptions for small plots of land -

Section 9 paragraphs (1) and (2) and Section 11 (2a), second sentence, shall not apply if treated or untreated bio-waste or mixtures are to be applied on land belonging to any farmers managing a surface totalling less than one hectare of land for agricultural or horticultural purposes. Section 11 (2a), third sentence, and Section 11 (3a), sixth sentence, shall not apply to the farmers of such plots of land.

Section 12a -

Electronic data processing and transmission -

The documentation and evidence stipulated in this ordinance may be compiled with the assistance of electronic data processing, and may be submitted or transmitted electronically or in electronic format with the consent of the competent authority.

**Section 13 -
Regulatory offences -**

(1) A regulatory offence within the meaning of Section 69 (1) number 8 of the Closed Substance Cycle and Waste Management Act shall refer to any person who deliberately or negligently

1. - does not supply bio-waste at all, correctly or in a timely manner for treatment contrary to Section 3 (1) or Section 3a (1), first sentence,
2. - does not carry out sanitising treatment at all or correctly contrary to Section 3 (3), first sentence,
3. - applies bio-waste contrary to Section 3b (1), first sentence,
4. - does not an operating area designated therein at all or correctly contrary to Section 3b (2), second sentence,
5. - applies bio-waste or a mixture without approval contrary to Section 4 (2) or Section 5 (2), first sentence,
6. - does not carry out an examination at all or in a timely manner contrary to Section 4 (7), first sentence, or Section 4 (8), first sentence, also read in conjunction with Section 10 (3), first sentence, number 2 and second sentence, or Section 5 (3), first sentence, or Section 5 (4), first sentence,
7. - applies bio-waste or a mixture contrary to Section 6 (1), first sentence, or Section 6 (2a) or Section 7 (1), first sentence,
8. - applies bio-waste or a mixture without approval contrary to Section 6 (2), first sentence,
9. - applies bio-waste or a mixture and sewage sludge on the same area contrary to Section 8,
10. - contravenes an enforceable order in accordance with Section 9 (2), fifth sentence, or
11. - releases or applies bio-waste without approval in accordance with Section 9a (1), first sentence.

(2) A regulatory offence within the meaning of Section 69 (2) number 15 of the Closed Substance Cycle and Waste Management Act shall refer to any person who deliberately or negligently

1. - does not inform the authority at all or correctly, completely or in good time contrary to Section 3, (6), sixth sentence,
2. - contrary to

- a) - Section 3 (8), second sentence, also read in conjunction with Section 10 (3), first sentence, number 1 and Section 10 (3), second sentence, or paragraph (4),
 - b) Section 3 (8), third sentence, or
 - c) Section 4 (9), second sentence, also read in conjunction with Section 5 (2), second sentence, or Section 10 (3), first sentence, number 2 and the second sentence, does not submit the results of an examination, records or documentation at all, completely or in good time,
3. - contrary to Section 3 (8), fourth sentence, or Section 4 (9), fourth sentence, does not forward the results of an examination at all, correctly, completely or in good time or does not pass them on at all, correctly, completely or in good time,
4. - does not provide information at all, correctly or in a timely manner contrary to Section 9 (1), first sentence,
5. - does not list the stated materials at all, correctly or completely contrary to
- a) Section 11 (1), first sentence, also in conjunction with Section 10 (3), first sentence, number 3 and the second sentence,
 - b) Section 11 (1), fourth or fifth sentence, also in conjunction with paragraph (1a), second sentence, or -
 - c) Section 11 (1a), first sentence, -
6. - does not retain a list or documentation for a period of at least ten years contrary to Section 11 (1b), second sentence, also read in conjunction with Section 10 (3), first sentence, number 3 and the second sentence,
7. - acts in contravention of an enforceable order in accordance with Section 11 (1b), third sentence, also read in conjunction with Section 10 (3), first sentence, number 3, and the second sentence,
8. - does not hand over a delivery note at all, correctly, completely or in a timely manner, does not submit a copy of the delivery note to the stated authority at all, correctly, completely or in a timely manner, or does not retain a copy of the delivery note at all or for a period of at least 10 years contrary to Section 11 (2), first or fourth sentence, or paragraph (2a) first or third sentence, in each case also read in conjunction with Section 10 (3), first sentence, number 3 and the second sentence,
9. - does not submit a copy of the delivery note to the stated authority at all, correctly, completely or in a timely manner contrary to Section 11 (2a), second sentence, or
10. - does not provide documentation at all, correctly, completely or in a timely manner contrary to Section 11 (3a), sixth sentence.

Section 13a

Provisions for existing plants

(1) With respect to existing plants in place on 1 May 2012 in which bio-waste exempt from the treatment requirements in accordance with Section 10 (1) in the version applicable up until this date was introduced, and which are continued as treatment plants for sanitation purposes, a process inspection in accordance with Section 3 (4), first sentence, number 1 and Section 3 (4), second sentence, must be carried out within a period of 18 months after 1 May 2012. The first sentence shall not apply if a hygiene inspection was carried out or started after 30 September 1993 for the plant or the procedure used in accordance with the provisions for the process inspection or in accordance with comparable provisions, and is completed within a period of 12 months after 1 May 2012. In case of the second sentence, the bio-waste handler must submit the examination results from the hygiene inspection in accordance with the provisions for the process inspection, or evidence of the comparability of the hygiene inspection and examination results for this hygiene inspection, to the competent authority within a period of three months after 1 May 2012, and must retain them for a period of ten years; with respect to hygiene inspections that have already commenced, the evidence and the examination results must be submitted within a period of three months after completion of the inspection and retained for a period of ten years. The competent authority may, in agreement with the competent agricultural authority, permit a conformity assessment carried out by a member of a quality association between 1 October 1998 and 1 May 2012 within the framework of the quality assurance process in place of the hygiene inspection in accordance with the first sentence or 2 for treatment plants in accordance with the first sentence belonging to bio-waste handlers who have met the conditions of Section 11 (3), second or third sentence. The conformity assessment must provide proof that the treatment plant or the sanitation procedure used is in line with a certified plant or a certified procedure in accordance with the provisions for the process inspection or in accordance with a number of comparable provisions. The approval may only be granted provided there is no expected impact on epidemic and phytosanitary safety issues in terms of the type, nature and origin of the bio-waste used, including materials designated in Annex 1 number 2.

(2) With respect to existing pasteurisation plants in place on 1 May 2012 which are continued as treatment plants for sanitation purposes, technical acceptance must be carried out in accordance with Section 3 (4), first sentence, number 1, and Section 3 (4), second sentence, within a period of 12 months after 1 May 2012. The first sentence shall not apply if technical acceptance was carried out for the plant or procedure used in accordance with

the provisions of Section 3 (4), first sentence, number 1 and Section 3 (4), second sentence, or in accordance with comparable provisions. In case of the second sentence, the bio-waste handler must submit the certificate of technical acceptance in accordance with the provisions of this ordinance, or evidence of the comparability of technical acceptance, to the competent authority within a period of three months after 1 May 2012 and must retain them for a period of ten years.

(3) With respect to existing plants in place on 1 May 2012, the bio-waste handler must comply with the process monitoring requirements and examinations of sanitised bio-waste in accordance with Section 3 (4), first sentence, numbers 2 and 3 and Section 3 (4), second sentence, after no more than 12 months.

Section 13b

Transitional provisions for existing and comparable hygiene inspections as well as for applicable exceptional approvals

(1) Direct process inspections that were carried out before 1 May 2012 in accordance with Section 3 (4), first sentence, number 1 in the version applicable up until this date shall continue to apply as process inspections within the meaning of Section 3 (4), first sentence, number 1 to sanitisation treatment plants until they expire, but at most until the use of a new procedure or significant technical change to the procedure or process management. Hygiene inspections that are comparable with direct process inspections which were carried out before 1 May 2012 in accordance with Section 3 (5), third sentence, and Section 3 (8), third sentence, in the version applicable up until this date for existing plants, and which were notified to the competent authority, shall continue to apply as process inspections within the meaning of Section 3 (4), first sentence, number 1 to sanitisation treatment plants until they expire, but at most until the use of a new procedure or significant technical change to the procedure or process management.

(2) Exceptional approvals that were granted before 1 May 2012 in accordance with Section 3 (3), second sentence, in the version applicable up until this date, and which were based on the provisions contained in Annex 2 for the direct process inspection of treatment plants, shall continue to apply until they expire, but at most until the use of a new procedure or significant technical change to the procedure or process management. Exception approvals that were granted before 1 May 2012 in accordance with Section 3 (3), second sentence, in the version applicable up until this date, and which were based on the

provisions contained in Annex 2 for the indirect process inspection and final inspection of treated bio-waste for treatment plants, should subsequently be limited by the competent authority to a maximum period of twelve months; once this period expires, the requirements for process monitoring and examinations of sanitised bio-waste must be complied with in accordance with Section 3 (4), first sentence, numbers 2 and 3 and Section 3 (4), second sentence.

**Section 14 -
(Entry into force) -**

Annex 1

(in relation to Section 2 paragraphs (1), (4) and (5), Section 3 paragraphs (3), (7), (7a), (9) and (10) Section 4 paragraphs (1), (2), (5), (6) and (8), Section 5 paragraphs (1) and (5), Section 6 (2), Section 7 (1), Section 9a (1), Section 10 (1), Section 13a (1))

List of bio-waste suitable for recovery on surfaces and other suitable waste, biodegradable materials and mineral substances

1. - Bio-waste in accordance with Section 2 number 1

a) - Bio-waste which does not require approval for recovery in accordance with Section 9a

Waste designation in accordance with AVV system¹ (in brackets: waste code)	Suitable waste² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading¹)
Sludges from washing and cleaning (02 01 01)	– Fish pond sludge, fish pond sediment and filter sludge from the circulatory systems of fish production	(Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing) The materials are deemed to be suitable waste in accordance with Column 2 if they have not been mixed with waste water or sludge at the collection point outside of the specific production. The materials are deemed to be exempt from the treatment and examination requirements in accordance with Section 10 (1) numbers 1 and 2 when applied within the framework of regional recovery.
Plant-tissue waste (02 01 03)	– Hemp and flax – Coconut fibres – Horticultural vegetable waste – Water maintenance vegetable waste – Agricultural vegetable waste – Fish farm and fishery vegetable waste – Vegetable filter materials from biological air purification – Reed – Husks, husk dust and grain	(Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing) Vegetable filter materials from biological air purification are deemed to be suitable waste in accordance with Column 2 if they occur in the production and processing of food and feed, animal by-products and stables. The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with

Waste designation in accordance with AVV system ¹ (in brackets: waste code)	Suitable waste ² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading ¹)
	dust	Section 7 (1), first sentence, as part of a mixture as well; this does not include vegetable filter materials from biological air purification.
Waste plastics (except packaging) (02 01 04)	– Biodegradable materials (plastics) mainly arising from renewable resources	<p>(Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing)</p> <p>Suitable waste in accordance with Column 2 includes, for example, covering films.</p> <p>The materials are deemed to be suitable waste in accordance with Column 2 if they are certified to DIN EN 13432 (December 2000-12) and DIN EN 13432 Amendment 2 (October 2007-10) or DIN EN 14995 (March 2007-03).</p> <p>The materials shall be exempt from the treatment and examination requirements in accordance with Section 10 (1) numbers 1 and 2 if they are incorporated into the soil at the collection point.</p>
Animal faeces, urine and manure (including spoiled straw), effluent, collected separately and treated off-site (02 01 06)	<ul style="list-style-type: none"> – Used straw – Animal faeces, including with litter 	<p>(Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing)</p> <p>The provisions of this ordinance shall only apply to animal faeces, including with litter, to the extent they are not subject to Regulation (EC) No 1069/2009 as animal by-products (manure from farm animals)³.</p> <p>Infectious materials are not deemed to be suitable waste in accordance with Column 2.</p> <p>Used straw and animal faeces, including with litter, that are recorded separately or mixed together are exempt from the treatment and examination</p>

Waste designation in accordance with AVV system ¹ (in brackets: waste code)	Suitable waste ² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading ¹)
		<p>requirements in accordance with Section 10 (1) numbers 1 and 2 when applied within the framework of regional recovery.</p> <p>The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.</p>
<p>Wastes from forestry (02 01 07)</p>	<p>– Forestry vegetable waste</p>	<p>(Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing)</p> <p>Natural forestry vegetable waste, including any waste that is processed in unmixed form, is exempt from the treatment requirements in accordance with Section 10 (1) number 1.</p> <p>Within the framework of composting, the materials must be crushed in such a way, or the compost must be sieved in such a way, that there are no solid materials in the compost which are larger than 40 mm (screen mesh).</p> <p>The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.</p>
<p>Wastes not otherwise specified (02 02 99)</p>	<p>– Vegetable filter materials from biological air purification</p>	<p>(Wastes from the preparation and processing of meat, fish and other foods of animal origin)</p> <p>Vegetable filter materials from biological air purification are deemed to be suitable waste in accordance with Column 2 if they occur in the production and processing of food and feed and animal by-products.</p>

Waste designation in accordance with AVV system¹ (in brackets: waste code)	Suitable waste² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading¹)
Wastes from solvent extraction (02 03 03)	– Vegetable residues from extraction with alcohol	(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) The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.
Materials unsuitable for consumption or processing (02 03 04)	<ul style="list-style-type: none"> – Used flour – Fermentation residues from enzyme and vitamin production – Grain waste – Yeast and yeast-like residues – Coconut fibres – Residues from molasses – Oilseed residues – Vegetable amino acids – Vegetable oils and fats – Extracted rapeseed, rapeseed expeller – Castor – Residues from potato, corn or rice starch production – Residues from the preparation and processing of coffee, tea and cocoa – Residues from the preparation and processing of fruit, vegetables and cereals – Residues from the production of tinned food – Residues from spices and vegetable seasonings – Residues from potato peeling plants 	(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) The provisions of this ordinance shall only apply to superimposed food, residues from the production of tinned food and superimposed luxury food items of animal origin if these items or indeed other essential material components are not subject to Regulation (EC) No 1069/2009 ³ . Fermentation residues from vitamin production are deemed to be suitable waste in accordance with Column 2 if they arise during the production of vitamin B2. The recovery of vegetable oils and fats is only permissible with anaerobic treatment. Castor is deemed to be suitable waste in accordance with Column 2 if it displays acceptable levels of ricin (no acute oral toxicity when

Waste designation in accordance with AVV system¹ (in brackets: waste code)	Suitable waste² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading¹)
	<ul style="list-style-type: none"> - Husks, husk dust and grain dust - Tobacco dust, slack and stems - Superimposed luxury food items - Superimposed food - Used filter and extraction masses (activated earth, fat-reduced, cellite, washed diatomite, perlite) - Vinasses and vinasse residues - Rejected cigarette batches 	<p>ingesting up to 2,000 mg of castor/kg body weight of rats). Castor must be treated using agents (denaturing) in such a way that it cannot be ingested by animals; it must not be mixed with substances which are likely to tempt animals to ingest them.</p> <p>Separately collected washed diatomite is exempt from the treatment and examination requirements in accordance with Section 10 (1) numbers 1 and 2 when applied within the framework of regional recovery. Washed diatomite and mixtures containing washed diatomite must not be applied in dried condition, and must be incorporated into the soil straight away when applied.</p> <p>Rejected cigarette batches are deemed to be suitable waste in accordance with Column 2 if they do not contain any filters or packaging.</p> <p>The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well; this does not include fermentation residues from enzyme and vitamin production, vegetable amino acids, castor, residues from the preparation and processing of coffee, tea and cocoa, tobacco dust, slack and stems, washed diatomite and rejected cigarette batches.</p>
Wastes not otherwise specified	<ul style="list-style-type: none"> - Filter materials of plant origin from biological air purification 	(Wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco

Waste designation in accordance with AVV system¹ (in brackets: waste code)	Suitable waste² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading¹)
(02 03 99)		preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation) Vegetable filter materials from biological air purification are deemed to be suitable waste in accordance with Column 2 if they occur in the production and processing of food and feed and animal by-products.
Wastes not otherwise specified (02 04 99)	<ul style="list-style-type: none"> – Residues from molasses – Vegetable filter materials from biological air purification – Pressed, wet and dried pulp – Turnip sundries and sugar beet syrup – Vinasses and vinasse residues – Sugar beet pulp and press cake 	(Wastes from sugar processing) Vegetable filter materials from biological air purification are deemed to be suitable waste in accordance with Column 2 if they occur in the production and processing of food and feed. The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well; this does not include vegetable filter materials from biological air purification.
Wastes not otherwise specified (02 05 99)	<ul style="list-style-type: none"> – Vegetable filter materials from biological air purification 	(Wastes from the dairy products industry) Vegetable filter materials from biological air purification are deemed to be suitable waste in accordance with Column 2 if they occur in the production and processing of food and feed and animal by-products.
Materials unsuitable for consumption or processing (02 06 01)	<ul style="list-style-type: none"> – Used flour – Fermentation residues from enzyme production – Yeast and yeast-like residues – Dough waste 	(Wastes from the baking and confectionery industry) The provisions of this ordinance shall only apply to superimposed food and dough waste of animal origin if these

Waste designation in accordance with AVV system ¹ (in brackets: waste code)	Suitable waste ² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading ¹)
	<ul style="list-style-type: none"> – Superimposed luxury food items – Superimposed food 	<p>items or other essential material components are not subject to Regulation (EC) No 1069/2009³ as animal by-products.</p> <p>The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.</p>
Wastes not otherwise specified (02 06 99)	<ul style="list-style-type: none"> – Vegetable filter materials from biological air purification 	<p>(Wastes from the baking and confectionery industry)</p> <p>Vegetable filter materials from biological air purification are deemed to be suitable waste in accordance with Column 2 if they occur in the production and processing of food and feed and animal by-products.</p>
Wastes from spirits distillation (02 07 02)	<ul style="list-style-type: none"> – Fruit, cereal and potato dregs 	<p>(Wastes from the production of alcoholic and non-alcoholic beverages [except coffee, tea and cocoa])</p> <p>The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.</p>
Materials unsuitable for consumption or processing (02 07 04)	<ul style="list-style-type: none"> – Spent grains – Yeast and yeast-like residues – Spent hops – Spent malt, malt draff, malt dust – Residues from molasses – Pomace – Superimposed luxury food items – Superimposed drinks – Used filter and extraction masses (cellite, washed diatomite, perlite) 	<p>(Wastes from the production of alcoholic and non-alcoholic beverages [except coffee, tea and cocoa])</p> <p>Separately collected washed diatomite is exempt from the treatment and examination requirements in accordance with Section 10 (1) numbers 1 and 2 when applied within the framework of regional recovery. Washed diatomite and mixtures containing washed diatomite must not be applied in dried condition, and</p>

Waste designation in accordance with AVV system ¹ (in brackets: waste code)	Suitable waste ² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading ¹)
	– Vinasses and vinasse residues	<p>must be incorporated into the soil straight away when applied.</p> <p>The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well; this does not include washed diatomite.</p>
Wastes not otherwise specified (02 07 99)	– Vegetable filter materials from biological air purification	<p>(Wastes from the production of alcoholic and non-alcoholic beverages [except coffee, tea and cocoa])</p> <p>Vegetable filter materials from biological air purification are deemed to be suitable waste in accordance with Column 2 if they occur in the production and processing of food and feed.</p>
Waste bark and cork (03 01 01)	– Bark	<p>(Wastes from wood processing and the production of panels and furniture)</p> <p>Separately collected natural bark, including any such bark that is processed in unmixed form, is exempt from the treatment requirements in accordance with Section 10 (1) number 1.</p> <p>Within the framework of composting, the materials must be crushed in such a way, or the compost must be sieved in such a way, that there are no solid materials in the compost which are larger than 40 mm (screen mesh).</p> <p>The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.</p>

Waste designation in accordance with AVV system¹ (in brackets: waste code)	Suitable waste² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading¹)
<p>Sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04 (03 01 05)</p>	<ul style="list-style-type: none"> – Wood wool – Sawdust and wood shavings 	<p>(Wastes from wood processing and the production of panels and furniture)</p> <p>Wood wool, sawdust and wood shavings are deemed to be suitable waste in accordance with Column 2 if they are made or arise from untreated wood.</p> <p>Within the framework of composting, the wood shavings must be crushed in such a way, or the compost must be sieved in such a way, that there are no solid materials in the compost which are larger than 40 mm (screen mesh).</p> <p>Sawdust and wood shavings from untreated wood from the wood processing sector may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.</p>
<p>Waste bark and wood (03 03 01)</p>	<ul style="list-style-type: none"> – Bark 	<p>(Wastes from pulp, paper and cardboard production and processing)</p> <p>Separately collected natural bark and any such bark that is processed in unmixed form is exempt from the treatment and examination requirements in accordance with Section 10 (1) number 1.</p> <p>Within the framework of composting, the materials must be crushed in such a way, or the compost must be sieved in such a way, that there are no solid materials in the compost which are larger than 40 mm (screen mesh).</p> <p>The materials may be applied</p>

Waste designation in accordance with AVV system¹ (in brackets: waste code)	Suitable waste² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading¹)
		to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.
Liming waste (04 01 02)	– Limed glue-stock	(Wastes from the leather and fur industry) Limed glue-stock is deemed to be suitable waste in accordance with Column 2 if it comes from the processing of Category 3 hides in accordance with Regulation (EC) No 1069/2009 ³ . Limed glue-stock in accordance with Annex XIII, Chapter V(C)(2)(d) of Regulation (EU) No 142/2011 ⁴ shall be deemed to have been subjected to a different form of sanitising treatment in accordance with Section 3 (3), fifth sentence, read in conjunction with Section 2, number (2)(d), and is exempt from the examination requirements in accordance with Section 3 in accordance with Section 10 (1) number 2. The recovery of materials is permitted only with anaerobic treatment.
Waste from unprocessed textile fibres (04 02 21)	– Vegetable fibre waste – Wool waste – Cellulose fibre waste	(Wastes from the textile industry) The provisions of this ordinance shall only apply to animal wool waste if these items are not subject to Regulation (EC) No 1069/2009 ³ as animal by-products (raw materials).
Wastes not otherwise specified (07 01 99)	– Fat, fat residues and oil residues from the production of biodiesel – Dregs from the production	(Wastes from the manufacture, formulation, supply and use of basic organic chemicals)

Waste designation in accordance with AVV system¹ (in brackets: waste code)	Suitable waste² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading¹)
	of industrial alcohols	The provisions of this ordinance shall only apply to animal fat, fat residues and oil residues from the production of biodiesel if these items are not subject to Regulation (EC) No 1069/2009 ³ as animal by-products. The recovery of fat, fat residues and oil residues from the production of biodiesel is only permitted with anaerobic treatment.
Solid wastes other than those mentioned in 07 05 13 (07 05 14)	<ul style="list-style-type: none"> – Medicinal plants and medicinal herbs – Fungal mycelium – Fungal substrate residues – Vegetable amino acids – Vegetable protein hydrolysate – Vegetable protein waste – Medicinal plants and medicinal herb residues – Pomace from medicinal plants 	(Wastes from the manufacture, formulation, supply and use of pharmaceuticals) Fungal mycelium from the production of drugs should only be recovered after an individual examination and is deemed to be suitable waste in accordance with Column 2 provided it does not contain any effective drug residues. Fungal substrate residues for which it can be demonstrated that the fungal cultures were destroyed through decay shall be deemed to have been subjected to a different form of sanitising treatment in accordance with Section 3 (3), fifth sentence, read in conjunction with Section 2, number (2)(d), and are exempt from the examination requirements in accordance with Section 3 in accordance with Section 10 (1) number 2. The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well; this does not include fungal

Waste designation in accordance with AVV system¹ (in brackets: waste code)	Suitable waste² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading¹)
		mycelium, vegetable amino acids, vegetable protein hydrolysate as well as vegetable protein waste.
Wastes whose collection and disposal is not subject to special requirements in order to prevent infection (for example dressings, plaster casts, linen, disposable clothing, diapers) (18 01 04)	– Peat sludge and healing earth	(Wastes from natal care, diagnosis, treatment or prevention of disease in humans) Peat sludge and healing earth are deemed to be suitable waste in accordance with Column 2 provided they do not contain any medicinal residues. The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.
Grease and oil mixture from oil/water separation containing only edible oil and fats (19 08 09)	– Content of grease traps	(Wastes from waste water treatment plants not otherwise specified) The recovery of materials is only permissible with anaerobic treatment. The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.
Paper and cardboard (20 01 01)	– Waste paper	(Separately collected fractions of municipal wastes [except 15 01]) Waste paper may only be added to compost in small quantities (max. 0.5 %). The addition of waste paper along with separately collected bio-waste (waste code 20 03 01) is permissible in small quantities if this is appropriate for hygienic or practical reasons (e.g. very moist bio-

Waste designation in accordance with AVV system ¹ (in brackets: waste code)	Suitable waste ² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading ¹)
		waste). The recovery of glossy paper and paper from waste wallpaper is not permissible.
Biodegradable kitchen and canteen waste (20 01 08)	– Biodegradable kitchen and canteen waste – Content of grease traps	(Separately collected fractions of municipal wastes [except 15 01]) The provisions of this ordinance shall only apply to biodegradable animal kitchen and canteen waste if these items are not subject to Regulation (EC) No 1069/2009 ³ as animal by-products. The recovery of the contents of grease traps is only permissible with anaerobic treatment. The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.
Edible oil and fat (20 01 25)	– Edible oils and fats	(Separately collected fractions of municipal wastes [except 15 01]) The provisions of this ordinance shall only apply to animal edible oils and fats if these items are not subject to Regulation (EC) No 1069/2009 ³ as animal by-products (kitchen and canteen waste or superimposed food). The recovery of materials is only permissible with anaerobic treatment. Vegetable edible oils and fats may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a

Waste designation in accordance with AVV system¹ (in brackets: waste code)	Suitable waste² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading¹)
		mixture as well.
Plastics (20 01 39)	– Biodegradable materials (plastics) mainly arising from renewable resources	(Separately collected fractions of municipal wastes [except 15 01]) The materials are deemed to be suitable waste in accordance with Column 2 if they are certified to DIN EN 13432 (December 2000-12) and DIN EN 13432 Amendment 2 (October 2007-10) or DIN EN 14995 (March 2007-03), refuse bags intended to collect biodegradable waste such as kitchen and canteen waste.
Biodegradable waste (20 02 01)	<ul style="list-style-type: none"> - Biodegradable waste from sporting facilities, places, sites and children's playgrounds (other than garden and park waste)⁵ – Biodegradable cemetery waste – Biodegradable garden and park waste – Woodland clearance debris (other than garden and park waste)⁵ – Landscaping waste⁵ – Water maintenance vegetable waste (other than garden and park waste)⁵ – Vegetable constituents of flotsam (including from coastal and riparian areas)⁵ 	(Garden and park wastes [including cemetery waste]) Within the framework of composting, wooden materials must be crushed in such a way, or the compost must be sieved in such a way, that there are no solid materials in the compost which are larger than 40 mm (screen mesh). The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well; this does not include roadside vegetation (on roads, paths, rail lines, airports, etc.) and vegetation on industrial sites.
Mixed municipal waste ⁶ (20 03 01)	– Separately collected bio-waste ⁶	(Other municipal wastes) Separately collected bio-waste from private households and small businesses (especially from bio-waste bins) is deemed to be suitable waste in accordance with Column 2.
Waste from markets	– Vegetable market waste	(Other municipal wastes)

Waste designation in accordance with AVV system¹ (in brackets: waste code)	Suitable waste² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading¹)
(20 03 02)		The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.

b) Bio-waste which requires approval for recovery in accordance with Section 9a

Waste designation in accordance with AVV system¹ (in brackets: waste code)	Suitable waste² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading¹)
Sludges from washing and cleaning (02 01 01)	– Other sludge-like food waste	(Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing) The provisions of this ordinance shall only apply to other sludge-like food waste of animal origin if these items or indeed other essential material components are not subject to Regulation (EC) No 1069/2009 ³ as animal by-products. The materials are deemed to be suitable waste in accordance with Column 2 if they have not been mixed at the collection point with waste water or sludge outside of the specific production. Other sludge-like food waste may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.
Wastes not otherwise specified	– Fungal substrate residues	(Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing)

Waste designation in accordance with AVV system¹ (in brackets: waste code)	Suitable waste² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading¹)
<p>(02 01 99)</p>		<p>Substrates taken from edible mushroom production are deemed to be suitable waste in accordance with Column 2.</p> <p>Fungal substrate residues for which it can be demonstrated that the fungal cultures were destroyed through decay shall be deemed to have been subjected to a different form of sanitising treatment in accordance with Section 3 (3), fifth sentence, read in conjunction with Section 2, number 2 (d), and are exempt from the examination requirements in accordance with Section 3 in accordance with Section 10 (1) number 2.</p> <p>The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.</p>
<p>Sludges from on-site effluent treatment (02 02 04)</p>	<ul style="list-style-type: none"> – Content of grease traps and flotata – Production-specific sludge from on-site effluent treatment – Sludge from gelatine production 	<p>(Wastes from the preparation and processing of meat, fish and other foods of animal origin)</p> <p>The materials are deemed to be suitable waste in accordance with Column 2 if they have not been mixed at the collection point with waste water or sludge outside of the specific production.</p> <p>The recovery of the contents of grease traps and flotata is only permissible with anaerobic treatment.</p> <p>Separately collected gelatine lime sludges for which it can be demonstrated that they were sanitised with sodium hydroxide and lime, shall be deemed to have been</p>

Waste designation in accordance with AVV system ¹ (in brackets: waste code)	Suitable waste ² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading ¹)
		<p>subjected to a different form of sanitising treatment in accordance with Section 3 (3), fifth sentence, read in conjunction with Section 2, number 2 (d), and are exempt from the examination requirements in accordance with Section 3 in accordance with Section 10 (1) number 2. The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.</p>
<p>Sludges from washing, cleaning, peeling, centrifuging and separation (02 03 01)</p>	<p>– Other sludge-like food waste</p>	<p>(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)</p> <p>The provisions of this ordinance shall only apply to other sludge-like food waste of animal origin if these items or indeed other essential material components are not subject to Regulation (EC) No 1069/2009³.</p> <p>The materials are deemed to be suitable waste in accordance with Column 2 if they have not been mixed with waste water or sludge outside of the specific production.</p> <p>The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.</p>
<p>Materials unsuitable for consumption or processing</p>	<p>– Sludge from the production of vegetable fats</p>	<p>(Wastes from fruit, vegetables, cereals, edible oils, cocoa,</p>

Waste designation in accordance with AVV system¹ (in brackets: waste code)	Suitable waste² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading¹)
(02 03 04)	<ul style="list-style-type: none"> - Sludge from the production of vegetable edible oils - Starch slurry - Tobacco sludge 	<p>coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation)</p> <p>The materials are deemed to be suitable waste in accordance with Column 2 if they have not been mixed at the collection point with waste water or sludge outside of the specific production.</p> <p>The recovery of sludges from edible fat and edible oil production is only permissible with anaerobic treatment.</p> <p>The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well; this does not include tobacco sludge.</p>
<p>Sludges from on-site effluent treatment (02 03 05)</p>	<ul style="list-style-type: none"> - Content of grease traps and flotata - Production-specific sludge from on-site effluent treatment 	<p>(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)</p> <p>The materials are deemed to be suitable waste in accordance with Column 2 if they have not been mixed at the collection point with waste water or sludge outside of the specific production.</p> <p>The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.</p>

Waste designation in accordance with AVV system¹ (in brackets: waste code)	Suitable waste² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading¹)
Sludges from on-site effluent treatment (02 04 03)	– Production-specific sludge from on-site effluent treatment	(Wastes from sugar processing) The materials are deemed to be suitable waste in accordance with Column 2 if they have not been mixed at the collection point with waste water or sludge outside of the specific production. The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.
Sludges from on-site effluent treatment (02 05 02)	– Content of grease traps and flotage – Production-specific sludge from on-site effluent treatment	(Wastes from the dairy products industry) The materials are deemed to be suitable waste in accordance with Column 2 if they have not been mixed at the collection point with waste water or sludge outside of the specific production. The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.
Sludges from on-site effluent treatment (02 06 03)	– Content of grease traps and flotage – Production-specific sludge from on-site effluent treatment	(Wastes from the baking and confectionery industry) The materials are deemed to be suitable waste in accordance with Column 2 if they have not been mixed at the collection point with waste water or sludge outside of the specific production. The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.

Waste designation in accordance with AVV system¹ (in brackets: waste code)	Suitable waste² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading¹)
Wastes from spirits distillation (02 07 02)	– Distillery sludge	(Wastes from the production of alcoholic and non-alcoholic beverages [except coffee, tea and cocoa]) The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.
Materials unsuitable for consumption or processing (02 07 04)	– Lees and sludge from breweries – Lees and sludge from fruit juice production – Lees and sludge from wine production	(Wastes from the production of alcoholic and non-alcoholic beverages [except coffee, tea and cocoa]) The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.
Sludges from on-site effluent treatment (02 07 05)	– Production-specific sludge from on-site effluent treatment	(Wastes from the production of alcoholic and non-alcoholic beverages [except coffee, tea and cocoa]) The materials are deemed to be suitable waste in accordance with Column 2 if they have not been mixed at the collection point with waste water or sludge outside of the specific production. The materials may be applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, as part of a mixture as well.
Wastes not otherwise specified (07 01 99)	– Glycerine from biodiesel production	(Wastes from the manufacture, formulation, supply and use of basic organic chemicals) Glycerine from biodiesel production is deemed to be suitable waste in accordance with Column 2 if it has a

Waste designation in accordance with AVV system¹ (in brackets: waste code)	Suitable waste² from waste designations stated in Column 1	Additional provisions (in brackets: origin of waste in accordance with AVV system group heading¹)
		minimum content of 70 % crude glycerine and a residual methanol content of no more than 3 %. The recovery of materials is only permissible with anaerobic treatment.

2. - Other waste as well as biodegradable materials and mineral substances which are suitable for joint treatment with bio-waste (Section 2, number 4) and for the manufacture of mixtures (Section 2, number 5)

If waste, waste designation in accordance with AVV system¹ (in brackets: waste code)	Other permissible waste² from waste designations stated in Column 1, biodegradable materials and mineral substances	Additional provisions (if required in brackets: origin of waste in accordance with AVV system group heading¹)
Waste gravel and crushed rocks other than those mentioned in 01 04 07 (01 04 08)	– Dolomite waste – Limestone waste	(Wastes from physical and chemical processing of non-metalliferous minerals)
Waste sand and clays (01 04 09)	– Sand – Clay	(Wastes from physical and chemical processing of non-metalliferous minerals)
Dusty and powdery wastes other than those mentioned in 01 04 07 (01 04 10)	– Stone meal	(Wastes from physical and chemical processing of non-metalliferous minerals)
Off-specification calcium carbonate (02 04 02)	– Carbonation sludge	(Wastes from sugar processing) The materials may also be added to bio-waste and mixtures that are applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence.
Lime mud waste (03 03 09)	– Fibrous limestone	(Wastes from pulp, paper and cardboard production and processing) Fibrous limestone is deemed to be other permissible waste in accordance with Column 2 if this comes from the processing of virgin fibres for the manufacture of white paper and no precipitants (except lime) are added.
Bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04) (10 01 01)	– Ash from the combustion of lignite – Ash from the combustion of natural vegetable materials – Ash from the combustion of materials of animal origin – Ash from the combustion of paper	(Wastes from power stations and other combustion plants [except 19]) Ash from the combustion of paper is deemed to be other permissible waste in accordance with Column 2 if it arises within the framework of the energetic use of residual

If waste, waste designation in accordance with AVV system¹ (in brackets: waste code)	Other permissible waste² from waste designations stated in Column 1, biodegradable materials and mineral substances	Additional provisions (if required in brackets: origin of waste in accordance with AVV system group heading¹)
		<p>paper materials from paper production.</p> <p>The materials are deemed to be other permissible waste in accordance with Column 2 if they arise in the form of furnace ashes or ashes from fluidised bed combustion. Materials that arise in the form of ashes from the last filtering unit in the flue gas path or condensate filter sludge are not deemed to be other permissible waste in accordance with Column 2.</p>
<p>Discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08 (16 05 09)</p>	<p>– ABC dry powder fire extinguisher</p>	<p>(Gases in pressure containers and discarded chemicals)</p>
<p>Bottom ash and slag other than those mentioned in 19 01 11 (19 01 12)</p>	<ul style="list-style-type: none"> – Ash from the combustion of natural vegetable materials – Ash from the combustion of materials of animal origin – Ash from the combustion of sewage sludge – Ash from the combustion of paper 	<p>(Wastes from incineration or pyrolysis of waste)</p> <p>Ashes from the combustion of sewage sludge is deemed to be other permissible waste in accordance with Column 2 if the sewage sludge comes from the treatment of municipal sewage sludge in accordance with the Sewage Sludge Ordinance.</p> <p>Ash from the combustion of paper is deemed to be other permissible waste in accordance with Column 2 if it arises within the framework of the energetic use of residual paper materials from paper production.</p> <p>The materials are deemed to be other permissible waste in accordance with Column 2 if they arise in the form of furnace ashes or ashes from fluidised bed combustion. Materials that arise in the form</p>

If waste, waste designation in accordance with AVV system¹ (in brackets: waste code)	Other permissible waste² from waste designations stated in Column 1, biodegradable materials and mineral substances	Additional provisions (if required in brackets: origin of waste in accordance with AVV system group heading¹)
		of ashes from the last filtering unit in the flue gas path or condensate filter sludge are not deemed to be other permissible waste in accordance with Column 2.
Wastes not otherwise specified (19 08 99)	– Sludge from phosphate precipitation with lime	(Wastes from waste water treatment plants not otherwise specified) Sludge from phosphate precipitation with lime is deemed to be other permissible waste in accordance with Column 2 if this comes from municipal wastewater treatment plants. The materials may also be added to bio-waste and mixtures that are applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence.
Sludges from decarbonation (19 09 03)	– Sludge from water softening	(Wastes from the preparation of water intended for human consumption or water for industrial use) Materials that arise in the form of sludge from the removal of iron and manganese are not deemed to be other permissible waste in accordance with Column 2. The materials may also be added to bio-waste and mixtures that are applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence.

If waste, waste designation in accordance with AVV system¹ (in brackets: waste code)	Other permissible waste² from waste designations stated in Column 1, biodegradable materials and mineral substances	Additional provisions (if required in brackets: origin of waste in accordance with AVV system group heading¹)
<p>(If, in individual cases, materials are deemed to be waste in accordance with the Closed Substance Cycle and Waste Management Act, they must be assigned to a waste designation.)</p>	<p>– Materials in accordance with the Fertiliser Ordinance⁷:</p> <ul style="list-style-type: none"> • Fertilisers in accordance with Section 3 of the Fertiliser Ordinance, as well as manure, soil improvers and crop substrates in accordance with Section 4 of the Fertiliser Ordinance • Substances in accordance with Tables 6 and 7 (with the exception of sewage sludge in accordance with number 7.4.3) and 8 (with the exception of pollutants in accordance with number 8.3.11 Column 3 last sentence) of Annex 2 to the Fertiliser Ordinance 	<p>Materials in accordance with the Fertiliser Ordinance⁷ are deemed to be other permissible waste, biodegradable materials and mineral substances in accordance with Column 2 unless they are stated as other permissible waste in number 1 or as other permissible waste in other table rows for the same point.</p> <p>If fertilisers and raw materials of animal origin are subject to Regulation (EC) No 1069/2009³ as animal by-products, these provisions shall also apply.</p> <p>The materials may also be added to bio-waste and mixtures that are applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, if the application of such materials to such areas is permissible in accordance with the Fertiliser Ordinance⁷ or the Fertiliser Application Ordinance⁷.</p>
<p>–</p>	<p>– Animal by-products in accordance with Regulation (EC) No 1069/2009³:</p> <ul style="list-style-type: none"> • Category 3 in accordance with Article 10 of Regulation (EC) No 1069/2009, • Category 2 in accordance with Article 9(a) of Regulation (EC) No 1069/2009 (manure, non-mineralised guano, stomach and intestinal contents as well as rumen contents) 	<p>Stomach and intestinal contents as well as rumen contents are deemed to be permissible biodegradable materials in accordance with Column 2 if they come from animals that are classified as fit for human consumption.</p> <p>The materials may also be added to bio-waste and mixtures that are applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence, if the application of such</p>

If waste, waste designation in accordance with AVV system¹ (in brackets: waste code)	Other permissible waste² from waste designations stated in Column 1, biodegradable materials and mineral substances	Additional provisions (if required in brackets: origin of waste in accordance with AVV system group heading¹)
		materials to grassland areas is permissible in accordance with Regulation (EC) No 1069/2009 ³ .
–	– Renewable raw materials	Renewable raw materials are deemed to be permissible biodegradable materials in accordance with Column 2 unless they are stated as bio-waste in number 1. Within the framework of composting, wooden materials must be crushed in such a way, or the compost must be sieved in such a way, that there are no solid materials in the compost which are larger than 40 mm (screen mesh). The materials may also be added to bio-waste and mixtures that are applied to grassland areas and on multiple-tiller land used for field forage in accordance with Section 7 (1), first sentence.
–	– Soil materials	Soil materials are deemed to be permissible biodegradable materials in accordance with Column 2 if they do not exceed the precautionary levels for soils in accordance with Annex 2 number 4 of the Federal Soil Protection and Contaminated Sites Ordinance. The materials may also be added to bio-waste and mixtures that are applied to grassland areas in accordance with Section 7 (1).

3. Notices from expert bodies -

DIN standards referred to in this Annex were published by Beuth-Verlag GmbH, Berlin, - and are archived in a secure manner at the German Patent and Trademark Office in - Munich. -

Annex 2

(in relation to Section 2 number 2, Section 3 paragraphs (2)–(7))

Requirements for the sanitising treatment of bio-waste in order to ensure epidemic and phytosanitary safety

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1 General comments

The requirements and provisions for the sanitising treatment (systems and procedures) and inspection of sanitised bio-waste are described in this Annex.

If bio-waste is supplied for treatment that does not meet the requirements for sanitation purposes (e.g. mesophilic anaerobic digestion), the sanitising treatment of bio-waste must also be carried out in accordance with the provisions of this Annex.

The plant must be run and the treatment must be carried out in such a way so that any re-contamination of the materials subjected to sanitising treatment is avoided.

2 Sanitising treatment

2.1 - Treatment procedure for sanitation purposes (in relation to Section 2 number 2)

The sanitising treatment of bio-waste is carried out through -

- a) pasteurisation (number 2.2.1), -
- b) aerobic sanitising treatment (thermophilic composting) (number 2.2.2), -
- c) aerobic sanitising treatment (thermophilic anaerobic digestion) (number 2.2.3), or -
- d) any other form of sanitising treatment (number 2.2.4). -

2.2 - Requirements for the sanitising treatment

2.2.1 - Pasteurisation

Pasteurisation may be carried out either before or after an additional, particularly biologically stabilising, treatment (e.g. mesophilic anaerobic digestion).

2.2.1.1 - Process control requirements

Prior to pasteurisation, the bio-waste must be crushed into particles with an edge length (two dimensional) of no more than 12 mm. The material shall be homogenised during heating and must have a water content that ensures a sufficient heat transfer both between as well as within the particles.

The process control in pasteurisation plants must be conducted in such a way for the sanitation of bio-waste that a temperature of at least 70 °C acts on the entire material for a continuous period of at least 1 hour.

2.2.1.2 - Process inspection (in relation to Section 3 (4), first sentence, number 1, read in conjunction with Section 3 (5))

A process inspection in accordance with number 3.1 shall not be required for pasteurisation plants; instead, pasteurisation plants must obtain technical acceptance from the competent authority, along with an expert consultation where appropriate, prior to commissioning (Section 3 (5), third sentence). The competent authority shall issue a certificate of acceptance if it has established that the pasteurisation plant has satisfied the process control requirements in accordance with number 2.2.1.1 and is equipped with the necessary facilities and equipment, in particular such as

- a) devices for temperature monitoring,
- b) devices used to continuously record measurements, and
- c) an adequate safety system in order to prevent insufficient heating.

2.2.1.3 - Process monitoring (in relation to Section 3 (4), first sentence, number 2, read in conjunction with Section 3 (6))

Process monitoring shall be carried out in accordance with the provisions of number 3.2.

2.2.1.4 - Examinations of sanitised bio-waste (in relation to Section 3 (4), first sentence, number 3, read in conjunction with Section 3 paragraphs (7) and (7a))

Examinations of sanitised bio-waste must be carried out in accordance with the provisions of number 3.3 and the methods in accordance with number 4.2.2 (epidemic sanitation) and number 4.3.2 (phytosanitation).

2.2.2 - Aerobic sanitising treatment (thermophilic composting)

2.2.2.1 - Process control requirements

Process control in composting plants must be conducted in such a way for the sanitation of bio-waste that a thermophilic temperature range and a high level of biological activity with favourable moisture and nutrient conditions as well as an optimal structure and airflow can be guaranteed over a period of several weeks. The water content should be at least 40 % and the pH-value should be approximately 7. During aerobic sanitising treatment, a temperature of at least 55 °C must act on the entire rotting material over a maximum continuous period of 2 weeks, or over 6 days at a temperature of 60 °C or over 3 days at a temperature of 65 °C.

2.2.2.2 - Process inspection (in relation to Section 3 (4), first sentence, number 1, read in conjunction with Section 3 (5))

For composting plants used for sanitation purposes, the process inspection must be carried out in accordance with the provisions of number 3.1.1 and number 3.1.2.

The following methods shall apply to the use of test organisms (test and indicator organisms) and for checking their mortification or inactivation:

- a) for epidemic sanitation, the methods in accordance with number 4.2.1 (except number 4.2.1.3), and
- b) for phytosanitation, the methods in accordance with number 4.3.1 (except number 4.3.1.2.2).

2.2.2.3 - Process monitoring (in relation to Section 3 (4), first sentence, number 2, read in conjunction with Section 3 (6))

Process monitoring is carried out in accordance with the provisions of number 3.2.

2.2.2.4 Examinations of sanitised bio-waste (in relation to Section 3 (4), first sentence, number 3, read in conjunction with Section 3 (7) and (7a))

Examinations of sanitised bio-waste must be carried out in accordance with the provisions of number 3.3 and the methods in accordance with number 4.2.2 (epidemic sanitation) and number 4.3.2 (phytosanitation).

2.2.3 Anaerobic sanitising treatment (thermophilic anaerobic digestion)

2.2.3.1 Process control requirements

Process control in anaerobic digestion plants must be conducted in such a way for the sanitation of bio-waste that the temperature acts on the entire material within the thermophilic range (at least 50 °C) over the consecutive period of the minimum residence time. In this respect, the minimum residence time used in the passed process inspection (see number 2.2.3.3) specified or demonstrated from a technical perspective (see number 2.2.3.2) and the treatment temperature must not be fallen short of.

2.2.3.2 Determination of minimum residence time

If the minimum residence time in the fermenter is not technically specified through the use of a hydraulic barrier within the charging and discharging intervals, it must be demonstrated by a tracer study using a method in accordance with number 4.1 prior to the process inspection (see number 2.2.3.3).

The tracer study allows the time interval at the anaerobic digestion plant used for sanitation purposes to be determined that all substrate parts (solid and liquid) have as the shortest residence time in the fermenter. This means that the substrate to be digested will be marked with indicators (tracers) before it is added to the fermenter. The minimum residence time of the material to be digested in the fermenter is the time frame which was determined up until the last experiment which found no initial evidence of the tracer.

Until the results of the tracer study become available, the minimum residence time calculated by the plant manufacturer and planner must not be fallen short of in the plant. In order to ensure that the minimum residence period is not fallen short of, the maximum daily input quantities determined by the plant manufacturer and planner must not be exceeded on a permanent basis after the desired level in the fermenter relevant for sanitation purposes is

reached. If there is no calculation available, it must be made in consultation with the competent authority along with an expert consultation where appropriate.

2.2.3.3 - Process inspection (in relation to Section 3 (4), first sentence, number 1, read in conjunction with Section 3 (5))

For composting plants used for sanitation purposes, the process inspection must be carried out in accordance with the provisions of number 3.1.1 and number 3.1.3.

The required treatment temperature within the thermophilic range (at least 50 °C) must be used for the process inspection. The process inspection must be carried out with the minimum residence time specified or demonstrated from a technical perspective (see number 2.2.3.2).

The following methods shall apply to the use of test organisms (test and indicator organisms) and to checking their mortification or inactivation:

- a) for epidemic sanitation, the methods in accordance with number 4.2.1 (except number 4.2.1.2), and
- b) for phytosanitation, the methods in accordance with number 4.3.1.1 (except for test organism tobacco mosaic virus in accordance with (c)), number 4.3.1.2 (except number 4.3.1.2.1), and number 4.3.1.3.

If the process inspection is not passed, it must be repeated with a higher treatment temperature or extended minimum residence time.

2.2.3.4 - Process monitoring (in relation to Section 3 (4), first sentence, number 2, read in conjunction with Section 3 (6))

Process monitoring is carried out in accordance with the provisions of number 3.2.

2.2.3.5 - Examinations of sanitised bio-waste (in relation to Section 3 (4), first sentence, number 3, read in conjunction with Section 3 paragraphs (7) and (7a))

Examinations of sanitised bio-waste must be carried out in accordance with the provisions of number 3.3 and the methods in accordance with number 4.2.2 (epidemic sanitation) and number 4.3.2 (phytosanitation).

2.2.4 - Other forms of sanitising treatment

The equivalent effectiveness of the sanitation in line with the requirements of this Annex must be demonstrated (Section 3 (3), fourth sentence) for other forms of sanitising treatment procedure, along with an expert consultation where appropriate.

2.2.4.1 - Process control requirements

The process control requirements for the sanitising treatment of bio-waste must be determined and described in such a way in agreement with the competent authority, along with an expert consultation where appropriate, that an equivalent sanitation level is achieved.

2.2.4.2 - Process inspection (in relation to Section 3 (4), first sentence, number 1, read in conjunction with Section 3 (5))

The process control requirements must be determined and described in such a way in agreement with the competent authority, along with an expert consultation where appropriate, that an equivalent sanitation level is achieved whilst taking into account the provisions of number 3.1.1 as well as the methods in accordance with number 4.2.1 (epidemic sanitation) and number 4.3.1 (phytosanitation).

2.2.4.3 - Process monitoring (in relation to Section 3 (4), first sentence, number 2, read in conjunction with Section 3 (6))

The process control requirements must be determined and described in such a way in agreement with the competent authority, along with an expert consultation where appropriate, that an equivalent sanitation level is achieved whilst taking into account the provisions of number 3.2.

2.2.4.4 - Examinations of sanitised bio-waste (in relation to Section 3 (4), first sentence, number 3, read in conjunction with Section 3 paragraphs (7) and (7a))

Examinations of sanitised bio-waste must be carried out in accordance with the provisions of number 3.3 and the methods in accordance with number 4.2.2 (epidemic sanitation) and number 4.3.2 (phytosanitation).

3 Examinations of epidemic and phytosanitary safety

The sanitary safety of bio-waste is determined using the

- a) - process inspection in accordance with Section 3 (4), first sentence, number 1, read in conjunction with Section 3 (5) and in accordance with the descriptions contained in number 3.1,
- b) - process monitoring in accordance with Section 3 (4), first sentence, number 2, read in conjunction with Section 3 (6) and in accordance with the descriptions contained in number 3.2, and
- c) - examinations of sanitised bio-waste in accordance with Section 3 (4), first sentence, number 3, read in conjunction with Section 3 paragraphs (7) and (7a) and in accordance with the descriptions contained in number 3.3.

The epidemic and phytosanitary tests must be performed at the same time where possible.

The treated bio-waste shall only be classified as hygienically safe once all examinations are passed in accordance with numbers 3.1 to 3.3.

3.1 - Process inspection (in relation to Section 3 (4), first sentence, number 1, read in conjunction with Section 3 (5))

3.1.1 - General requirements

The process inspection is an examination of individual treatment plants used for sanitation purposes which must be carried out once each time when a plant is newly constructed as well as when significant changes are made to the procedure. As a result, this determines the effectiveness of the sanitation procedure. In addition, epidemically and phytosanitary relevant test and indicator organisms are introduced into the plant along with the bio-waste; checks are then made on the basis of examinations carried out on treated materials as to whether the test organisms were destroyed or inactivated as a result of sanitation.

The process control requirements for other forms of sanitising treatment (number 2.2.4) must be determined and described in such a way in agreement with the competent authority, along with an expert consultation where appropriate, that an equivalent sanitation level is achieved whilst taking into account the provisions of this section as well as the methods in accordance with number 4.2.1 (epidemic sanitation) and number 4.3.1 (phytosanitation).

The methods (sampling, preparation, examination and maximum permissible limits to be observed) in epidemic sanitation in accordance with number 4.2.1, in phytosanitation in accordance with number 4.3.1, and in accordance with the following detailed descriptions for the respective plants (see numbers 3.1.2 and 3.1.3), shall apply to the process inspection (Section 3 (4), second sentence).

The process inspection shall be deemed to have been successfully completed if the limit values specified in accordance with number 4.2.1.1 (epidemic sanitation) and number 4.3.1.1 (phytosanitation) are not exceeded in the two consecutive examination stages in accordance with the relevant procedural step for sanitation.

3.1.2 - Plants used for aerobic sanitising treatment (thermophilic composting plants)

The process inspection is comprised of two examination stages carried out at separate times within a minimum interval of 3 months, of which one shall take place in the winter.

The test organisms are introduced into characteristic rotting areas or in representative process sections for the thermal inactivation of the test organisms, and are tested for surviving or infectious test organisms following removal.

3.1.2.1 Clamp composting

For each examination stage, a total of 60 individual samples are examined, of which 24 samples are accounted for by epidemic sanitation testing and 36 samples are accounted for by phytosanitation testing. The number of individual samples is calculated as follows:

- a) When conducting epidemic sanitation testing, a single test organism (see number 4.2.1) is introduced in duplicate samples into three different rotting zones (edge, core and base area) as well as at four different clamp points.
- b) - When conducting phytosanitation testing, 3 test organisms (see number 4.3.1) are introduced as individual samples into three different rotting zones (edge, core and base area) as well as at four different clamp points.

The samples from the edge may be covered with 10 cm rotting material. The samples shall remain in their respective areas until the end of the inspection.

For small plants with an annual capacity of up to 3,000 tonnes of materials used, only half of the individual samples need to be examined as part of a reduced examination scope. As a result, the test organisms are only introduced at two different clamp points.

3.1.2.2 Other composting procedures

For each examination stage, a total of 60 individual samples are examined, of which 24 samples are accounted for epidemic sanitation testing (single test organism, see number 4.2.1) and 36 samples are accounted for phytosanitation testing (3 test organisms, see number 4.3.1). The test organisms are inserted in characteristic areas of the rotting body, or channelled into suitable sample containers for dynamic procedures with the material flow through the standard rotting and procedural process. The sample containers used must have sufficient perforations so that the substance transformation conditions within the sample containers correspond to those for the composting process to be inspected for sanitation purposes.

With respect to dynamic procedures, attention must be paid to ensure that all test organisms are added as evenly as possible throughout the insertion process so that they are distributed as homogeneously as possible in the rotting unit. In addition, the type of sample container used must also ensure that they comply with the material to be composted with respect to the behaviour of the material flow and the residence time.

If the specific plant technology does not restrict the size of the sample containers (e.g. clear openings for snails, etc.), a total of 12 sample containers shall be introduced into the rotting unit (guided through); each sample container shall contain

- a) a single test organism in duplicate samples when conducting epidemic sanitation testing (see number 4.2.1), and
- b) three test organisms as individual samples when conducting phytosanitation testing (see number 4.3.1).

If the introduction (i.e. guiding through) of correspondingly larger sample containers is not possible, the individual samples must be distributed over a correspondingly larger number of smaller sample containers.

For small plants with an annual capacity of up to 3,000 tonnes of materials used, only half of the individual samples need to be examined as part of a reduced examination scope. As a result, only 6 of the 12 sample containers shall be introduced and guided through.

3.1.3 - Plants used for anaerobic sanitising treatment (thermophilic anaerobic digestion plants)

The process inspection is comprised of two examination stages carried out at separate times within a minimum interval of at least 3 months.

For each examination stage, a total of 24 individual samples are examined, of which 8 samples are accounted for by epidemic sanitation testing and 16 samples are accounted for by phytosanitation testing. The number of individual samples arises as follows:

- a) When conducting epidemic sanitation testing, a single test organism (see number 4.2.1) is introduced in duplicate samples as well as at four different points in the fermenter (for standing fermenters in a vertical direction and lying fermenters in a horizontal direction).
- b) - When conducting phytosanitation testing, 2 test organisms (see number 4.3.1 with the exception of tobacco mosaic virus) are introduced in duplicate samples as well as at four different points in the fermenter (for standing fermenters in a vertical direction and lying fermenters in a horizontal direction).

For small plants with an annual capacity of up to 3,000 tonnes of materials used, only half of the individual samples need to be examined as part of a reduced examination scope. As a result, the test organisms are only introduced at two different points in the fermenter.

The test organisms are introduced into the fermenter in the minimum residence time specified or demonstrated from a technical perspective (see number 2.2.3.2) and are examined after removal.

When carrying out the process inspection, there must be suitable openings in the vats to allow the insertion and removal of samples.

3.2 - Process inspection (in relation to Section 3 (4), first sentence, number 2, read in conjunction with Section 3 (6))

The monitoring process is a continuous inspection and recording of temperatures during treatment for sanitation purposes. This is done in order to establish whether the temperature required for sanitation purposes and the required exposure time are both complied with.

The process control requirements for other forms of sanitising treatment (number 2.2.4) must be determined and described in such a way in agreement with the competent authority, along with an expert consultation where appropriate, that an equivalent sanitation level is achieved whilst taking into account the provisions of this section.

If the temperature in the exhaust air stream of the composting clamp is measured and recorded in an enclosed composting plant used for sanitation purposes (Section 3 (6), third sentence), the treatment temperature must be determined through a plant-specific correction factor with respect to the direct temperature measurement of the rotting material. The plant-specific correction factor must be examined on a regular basis through direct temperature measurements of the rotting material taken in parallel. For the temperature measurement in the exhaust air stream, the requirements must be determined in agreement with the competent authority, along with an expert consultation where appropriate.

The temperature measurements are to be taken in representative areas of the process sections or plant parts that are relevant for sanitation purposes.

Process monitoring is deemed to have been successfully completed if the temperature and exposure time stipulated for the respective procedure (see numbers 2.2.1.1, 2.2.2.1, 2.2.3.1 and 2.2.4.1) were complied with for the sanitising treatment of the material.

3.3 Examinations of sanitised bio-waste (in relation to Section 3 (4), first sentence, number 3, read in conjunction with Section 3 (7) and (7a))

The examinations of sanitised bio-waste are regular examinations of the materials to check for pathogens, viable seeds and viable plant parts following treatment for sanitation purposes.

The examinations of sanitised bio-waste are carried out on releasable material following the sanitising treatment (see number 2). A sample shall be examined from both the epidemic sanitation and phytosanitation for each examination of sanitised bio-waste.

The methods (sampling, preparation, examination and maximum permissible limits to be observed) in epidemic sanitation in accordance with number 4.2.2 and in phytosanitation in accordance with number 4.3.2 shall apply to the examinations (Section 3 (4), second sentence).

The examinations of sanitised bio-waste shall be deemed to have been successfully completed if the limit values specified in accordance with number 4.2.2, last paragraph (epidemic sanitation) and number 4.3.2, last paragraph (phytosanitation) are not exceeded in any of the samples taken.

4 Methods for examining epidemic and phytosanitary safety

4.1 - Tracer studies to determine the minimum residence time in anaerobic sanitising treatment procedures (thermophilic anaerobic digestion)

In order to be able to assess the effect of anaerobic treatment procedures, knowing the minimum residence time of the waste slurry in the digester is of importance. If the minimum residence time needs to be determined, a tracer study shall be carried out for this purpose (see number 2.2.3.2). In the tracer study, the waste slurry is marked with indicators (tracers) prior to entering the fermenter, and its first appearance at the outlet is recorded.

Biological tracers with spores of *Bacillus globigii* (see number 4.1.1) or chemical tracers with lithium (see number 4.1.2) are suitable for the tracer study in anaerobic treatment plants used for the sanitation of biodegradable waste.

4.1.1 - Tracer study with spores of *Bacillus globigii*

The spores of *Bacillus globigii* are used as a biological tracer. Spores from this test bacterium are not naturally present in the biological substrates, are not pathogenic for humans and animals, are able to withstand any process effects in anaerobic treatment systems, and are easily detectable.

4.1.1.1 - Preparation

Required materials and reagents

- - Tryptone Glucose Bouillon (TGB),
used to produce the inoculum from the *Bacillus globigii* spores:
Yeast extract: 2.5 g,
Tryptone: 5.0 g,
Glucose: 1.0 g,
Water (distilled): 1,000 ml;

- Malt yeast extract agar (MYA),
used to produce *Bacillus globigii* spores:
Peptone from meat: 10.0 g,
Yeast extract: 2.0 g,
Manganese sulphate monohydrate: 0.04 g,
Agar: 15 g,
Water (distilled): 1,000 ml;
- *Bacillus globigii* seed stock,
used to produce *Bacillus globigii* seed stock spore suspension:
Bacillus globigii (DSM¹ No 675 [*Bac. Atrophaeus*]), or
Bacillus globigii (DSM¹ No 2277 [*Bac. Atrophaeus*]), or
Bacillus globigii (collection from the University of Hohenheim²);
- Centrifuge with an acceleration of 10,000 g.

Sample preparation

Tryptone Glucose Bouillon (TGB): -

The bouillon is given in test tubes in portions of 10 or 100 ml. It is sterilised in autoclaves. -
When measured at 20 °C, the pH-value of the medium must be 7.2 (\pm 0.2) following -
sterilisation. -

Malt yeast extract agar (MYA): -

The agar is given in Roux bottles or Petri dishes. It is sterilised in autoclaves. When -
measured at 20 °C, the pH-value of the medium must be 7.0 (\pm 0.2) following sterilisation. -

Bacillus globigii seed stocks: -

The *Bacillus globigii* seed stocks (glycerol culture, storage temperature -80 °C) are thawed -
and incubated in tryptone glucose bouillon (TGB) at 37 °C for a period of 24 hours. 6 ml is -
transferred from the TGB bouillon to MYA plates; the supernatant is then pipetted off. The -
MYA plates are incubated at 37 (\pm 1) °C. After the third day of incubation, the state of the -
cultures is assessed using a spore stain (e.g. racket-like staining). Following that, the MYA -
plates are incubated again at 30 °C for 7 to 10 days. The colonies from the MYA plates are -
then washed away with 3 ml of sterile distilled water (aqua dest). -

The spore suspension obtained is centrifuged (3,000 rpm for 10 minutes), the supernatant is -
discarded, and the pellet is resuspended with aqua dest. -

In order to determine the number of spores, the suspension is first heated for a period of 10 -
minutes at 75 (\pm 1) °C, after which the number of spore per millilitre of suspension is -
determined using Koch's surface method. -

¹ DSM: *Deutsche Stammsammlung für Mikroorganismen* (German Collection of Microorganisms),
Marscheroder Weg 1b, 38124 Braunschweig.

² University of Hohenheim, Institute for Environmental and Animal Hygiene, Garbenstrasse 30,
70599 Stuttgart.

4.1.1.2 Implementation of examination

The biological tracer is added to the fermenter once in the form of a spore suspension evenly over a feeding interval. As many spore suspensions as possible are mixed into a feeding batch so that there are at least 10^6 spores per grams of fermenter content. -

The concentration of *Bacillus globigii* spores in the suspension must be monitored. -

The sampling shall take place after the feeding of the spore suspension (single sample of approximately 1 kg) in the outlet until the tracer is first detected in a sample, and this must be at least -

- a) every hour up to and including the 24th hour, -
- b) subsequently every two hours up to and including the 36th hour, -
- c) subsequently every four hours up to and including the 48th hour, -
- d) subsequently every six hours. -

4.1.1.3 Detection method

20 g worth is weighed out from the samples to be examined for pre-dilution in 180 ml of sodium chloride (0.9 % saline solution) and mixed for approximately 20 hours at 4°C in the shaker. After sufficient mixing, 1 ml of the sample in a geometric series up to dilution stage to 10^{-8} is then pipetted into 9 ml of NaCl solution. Following that, 0.1 ml of each dilution stage is pipetted into two parallel standard I agar plates and evenly distributed with an annealed spatula (incubation at 37 °C for 24 hours).

Only colonies that display a typical orange-red growth on the agar plates are counted.

4.1.1.4 Minimum residence time

The minimum residence time arises from the period between the addition of the *Bacillus globigii* spore suspension up until the last sample, which found no initial evidence of the biological tracer in the outlet of the fermenter.

4.1.2 Tracer study with lithium

4.1.2.1 Preparation

Determination of lithium background level in the waste slurry

Firstly, the natural lithium background level in the waste slurry must be determined. In order to do this, a representative sample of the outlet of the fermenter must be collected on a daily basis at least for a period of 5 days prior to the start of the inspection. Depending on the bio-waste composition, the background level of lithium is typically between 1 and 5 mg per kg of dry matter.

Materials required

Tracer: *Lithium hydroxide monohydrate*

4.1.2.2 Implementation of examination

The lithium concentration of 50 mg/kg of dry matter must be adjusted in relation to the entire fermenter contents (complete mixing) for the examination. The required amount of lithium is dependent on the effective volume of fermenters in anaerobic digestion plants used for sanitation purposes that are to be inspected. The tracer is added in dissolved form to the fermenter evenly over a feeding interval. -

A reserve sample of this lithium suspension must be retained until the results become available. -

The sampling shall take place after the tracer has been fed (single sample of approximately 1 kg) in the outlet until the tracer is first detected in a sample (lithium concentration and background level), and this must be at least -

- a) every hour up to and including the 24th hour, -
- b) subsequently every two hours up to and including the 36th hour, -
- c) subsequently every four hours up to and including the 48th hour, -
- d) subsequently every six hours. -

4.1.2.3 - Detection method

The samples are analysed in accordance with DIN EN ISO 11885:2009³ in order to determine the lithium concentration.

4.1.2.4 - Minimum residence time

The minimum residence time arises from the period between the addition of the lithium tracer up until the last sample without any increase in concentration, which found no initial evidence of the tracer in the outlet of the fermenter. The tracer is detected when the detected concentration of lithium exceeds the background levels determined by twice the standard deviation, which is determined for samples taken in accordance with number 4.1.2.1.

4.2 - Epidemic sanitation testing

4.2.1 - Process inspection

4.2.1.1 - Test organism and limit value

The audit inspection in epidemic sanitation is performed with the *Salmonella senftenberg* *W*₇₇₅ (*H*₂*S* negative) test organism.

The process inspection shall be deemed to have been successfully completed if no levels of salmonella can be detected in any samples in the two consecutive examination stages after the relevant procedural step for sanitation.

4.2.1.2 - Deposit samples for aerobic sanitising procedures (thermophilic composting)

The *Salmonella senftenberg* *W*₇₇₅ (*H*₂*S* negative) test organism is incubated in standard I bouillon at 37 °C for between 18 and 24 hours. The bacterial suspension produced as a result should contain a microorganism concentration of at least 10⁷ to 10⁸ CFU/ml. The concentration is determined by comparison with a standard (e.g. McFarland) or with the surface method or with the MPN method (most probable number).

³- Published by Beuth-Verlag GmbH, Berlin, and archived in a secure manner at the German Patent and Trademark Office in Munich.

When composting for sanitation purposes, approximately 225 g of fresh, homogenised, crushed bio-waste material from the plant to be inspected is soaked with 25 ml of this bacterial suspension for each sample and then packaged in sterile onion or plastic bags. The samples are deposited in the compost either in this manner or in coarse perforated stable sample containers that are suitable for the respective process. After the procedural step that is relevant for sanitation has been completed, the sample containers are removed again and 50 g of the homogenised contents of a sample bag are slowly shaken in 450 ml of buffered peptone water with novobiocin for 30 minutes at 4 °C (150 rpm) and then incubated for approximately 22 (\pm 2) hours at 36 (\pm 2) °C. The suspension solution obtained as a result is then used to identify any salmonella.

4.2.1.3 - Deposit samples for anaerobic sanitising procedures (thermophilic anaerobic digestion)

The bacterial suspension with the *Salmonella senftenberg* *W*₇₇₅ (*H*₂*S* negative) test organism is prepared as described in number 4.2.1.2, paragraph (1).

In anaerobic digestion plants used for sanitation purposes, 1 ml of the bacterial suspension of *Salmonella senftenberg* *W*₇₇₅ (*H*₂*S* negative) is infiltrated into the process with diffusion germ carriers⁴. The diffusion germ carriers are filled out with 9 ml of digestate in addition to 1 ml of the bacterial suspension and are introduced in the process sections or plants that are relevant for thermal inactivation for the established minimum residence time (see number 4.1) and sanitising temperature. After the procedure is completed, the respective total content of the diffusion germ carrier (10 ml) is added in 90 ml of buffered peptone water with novobiocin (pre-enrichment), briefly shaken (150 rpm), and incubated for 22 (\pm 2) hours at 36 (\pm 2)°C. The suspension solution obtained as a result is then used to identify any salmonella.

⁴ Method according to Schwarz, Michael, *Vergleichende seuchenhygienisch-mikrobiologische Untersuchungen an horizontal und vertikal beschickten, bewachsenen Bodenfiltern mit vorgeschalteter Mehrkammerausfaulgrube bzw. einem als Grobstoff - Fang dienenden Rottebehälter (Rottefilter)* (Comparative epidemic sanitation and microbiological examinations on horizontally and vertically fed and vegetated soil filters with upstream outlet pits with several chambers and a rotting container (rotting filter) used for large particles/catches), p. 45, veterinary dissertation, FU Berlin, 2003; archived in a secure manner at the German National Library in Leipzig.

4.2.1.4 Detection method -

Existing salmonella are identified using the suspension solutions that have been produced in accordance with the methods described above (see numbers 4.2.1.2 and 4.2.1.3). For this purpose, 0.1 ml from the well-mixed pre-enrichment is incubated in 10 ml of enrichment bouillon according to Rappaport at 36 (± 2) °C and at 42 (± 1) °C for 22 (± 2) hours. Parallel smears are then applied on xylose lysine deoxycholate agar (XLD) and on another salmonella differential culture medium able to document other biochemical properties than XLD agar. Any suspect salmonella colonies are inoculated on nutrient agar and incubated at 36 (± 2) °C for 22 (± 2) hours. The biochemical or serological identification is carried out based on the body and flagella antigens (O and H antigens).

In order to control the viability (tenacity) of the test strain, four control samples are prepared parallel to the process inspection. These control samples are not incorporated into the sanitation procedure, but rather they are stored during the inspection period in moist sand (e.g. buckets with quartz sand, moistened with deionised water) at room temperature (20 to 25 °C) and are then processed following the discontinuation of the process inspection. At least three of the four control samples should provide positive salmonella findings; if not, then the tenacity of the test strain shall not be deemed sufficient.

4.2.2 Examinations of sanitised bio-waste

In order to examine the sanitised bio-waste in epidemic sanitation, 50 g of the respective material from a well-mixed sample (approximately 3 kg) is examined for the presence of salmonella in accordance with the method described above (see number 4.2.1.2). The composite mixed sample is made up of at least five different sub-samples of a batch of material subjected to sanitising treatment which is to be examined in accordance with number 3.3.

The examination of sanitised bio-waste in epidemic sanitation shall be deemed to have been successfully completed if no levels of salmonella can be detected in 50 g of the respective composite samples.

4.3 - Phytohygienic tests

4.3.1 - Process review

4.3.1.1 - Test organisms and limits

From the variety of plant pathogens and plant seeds that appear in the starting material of biological waste treatment plants, the following control or indicator organisms are used in phytohygiene process tests: -

- a) *Plasmodiophora brassicae* (clubroot) with a one-week heat tolerance of 50 °C, -
Limit in the bioassay: Infestation index ≤ 0.5 per test area,
- b) Tomato seeds,
Limit in the bioassay: ≤ 2 % of viable seeds per test area,
- c) In addition to aerobic sanitising treatment (thermophilic composting) in accordance with number 2.2.2:
Tobacco mosaic virus (TMV),
Limit in the bioassay: ≤ 4 % residual infectivity (relative value to the positive control) for each test area.

The process inspection is completed successfully in phytohygiene if, in the two consecutive tests after each process step relevant for the sanitising process, the samples in each test area do not exceed the stipulated limits

- for the parameters *Plasmodiophora brassicae* and tomato seeds, as well as
- for the parameter tobacco mosaic virus by more than 30 %.

4.3.1.2 - Plasmodiophora brassicae test organism

The process inspection in phytohygiene with the *Plasmodiophora brassicae* test organism is performed using the method described below.

4.3.1.2.1 - Production of core samples for aerobic sanitising treatment (thermophilic composting)

The bilious material (infection material with the pathogen *Plasmodiophora brassicae*) is frozen until core samples are produced at -25 °C. The demonstrably infectious, heat-tolerant bilious material with the *Plasmodiophora brassicae* pathogen must be used from infested cabbage plants. The heat tolerance is proven when the bilious material demonstrates a high level of infectivity (infection level ≥ 2) when incubated at 50 °C for 7 days.

Each of the samples used in the composting process for sanitising contains 30 g bilious material, 430 g soil and 200 g of each compost raw material. This represents a ratio of approximately 5 % bilious material to 65 % soil and 30 % compost. The individual sample components are thoroughly mixed and filled in rot-resistant bags (maximum mesh size 1 x 1 mm); it is necessary to ensure that nothing is discharged from the sample into the surrounding compost.

The control samples prepared in this way are stored during the test period in moist, sterilised sand at room temperature.

4.3.1.2.2 - Production of core samples for anaerobic sanitising treatment processes (thermophilic anaerobic digestion)

The bilious material (infection material with the *Plasmodiophora brassicae* pathogen) used is subject to number 4.3.1.2.1., paragraph (1) accordingly.

In anaerobic digestion plants used for sanitisation, 30 g bilious material contained in a gauze bag (mesh size max. 1 x 1 mm) is introduced into process sections or parts relevant for thermal inactivation.

The control samples prepared in this way are stored during the test period in moist, sterilised sand at room temperature.

4.3.1.2.3 - Evidence of infectivity by bioassay

Any residual infection of *Plasmodiophora brassicae* is identified in the core samples using the test described below.

Equipment needed

- - Mixing tub,
- - Measuring cups (1,000 ml),
- - Plastic pots (13 x 13 x 13 cm, approximately 1 l), matching stands,
- - Certified seed of Sarepta mustard (*Brassica juncea*),
- - Substrate damper,
- - Sand, grain size 0.8 – 1.2 mm (e.g. variegated sandstone with good buffering capacity, pH approximately 6.5),

- Light peat (pH approximately 3.5),
- pH meter,
- Disposable gloves (one pair for each sample),
- Water-soluble fertiliser (solid or liquid).

Sample preparation

Once recovered from the tested sanitisation process, the core samples are carefully crushed with the *Plasmodiophora brassicae* pathogen and then filled to a volume of 1,000 ml and homogenised with a sand-peat mix (attenuated for 5 hours at 80 °C).

As the pH exerts a strong influence on the infectivity of *Plasmodiophora brassicae* (optimum: pH 6.0 ± 0.2), the pH of the prepared substrate mixture must be checked and corrected by increasing the peat content where appropriate.

Bioassay

13 x 13 x 13 cm wide plastic pots are used as test vessels. For each reisolated pathogen sample which has been filled up to 1,000 ml with the sand-peat mixture, a vessel is prepared with 16 control Sarepta mustard (*Brassica juncea*) plants; early seedlings (first true leaf formation) are pricked out into each vessel. The bioassay is set up as a randomised trial in the greenhouse or in a climate chamber at 6,000 – 9,000 lux and a minimum temperature of 20 °C. The plants are fed with fertiliser once a week starting from the third week. The vegetation period of the bioassay is 4 to 5 weeks until the control plants are assessed.

At the end of the bioassay, the number of infected plants is counted and the root bile formation is assessed on a scale from 0 to 3:

Infestation class	Description of symptoms
0	No visible symptoms
1	Slight bile formation on the main and secondary roots
2	Average bile formation on the main and secondary roots
3	Strong bile formation on the entire root system

Evaluation of ratings

The ratings for the infection of individual plants (infection class = CI) are summarised for each individual pathogen sample (repetition) in the infection index using the following formula:

$$\text{Infestation index per pathogen sample (repetition)} = \frac{\sum \text{Plants} \times \text{CI } 1^5 + \sum \text{Plants} \times \text{CI } 2^5 + \sum \text{Plants} \times \text{CI } 3^5}{\sum \text{Plants per pathogen sample (repetition)}}$$

The infection index for a test area is calculated from the arithmetic mean of the infection index for all repetitions (pathogen samples) in each test area:

$$\text{Infestation index per test area}^6 = \frac{\sum \text{Infestation index per pathogen sample (repetition)}}{\sum \text{Repetition per test area}}$$

If the infection index for each test area ≤ 0.5 , the test has been successful.

4.3.1.3 Test organism tomato seeds

The process inspection in phytohygiene with the test organism tomato seeds is performed using the method described below.

The following materials are required for the production of the core sample and determining the germination rate by bioassay:

- - Plastic petri dishes with lid (\varnothing 9 cm),
- - Circular filter paper,
- - Tomato seeds (*Lycopersicon lycopersicum* [L.] Karsten ex Farw.) Saint Pierre variety (synonym: San Pedro).

⁵⁾ Rating 1, 2 or 3.

⁶⁾ Deposit area for process inspections, such as composting: edge, core, base; fermentation: different areas of the fermenter.

4.3.1.3.1 Preparation of the core sample -

About 1 g or 400 tomato seeds (*Lycopersicon lycopersicum* [L.] Karsten ex Farw.) of the Saint Pierre variety (synonym: San Pedro) are filled into a small bag made of rot-proof gauze (mesh size 1 x 1 mm) and spread across the entire gauze area before sealing in order to achieve the lowest possible layer thickness of tomato seeds. The germination capacity of tomato seeds must be determined before the tests. Only seeds with a minimum germination capacity of 90 % may be used for the test.

4.3.1.3.2 Evidence of germination rate by bioassay

At the end of the inspection, the test organism is removed from the core samples and immediately subjected to a germination test.

Bioassay

The tomato seeds are removed from the core sample and 200 seeds are counted out. The remaining seeds are dried for 1 to 2 days under ambient conditions (20 % to 50 % rel. humidity, about 20 °C), placed in an airtight container and kept in a refrigerator for any repetition of the germination test (retained sample). The counted seeds are prepared in a clean state, washed if necessary, for the germination test; for example 4 x 50 seeds are placed on 4 sheets of moistened filter paper in covered petri dishes 9 cm in diameter at 25 °C and exposure to light in a suitable room or refrigerator.⁷

The number of germinated tomato seeds is counted every seven days until no more seeds germinate. A germinated seed is a seed on which the root or the shoot has visibly emerged. If no seeds have germinated after 21 days, the germination test is ended.

Evaluation of the results

The total number of germinated seeds is determined and stated as a percentage of the seeds used in the aliquot tested (200 seeds). The germination capacity of tomato seeds for a test area is calculated from the arithmetic mean of the germination rate for all repetitions (pathogen samples) in the test area.

⁷ Method in accordance with the "International Rules for Seed Testing, Seed Science, and Technology 21, Supplement, International Seed Testing Association" (ISTA, Ed.), 1993; archived in a secure manner at the German National Library in Leipzig.

4.3.1.4 - Test organism tobacco mosaic virus with aerobic sanitising treatment (thermophilic composting)

The process inspection in phytohygiene with the test organism tobacco mosaic virus is performed using the method illustrated below.

The following materials and reagents are required for the production of the core samples and evidence by bioassay:

- Plastic pots with a volume of 500 ml with holes in the base and dishes,
- Water-soluble fertilisers,
- Tobacco seeds (*Nicotiana tabacum* "Samsun"),
- Tobacco seeds (*Nicotiana glutinosa* L.),
- Potting soil 0 (EE0) as a plant substrate,
- Mortar and pestle,
- Carborundum-bentonite mixture (ratio 1:1),
- Sørensen phosphate buffer (pH 7) or an equivalent commercial product,
- TMV suspension (plant juice from TMV-infected tobacco plants),
- Filtration gases,
- Commercial cotton swab,
- Sealable glass or plastic containers,
- Storage vessels and humidity trays.

4.3.1.4.1 - Preparation of the core samples

The multiplication of the virus occurs in tobacco plants (*Nicotiana tabacum* "Samsun"), where it spreads systemically. To do this, the tobacco plants are kept at 18 to 22 °C under greenhouse conditions until they reach the 5-leaf stage. For inoculation, 2 or 3 lower leaves are ground to a fine powder with a mixture of carborundum and bentonite (1:1) and the TMV suspension (plant juice from TMV-infected tobacco plant) added to a 0.05 mol/L phosphate buffer according to Sørensen or applied accordingly (pH 7) to the powdered leaves. 2 to 3 weeks after inoculation, the infected leaves with mosaic-like discolorations can be used for testing.

Each sample infiltrated in the composting process for sanitisation contains 10 g TMV-infected tobacco leaves (*Nicotiana tabacum* "Samsun"), which are filled into a rot-resistant gauze bag (mesh size 1 x 1 mm). To allow the composting conditions to take effect on the TMV-

infected tobacco leaves, the gauze bag containing the core sample must be completely surrounded by raw compost material.

Positive controls consisting of 10 g with TMV-infected tobacco leaves (*Nicotiana tabacum* "Samsun") must be created from the same batch and stored at -18 °C.

4.3.1.4.2 Evidence of infectivity by bioassay

The inactivation of the pathogen samples initiated through the sanitisation process of thermophilic composting is examined by bioassay in accordance with the method described below.

Sample preparation

At the end of the sanitising process step (e.g. sampling on thermophilic composting facility at the end of the process inspection), the TMV pathogen sample is freed of any existing non-decayed coarse particles. The sample is crushed in a mortar with the addition of 30 ml phosphate buffer according to Sørensen or accordingly (0.05 mol/l; pH 7). The sample suspension is added to the filtration gauze and squeezed. The sample extract is transferred to a sealable glass or plastic container.

The same procedure is followed for the positive control samples.

Bioassay

As evidence of the infection, the extracts from the samples and controls are applied to the leaves of the test plants (*Nicotiana glutinosa* L.). The bioassay is performed on controls that are at the 6-8 leaf stage.

A total of 12 control plants are required for the inoculation of the 12 reisolated TMV pathogen samples, as four samples are tested on four plants in each test area.

The tops of the vegetation and the older lower leaves are removed from the control plants so that four fully-developed leaves remain on the plants for inoculation. For better comparability with local lesions on plants with leaves of different sizes and ages, the Latin square should be used as the test arrangement. This requires the same number of TMV samples, test plants and leaves. The three characteristic test areas of the rotting mass will each be checked four times during the process inspection. The following diagram illustrates

the test arrangement of the half leaf method, including the positive control sample (P) for the four TMV samples to be tested (A, B, C, D) of each test area:

	Plant 1		Plant 2		Plant 3		Plant 4	
Leaf position	Half of the leaf (from leaf tip)		Half of the leaf (from leaf tip)		Half of the leaf (from leaf tip)		Half of the leaf (from leaf tip)	
	Left	Right	Left	Right	Left	Right	Left	Right
1st leaf	A	P	P	D	C	P	P	B
2nd leaf	B	P	P	A	D	P	P	C
3rd leaf	C	P	P	B	A	P	P	D
4th leaf	D	P	P	C	B	P	P	A

The leaves can be identified in terms of the treatments to be carried out on the underside of the leaves with a permanent marker. The test sample is always applied first, followed by the control sample.

The leaves of the control plants are then ground to a fine power with a mixture of carborundum and bentonite (1:1). The samples and control extracts are applied to the leaves with a cotton swab, the powdered halves of the leaves being coated evenly twice with the extract by applying slight pressure hand movements, running from the midvein to the edge of the leaf. In doing so, the leaf is supported with one hand from the underside of the leaf.

Immediately after treatment, the tobacco leaves are cut off directly at the shoot and the adherent carborundum/bentonite residue is removed completely from the leaf surface with tap water (spray or sprinkler). For the incubation, the treated leaves are either placed into a vessel filled with water or placed in appropriate humidity trays. Afterwards, the treated leaves are placed in a climate chamber or an air-conditioned greenhouse at 22 to 25 °C until symptoms start to appear. During the incubation period, the treated leaves are exposed to light daily for 16 hours (exposure level at least 2,000 lux).

No more than 5 days after inoculation, the foci of the infection are clearly visible in the form of local necrotic lesions. These are small round spots 2-3 mm in diameter, the centres of which consist of dead tissue.

Evaluation of the results

For the evaluation, the lesions formed on each half of the leaves were counted separately. The evaluation is carried out by adding the lesions on the respective four leaf halves that have each been inoculated with the sample and control solution. The residual infectivity of the pathogen samples is expressed as a percentage relative to the positive control.

For each individual pathogen sample (repetition), the relative residual infection on four inoculated tobacco leaves is summarised using the following formula:

$$\begin{array}{l} \text{Residual} \\ \text{infection} \\ \text{[relative] per} \\ \text{pathogen sample} \\ \text{(repetition)} \end{array} = \frac{B1(LE \times 100)/LK + B2(LE \times 100)/LK + B3(LE \times 100)/LK + B4(LE \times 100)/LK}{\sum \text{Inoculated tobacco leaves}}$$

B1 = inoculated leaf of the first plant

B2 = inoculated leaf of the second plant

B3 = inoculated leaf of the third plant

B4 = inoculated leaf of the fourth plant

LE = number of lesions on the pathogen sample

LK = number of lesions on the positive control sample

The residual infection [relative value] of the pathogen tobacco mosaic virus for a test area is calculated from the arithmetic mean of the relative residual infection for all repetitions (pathogen samples) in each test area:

$$\begin{array}{l} \text{Residual infection} \\ \text{[relative] per test} \\ \text{area}^8 \end{array} = \frac{\sum \text{Residual infection [relative] per pathogen sample (repetition)}}{\sum \text{Repetition per test area}}$$

If the residual infection [relative value] for each test area $\leq 4\%$, the test has been successful.

⁸ Deposit area for process inspections for composting: edge, core, base.

4.3.2 Tests on sanitised bio-waste

When testing sanitised organic waste in phytohygiene, the content of viable seeds and sprouting plant parts capable of sanitising the material is treated with the intended method of cultivation.

The test is performed with material from a well-mixed composite sample (approximately 3 kg). The composite mixed sample is made up of at least five different sub-samples of a batch of the sanitising material treated in accordance with number 3.3.

Sample preparation

The weight per volume and the salt content of the test substrate must be determined. For composts, the original sample is screened to <10 mm. Compost that is too moist and cannot be screened is pre-dried (air drying). Pasteurised materials and liquid digestate are used unscreened and as a liquid test substrate.

Equipment needed

- - Plastic trays with holes in the base or equivalent test containers,
- - Moulding mats,
- - Pinhole film,
- - Suitable mixed substrate (e.g. weakly decomposed bog peat with approximately 4 g of carbonated calcium per litre which is free of viable seeds and sprouting plant parts).

Procedure

3 litres of screened (FS <10 mm) test substrate is used for solid samples and 0.5 litres of liquid test substrate for liquid samples. After determination of salinity⁹, the test substrate is diluted with a suitable mixing component (KCl content = 0 g/l) so that the test mixture has a salt content of <2 g KCl per litre. Peat with approximately 4 g of carbonated calcium per litre, which is free of viable seeds and sprouting plant parts, serves as a mixing component. The test mixture is spread evenly in the test dishes to a coating thickness of 10 mm (plastic bowls with holes in the base or equivalent containers which are designed with a moulding mat and a pinhole film as protection against contamination), gently pressed and increased to full water capacity by moulding. The test containers are then left without direct sunlight over

⁹- Method according to the *Methodenbuch zur Analyse organischer Düngemittel, Bodenverbesserungsmittel und Substrate* (Book of methods for analysis of organic fertilisers, soil improvers, and substrates), Chapter III. C 2, *Bundesgütegemeinschaft Kompost e. V.* (Federal Compost Quality Association e. V.) (Ed.), 5th edition 2006, self-published, Cologne; archived in a secure manner at the German National Library in Leipzig.

a period of 15 days at a luminance of at least 1,000 lux and a temperature of between 18 and 20 °C. The water loss is compensated for on a regular basis by quenching. To avoid dehydration, the dishes must be covered with glass or plastic plates so that air exchange is still possible.

Calculation

After 15 days of cultivation, the germinated plants are counted and their number is quoted to 2 decimal places based on a litre of test substrate.

The test on the sanitised bio-waste is successful in phytohygiene if the content of viable seeds and sprouting plant parts is up to 2 per litre of test substrate.

Annex 3

(in relation to Section 4 (9))

Requirements concerning analysis (sampling, preparation of samples and investigation of both treated and untreated bio-waste)

1 Investigation of treated and untreated bio-waste

1.1 Sampling

Samples for the investigation of bio-waste as required by Section 4 are taken from bio-waste in the form in which it is put into circulation or applied to soils used for agricultural, silvicultural or horticultural purposes.

The sampling of solid untreated or treated bio-waste is carried out in accordance with DIN EN 12579 (January 2000), Soil improvers and growing media – Sampling.

For liquid untreated or treated bio-waste, sampling in accordance with DIN 51750-1 (December 1990), Sampling of petroleum products; general information and DIN 51750-2 (December 1990), Sampling of liquid petroleum products.

Samples of liquid, pasty and sludge-like untreated or treated bio-waste are taken according to DIN EN ISO 5667-13 (August 2011) Water quality - Sampling - Part 13: Guidance on sampling of sludges.

This quantity is poured into a suitable container that can be tightly sealed and is immediately taken to the testing laboratory.

1.2 Preparation of samples

The sample to be investigated is thoroughly mixed directly before a sub-sample is taken. For the test parameters which are to be determined from the dry matter, one core sample is taken which is at least sufficient to guarantee four parallel tests. This core sample is dried according to the requirements of DIN EN 13 040 (February 2007), Soil improvers and growing media – Sample preparation for chemical and physical tests, determination of dry matter, moisture content, and lab waste density, at a temperature of 105 °C until reaching a constant weight. For the determination of loss on ignition, solid bio-waste in accordance with DIN EN 13 040 (February 2007), Soil improvers and growing media – Sample preparation for chemical and physical tests, determination of dry matter, moisture content, and lab waste density, ground to a grain size < 2 mm. For the determination of the heavy metal content of solid bio-waste in accordance with DIN EN 13 650 (January 2002), Soil improvers and

growing media – Extraction of aqua regia soluble elements, crushed to a grain size < 0.5 mm.

With regard to the test parameters that are to be determined from the fresh mass, another sub-sample is taken which must at least be sufficient to guarantee four parallel tests. Solid sub-samples are crushed to a grain size < 10 mm, homogenised and screened through a sieve with a mesh size of 10 mm; the mesh minus is used for the tests.

1.3 Testing

A minimum of two parallel measurements must be taken for each test parameter. Equivalent methods are permissible.

If, in the case of untreated bio-waste, individual tests to determine the additional parameters referred to in Section 4 (5), first sentence, number 2 cannot be carried out, the reasons must be given in the delivery note.

1.3.1 Determination of the dry matter content

The dry matter content is determined from the unscreened sub-sample according to the requirements of DIN EN 13040 (February 2007), Soil improvers and growing media – Sample preparation for chemical and physical tests, determination of dry matter, moisture content, and lab waste density. -

The results are stated in percentage by dry weight. -

1.3.2 Determination of the content of organic matter (loss on ignition)

Loss on ignition is determined from the dry matter according to the requirements of DIN EN 13039 (February 2000), Soil improvers and growing media – Determination of organic content and ash. -

The results are stated in percentage by dry weight. -

1.3.3 Determination of the proportion of stones and physical contaminants

The proportion of stones > 10 mm and physical contaminants > 2 mm (glass, plastics and metals) is determined from the dry matter of the unscreened sub-sample (105 °C) according to the Book of methods for the analysis of organic fertilisers, soil improvers and substrates¹.

The results are stated in percentage by dry weight.

1.3.4 - Determination of the pH-value and the salt content

These values are determined from fresh mass. -

The pH-value is determined according to DIN EN 13037 (February 2000), Soil improvers and growing media – Determination of the pH-value. -

The salt content is determined in accordance with DIN EN 13038 (February 2000), Soil improvers and growing media – Determination of electrical conductivity. -

The results are stated in milligrams per 100 grams of fresh mass. -

1.3.5 - Determination of heavy metals (lead, cadmium, chromium, copper, nickel, mercury and zinc)

Heavy metal concentrations are determined by digesting the dry matter with nitrohydrochloric acid according to DIN EN 13650 (January 2002), Soil improvers and growing media – Extraction of aqua regia soluble elements, using one of the following methods:

Heavy metal	Test method(s)
Lead	DIN 38406, Part 6 (July 1998) DIN EN ISO 11885 (April 1998) DIN ISO 11047 (May 2003) DIN EN ISO 17294-2 (February 2005)
Cadmium	DIN EN ISO 5961 (May 1995) DIN EN ISO 11885 (April 1998) DIN ISO 11047 (May 2003) DIN EN ISO 17294-2 (February 2005)
Chrome	DIN EN 1233 (August 1996) DIN EN ISO 11885 (April 1998) DIN ISO 11047 (May 2003) DIN EN ISO 17294-2 (February 2005)
Copper	DIN 38406, Part 7 (September 1991) DIN EN ISO 11885 (April 1998) DIN ISO 11047 (May 2003) DIN EN ISO 17294-2 (February 2005)
Nickel	DIN 38406, Part 11 (September 1991) DIN EN ISO 11885 (April 1998) DIN ISO 11047 (May 2003) DIN EN ISO 17294-2 (February 2005)
Mercury	DIN EN 1483 (July 2007) DIN EN 12338 (October 1998)
Zinc	DIN 38406, Part 8 (October 2004) DIN EN ISO 11885 (April 1998) DIN ISO 11047 (May 2003) DIN EN ISO 17294-2 (February 2005)

The results are stated in milligrams per kilogram of dry matter.

Note:

If digestion with nitrohydrochloric acid is not possible in the case of untreated bio-waste, the samples must be mineralised before digestion and without loss of heavy metals at a temperature of 450 °C; alternatively, an equivalent digestion method may be used.

2 Indication and calculation of results

Unless it is otherwise specified for the individual test parameters in this Annex, the results of each of the two parallel measurements and their arithmetical mean must be indicated.

Determining the mean value is only permissible if the difference between the two individual results is within the common range of precision of the method applied². If it is not within this range of precision, examination of the possible causes of such an excessive difference as well as a third measurement is required. Where examination of the excessive difference fails to identify a clear cause, the median of the three individual values, in order of their size, must be given as a final result.

3 Quality assurance and control

The testing bodies are required to ensure the accuracy of the results of analyses by means of appropriate measures for quality assurance and control³. This involves providing proof of regular and successful participation in multiple-laboratory test series.

4 Announcements by competent bodies

The DIN norms listed in clause 1 were published in the Beuth-Verlag GmbH, Berlin and Cologne and have been archived in a secure manner at the German Patent and Trademark Office in Munich.

The Book of methods for the analysis of organic fertilisers, soil improvers and substrates designated in number 1.3.3 was self-published by the Federal Compost Quality Association e. V., Cologne, and is archived in a secure manner at the German National Library in Leipzig.

Test body inspection of pollutants and other parameters (Section 11 (2), second sentence, number 7) – Name and address:	Test body inspection of the sanitised bio-waste (Section 11 (2), second sentence, number 7) – Name and address: Sampling date: Analysis No:	
The issuer guarantees that the requirements a) for epidemic and phytosanitary safety in accordance with Section 3 paragraphs (2) and (3), as well as b) for the heavy metal content in accordance with Section 4 (3), read in conjunction with Section 5 (2), second sentence, are observed (Section 11 (2), second sentence, number 5).		
Bio-waste/mixture for application to grassland areas and on multiple-tiller land used for field forage permissible (Section 11 (2) second sentence, number 9) <input type="checkbox"/>		
Results of soil analysis (Section 11 (2a), second sentence); to be completed by the farmer in the original delivery note)		
No soil analysis required (Section 9 (2), fourth sentence) <input type="checkbox"/>		
Soil analysis in accordance with the Sewage Sludge Ordinance enclosed (Section 9 (2), third sentence) <input type="checkbox"/>		
Sampling date:	Analysis No:	
Lead mg/kg DM	Clay soil <input type="checkbox"/>	
Cadmium mg/kg DM	Loam soil <input type="checkbox"/>	
Chromium mg/kg DM	Sandy soil <input type="checkbox"/>	
Copper mg/kg DM	pH-value	
Nickel mg/kg DM		
Mercury mg/kg DM		
Zinc mg/kg DM		
Soil analysis body (Section 11 (2a), second sentence); to be completed by the farmer in the original delivery note) – Name and address:		
Application area (Section 11 (2a), second sentence); to be completed by the farmer in the original delivery note) (enter other application areas on an additional sheet if required)		
District or alternative field designation	Cadastral unit	Parcel No Size ha
Date of issue and signature of the issuer	/ If interim distributor, date of acceptance/forwarding and signature (enter other interim distributors on an additional sheet if required)	Date of acceptance and signature of the farmer of the application area

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- 1- Ordinance on the European Waste Catalogue (AVV) of 10 December 2001 (Federal Law Gazette Part I p. 3379), most recently amended by Article 7 of the Act of 15 July 2006 (Federal Law Gazette Part I p. 1619).
 - 2- Waste in accordance with the Waste Type Catalogue of the *Länderarbeitsgemeinschaft Abfall* (Regional Working Group on Waste), Sixteenth Regional Working Group on Waste: LAGA briefing paper on waste types – 1991, communication from the *Länderarbeitsgemeinschaft Abfall (LAGA)* (Regional Working Group on Waste) – Erich Schmidt Verlag, Berlin.
 - 3- Regulation (EC) No 1069/2009 of the European Parliament and the Council of 21 October 2009 laying down health rules as regards animal by-products and derived products not intended for human animal products consumption and repealing Regulation (EC) No 1774/2002 (Animal by-products Regulation) (OJ L 300, 14.11.2009, p. 1), most recently amended by Directive 2010/63/EU of 22 September 2010 (OJ L 276, 20.10.2010, p. 33) in its current version.
 - 4- Commission Regulation (EU) No 142/2011 of 25 February 2011 implementing Regulation (EC) No 1069/2009 of the European Parliament and of the Council laying down health rules as regards animal by-products and derived products not intended for human consumption and implementing Council Directive 97/78/EC as regards certain samples and items exempt from veterinary checks at the border under that Directive (OJ L 54, 26.2.2011, p. 1).
 - 5- The waste materials are assigned to this waste designation as the AVV does not contain any special waste designation for biodegradable waste from sporting facilities, places, sites and children's playgrounds arising outside of gardens and parks, woodland clearance debris, and water maintenance vegetable waste, as well as for landscape waste and vegetable constituents of flotsam.
 - 6- The waste materials are assigned to this waste designation as the AVV does not contain any special waste designation for separately collected bio-waste, especially in bio-waste bins.
 - 7- Fertiliser Ordinance and Fertiliser Application Ordinance in their current versions.
 - 1- *Methodenbuch zur Analyse organischer Düngemittel, Bodenverbesserungsmittel und Substrate* (Book of methods for analysis of organic fertilisers, soil improvers, and substrates), *Bundesgütegemeinschaft Kompost e. V.* (Federal Compost Quality Association e. V.) (Ed.), 5th edition 2006, self-published, Cologne.
 - 2- For details of the investigation, see in particular ISO 5725 Accuracy (trueness and precision) of measurement methods and results
 - Part 1: General principles and definitions (ISO 5725-1, Corrected Edition September 1998),
 - Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method (ISO 5725-2, December 2002), -
 - Part 3: Intermediate measures of the precision of a standard measurement method (ISO 5725-3, February 2003),
 - Part 4: Basic methods for the determination of the trueness of a standard measurement method (ISO 5725-4, January 2003),
 - Part 5: Alternative methods for the determination of the precision of a standard measurement method (ISO 5725-5, November 2002). -
 - 3- See in particular:
 - *AQS – analytische Qualitätssicherung, Rahmenempfehlungen der Länderarbeitsgemeinschaft Wasser (LAWA) für Wasser-, Abwasser- und Schlammuntersuchungen* [AQS – analytical quality assurance, under recommendations of the Regional Working Group on Water (LAWA) for water, wastewater, and sludge studies]; Regional Working Group on Water (Ed.), Erich Schmidt Verlag, Berlin April 2006,
 - *Richtlinie zur analytischen Qualitätssicherung in der Wasseranalytik* (Guide to analytical quality control for water analysis), DIN V ENV ISO 13530, (October 1999). -