

RAPPORT B2009

Certification rules for compost

ISSN 1103-4092



PREFACE

These certification rules lay down requirements for certification, technical requirements and requirements for continuous control of certified compost.

The technical requirements laid out in Chapter 3, along with requirements for continuous control according to Chapter 4 and 5, have been decided by the Swedish Waste Management (Avfall Sverige) together with SP Byggnadsteknik, SWECO VIAK (former VBB VIAK), Dansk Jordforbedring and Svenska Lantbruksuniversitetet, among others. The certification is made by SP Certification in accordance with Chapter 2.

The continuous control consists of the producer's self-monitoring and SP's supervisory inspection. The self-monitoring include among other things testing of finished compost. SP's supervisory inspection is carried out through producer visits, and includes inspection of the producer's self-monitoring. SP collect samples for analysis of the finished products at the visits with the purpose to verify the conformity of the analysis results presented in the producer's self-monitoring.

The certification rules are based on prevailing standards and the Swedish Waste Management's requirements, which are documented in the RVF report 99:2 (AFR report 257) "Sjösättning av certifierings-system för kompost och rötrest". When necessary, the certification rules are updated in order to be as accurate as possible. Current edition of the certification rules is published on the SP website, <http://www.sp.se>. The certification rules are also based upon other documents such as the European parliament and council's regulation no. 1774/2002 from October 3, 2002, stating health directions for animal by-products not destined for use in food items, and the Swedish Environmental Protection Agency's guidelines with general advice about methods for storing, digestion and composting of waste.

The relevancy of the certification rules is granted by decisions taken by the direction committee for certification of compost and digestate. The direction committee has two annual meetings. It is entirely in their interest that as many as possible of the parties involved are represented in the direction committee. At present the direction committee has representatives of both producers, users, experts and trade organizations concerned. The certification rules are regularly updated on the basis of decisions taken by the direction committee.

This edition of SPCR 152 is replacing the December 2006 edition.

Borås, December 2007

**SP Technical Research Institute of Sweden
Certification**

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GENERAL INFORMATION ABOUT CERTIFICATION AT SP

Certification denotes the guarantee from an independent third party of the product's conformity to standard or specific requirements. Within SP, certification is performed by a special unit, SP Certification, which is completely separate from the other testing and inspection units. They report to a certification board, comprising representatives of various industry sectors. The board can appoint expert groups for various product areas, e.g. technical committees. Certification of products by SP is performed in accordance with SS-EN 45011.

Requirements for certification are set out in specific certification rules (SPCR), which are put out for each particular application area. Before certification starts, the certification rules must, unless they are entirely made from authorities' directions, be discussed with parties involved, and thereafter they can be approved by SP's certification board. This procedure ensures that certification is based on rules that have been carefully considered, are relevant and have a sound basis.

Products can be certified by SP, after an initial assessment with for example tests, if they show that they meet the requirements. This is affirmed by a certificate, which normally is a permission (licence) to use the certification mark. A continuous control, consisting of the producer's self-monitoring, and the SP supervisory inspection, will guarantee that the requirements are fulfilled during the validity time of the certificate.

1.2 Scope of the certification rules

These certification rules concern non-mandatory certification of compost made from clean, source-separated organic waste in regard of requirements for incoming input material, deliverers, collection and transport, process of treatment, final product as well as table of content and "Recommendations and directions for compost usage". The certification rules are made primarily for anaerobic digestion plants, but may also be of use in wet composting plants on condition they use with input material approved in accordance with the certification rules.

The certification rules are continuously updated by the direction committee and information from the most recent update is stated in Appendix 7.

Please note that the rules do not comprise compost made from digestion sludge in sewage sludge treatment plant. The purpose is, at this stage, not to certify the finished soil mixture containing materials other than digested sludge from organic waste, such as peat, topsoil, gravel, sand, artificial fertilizer etc. A mixed soil product containing certified compost may be marked with the certification system's mark, even if the final product is not included by the system, on condition that it clearly shows that only the compost is certified, and that the share of soil mixture consisting of certified compost is given.

The certification rules are based on results from the project “Kvalitetssäkring av kompost och biogödsel från organiskt avfall”. Reports from the project, such as report 99:2 “Sjösättning av certifieringssystem för kompost och rötrest”, can be ordered from the Swedish Waste Management on the following address: Avfall Sverige, Prostgatan 2, 211 25 Malmö

Other documents the certification rules are based upon are the European parliament and council’s regulation no. 1774/2002 from October 3, 2002, stating health directions for animal by-products not destined to be used in food items, and the Swedish Environmental Protection Agency’s guidelines with general advice about methods for storing, digestion and composting of waste.

1.3 Definitions

Additives	Additives intended to improve the quality of the final product. Approved additives are specified in Appendix 1b.
Animal by-product	See ABP regulation, EG no. 1774/2002.
Certification body	Organization authorized to perform inspections and testing, as well as issuing and withdrawal of certificates.
Deliverer	Company assigned by an organization or local authority to collect and/or deliver organic waste.
Digestive tract content	Stomach or intestine contents from mammals or ostrich birds, regardless of whether or not the content has been separated from the stomach/intestines.
Distributor	Juridical person who, by contract with the producer, delivers compost to the end-user.
Impartial authority	Organization with no profit interest in the business of producers and users.
Inspection body	Organization authorized to perform inspections and testing assigned by of the certification body.
Inspections	Tests and other documented routines carried out to certify the fulfillment of the intended product quality.
Manure	All sorts of faeces and/or urine from guano or production animals, with or without litters, which may be either processed or non-processed, according to Chapter III of Appendix VIII, or transformed in a biogas or composting plant.
Pasture land	Land covered by grass or other herbage and is used for pasturage on a regular basis.
Process	All the steps in the process from input material to compost.
Process aids	Additive intended to facilitate or enable steps in the treatment process. Approved process aids are specified in Appendix 1b.
Producer	Juridical person producing compost.
Product	Product in these certification rules signifies fully finished compost to which supplements, such as peat, topsoil, gravel, sand, artificial fertilizer etc., have not yet been added.
Qualification year	Certificate may be granted at the soonest after a year of inspections, a so called qualification year. The qualification year starts when the inspection body has carried out its first impartial test.
Input material	Organic waste intended for treatment in a composting plant.
Second part audit	The compost producer’s audit of entrepreneurs whose work affects the quality of the product, for example input material suppliers.
Supplier	Household or organization where organic waste is produced.

2. COMPOST CERTIFICATION CONDITIONS

The conditions for certification are specified in this chapter, and have been based upon the standard directions for certification according to “Sjösättning av certifieringssystem för kompost och rötrest”, RVF Utveckling, Rapport 99:2. The conditions have been established by a direction committee consisting of a large range of representatives from various groups within the agriculture sector. The conditions are revised when necessary and the date of last revision is given in Appendix 7. An initial assessment of the product and of the continuous control is made during the qualification year, before the certificate is issued. A certificate is thereafter valid on condition of a functioning continuous control among other things. Other conditions are specified in Chapter 6.

2.2 Application

The application for certification must be in writing and, during the qualification year, completed with:

- Technical data (test reports etc.)
- A description of the producer’s self-monitoring
- Suggestions for labeling according to Section 2.3.5

2.3. Qualification year

The qualification year begins when the inspection body performs its first impartial test as described in Appendix 2. Certification of additional products does not require a second qualification year.

The initial assessment examines received documents against the requirements set out in the certification rules. When the assessment is completed and the documents of the applicant are considered to meet the requirements, the inspection body will carry out impartial sampling and analysis through producer visits, and verify that the reported self-monitoring meets the requirements specified in Chapter 4. The first hygiene inspection shall also be carried out during the qualification year and performed as described in Appendix 5. This will all take place during the qualification year at the given frequency described in Appendix 2. If both self-monitoring and impartial tests meet the requirements presented in Chapter 4 and 5, an agreement on continuous control between the producer and SP is signed. Thereafter the certificate is issued.

2.3.1. Production during the qualification year

Given the product is approved (see Section 3.6) the product produced during the qualification year will be considered and used as a certified product. The product may not however carry the certification mark until after the qualification year is completed and the certification is issued.

2.3.2. Non-conforming product during the qualification year

The qualification year will start over if a product is non-conforming (once or several times) during the qualification year, without an adequate explanation of the causes, and if no actions were taken to solve the problem causing the defect in quality.

2.3.3. Technical data

For the product in question the applicant must present technical data containing the following information:

- A declaration of contents according to Section 3.7, as well as recommendations and directions for compost usage according to Section 3.8.
- A test report to show the fulfillment of the technical requirements according to Section 3.6, which is based on tests during the qualification year. The report must be coming from an impartial body and may, provided that no considerable process changes have been made since the date of issue, be two years of date at the most from the time of the application.
- A process declaration, in which the producer accounts for the treatment process, for example which are the units involved and where the production takes place.

The tests shall be performed by an accredited laboratory for the particular test method. The laboratory shall be approved by the direction committee for compost and digestate certification. The laboratory must also be approved by SP Certification, see Section 6.1.

2.3.4. Continuous control

The continuous control shall guarantee that the certified products continuously fulfill the requirements described in the certification rules. It includes self-monitoring as described in Chapter 4, which the producer performs, and a supervisory inspection according to Chapter 5. The continuous control is appointed in an agreement between the producer and the certification body.

2.3.5. Labeling

Products certified by the system have the right to be labeled with the mark “CERTIFIERAD ÅTERVINNING”. The design of the mark is presented in Appendix 4.

Products, delivery notes etc. labeled with the certification system’s mark must also hold information of the certificate number, name of the certificate holder, product name, and serial number/date of production or equivalent. The presentation of the labeling must be approved by the certifying authority.

A soil mixture containing a certified product may carry the certification system’s mark provided that it clearly shows that only the compost is certified, and how much of the final product that consists of the certified product.

2.4. The certificate’s validity

The validity of the certificate is five years. The validity period can be extended, after application from the certificate holder, based on for example supervised inspection reports.

2.5. Modification of a certified product

The certificate holder is obliged to inform the certifying authority prior to modification of input material (not entirely classified in Appendix 1a) or treatment process, who then determines if the nature of the modification is one that can be accepted without supplementary tests, inspections or revision of the certificate.

3. SYSTEM REQUIREMENTS AND TECHNICAL REQUIREMENTS

3.1. Input material

Clean and source-separated organic waste from:

- Parks, gardens, and other grass areas.
- Greenhouses, garden centers etc.
- Households, large scale kitchens, and restaurants.
- Food related retail trade and wholesale.
- Food related refinement industry and packaging industry.
- Animal by-products
- Farming
- Forestry

Examples of waste types included are given in Appendix 1a.

The input materials are essential to the quality of the product. Potentially hazardous substances must therefore be avoided. The producer must take measures to minimize the level of undesirable substances.

Materials which contain hazardous or foreign substances that significantly affect the quality of the compost negatively, or in a negative way influence the acceptance of the recycling system or the final product, are not appropriate input material.

Sludge from sewage sludge treatment plants, night soil, and sludge from single wells are covered by separate legislation and is therefore quality-assured by separate systems.

If composting of ABP Category 2 (exclusively manure, digestive tract content which has been separated from the stomach and intestine system, milk and raw milk) and/or Category 3 (see Appendix 1a) takes place in the plant, the plant must be approved by the Swedish Board of Agriculture and meet the requirements specified in Appendix 3. The former concepts high and low-risk animal waste are replaced by the three categories specified in ABP 1774/2002.

3.1.1. Additives and process aids

Additives and process aids may be used in the process. They must be declared and described in the producer's internal quality system, quality manual or equivalent. Approved additives or process aids are specified in Appendix 1b. There is no maximum limit for the extent of their implication. It is the producer's responsibility to inform the inspection body of how they affect the product.

3.2. Suppliers

The suppliers shall deliver input material as in accordance with Section 3.1. All deliverers shall receive information regarding the types of input material approved and source separation of it. The delivery must be managed in such a way that amounts of undesirable substances are minimized. Large scale suppliers must also perform self-monitoring in order to ensure that quality of the material meets the standards for input material and final products.

A second part audit of the deliverer's quality management can be performed when necessary.

3.3. Collection and transport

The deliverer shall document the collecting depots and the quantity of waste of each transport. The transporter must manage the transfer so that the quality of the material is not impaired by hazardous or foreign substances. Precautions must be taken to avoid re-infection by contaminants during the transport. Self-monitoring shall be made to guarantee the fulfillment of these requirements.

3.4. Reception

Weight or volume of received material is registered. The quality of the material is controlled and any hazardous or foreign substances are removed to the utmost possible extent. The risk of contamination must be minimized. As for plants which receive material in closed systems without possibility of visual control, the total of the volumes registered at the collecting depot must correspond with the received quantity at the plant.

3.5. Treatment process

The treatment process must be carried out by experts and by using a functional biologic process technique. The risk of contamination of hygienized material or by interference from non-certified material must be minimized. Current operational parameters of relevance for the product quality shall be measured and documented.

Requirements for current operational parameters for compost are the following:

- Type and quantity of input material and additives.
- Length and cross-section surface of string or bed.
- Start and finish date of the treatment, in other words the composting time.
- Combination of time and temperature.
- Water content
- Turning and watering schedule
- Measures against recontamination
- Potential process disturbances
- Optical assessment (for example of pesticides and fungal growth).

3.6 Requirements for final product

Requirements for guideline values regarding the quality of finished products are given below. A list of analysis methods to be used is given in Appendix 2.

Metals

Guideline values for metal content in compost are set out in Table 1.

Table 1. Guideline values for metal content in compost.

METAL	MAXIMUM CONTENT, MG/KG TS1)
Lead	100
Cadmium	1
Copper	600 ²⁾
Chromium	100
Mercury	1
Nickel	50
Zinc	800 ²⁾

- 1) All values, aside from those of copper and zinc, are conforming to the guideline values for soil improvers according to the “EU flower”.
- 2) The values applied to copper and zinc are the same as for waste water sludge allowed for dispersion on fields, see SNFS 1998:4.

Disease control

The product must meet the requirements for disease control specified in Appendix 3.

Visible impurities

‘Visible impurities’ means foreign substances such as plastic, glass, metals and composites. The total content of visible impurities >2 mm must not exceed 0.5 % of the dry substance weight.

- **Viable weed seeds and plant parts** – requirements for approval are that the product contains 2 or less viable weed seeds or plant parts per liter.
- **Organic substance** – The product must contain at least 20 % of organic substance, measured as loss on ignition in percent of the dry substance weight.

3.7 Declaration of contents

The product must have a written document called declaration of contents. The declaration of contents should at least contain the information specified in Section 3.7.1 or 3.7.2. The measurements presented in the declaration of contents should be updated at least once every year and be average values from analyses made the last 12 months. If there are measurements of a certain load from a shorter period of time (for example of a string or a loaf) these may be presented instead.

3.7.1 Minimum standards for the declaration of contents of compost intended for usage in farming.

General information

- Premises of production
- Production manager
- The input material, additives, and process aids included, in accordance with Appendix 1a or Appendix 1b, given in percent of weight or volume.
- Recommendations and directions for compost usage
- Affirmation of the fulfillment of environmental requirements for heavy metals, disease control, and visible impurities.
- Date when declared parameters were last revised.

Other parameters should be presented as in Table 2.

Table 2. Parameters to be included in the declaration of contents of compost.

PLANT NUTRIMENT	TERM	UNIT
Total Nitrogen	Tot-N	kg/tonne and kg/m ³
Ammoniacal Nitrogen	NH ₄ -N	"
Total Phosphorus	Tot-P	"
Total Potassium	Tot-K	"
Magnesium	Mg	"
Sulfur	S	"
Calcium	Ca	"
SOIL IMPROVING AND PHYSICAL QUALITIES	TERM	UNIT
Organic substance	-	Loss on ignition in % of TS
pH	-	-
Dry substance content	TS	Weight percentage
Sieve size	-	mm
Volume weight	-	kg/m ³

3.7.2 Minimum requirements of declaration of contents for compost of direct or indirect use in soil mixtures in the green area sector, gardening, and hobby cultivation

General information

The general information requirements are the same for compost usage in farming. Additional parameters should be presented as specified in Table 3.

Table 3. Parameters which requires presentation in the declaration of contents for compost used as described above.

PLANT NUTRIMENT	TERM	UNIT
Total Nitrogen	Tot-N	kg/tonne and kg/m ³
Nitrate Nitrogen	NO ₃ -N	"
Ammoniacal Nitrogen	NH ₄ -N	"
Total Phosphorus	Tot-P	"
Freely soluble Phosphorus	P-soluble	"
Total Potassium	Tot-K	"
Magnesium	Mg	"
Sulfur	S	"
Calcium	Ca	"
SOIL IMPROVING AND PHYSICAL QUALITIES	TERM	UNIT
Organic substance	Loss on ignition	% av TS
pH	-	-
Dry substance content	TS	Viktsprocent
Sieve size	-	mm
Particle size	-	% < 5 mm
Stone	-	% > 5 mm
Volume weight	-	kg/m ³
Stability (Biodegradability)	Not ready Fresh Stable Very stable	-
Conductivity	-	µS/cm

3.8. Recommendations and directions for compost usage

A document named "Recommendations and directions for compost usage" must be written for the product as specified in this section. However, this is not required if the compost is used exclusively as input material for soil and manure mixtures.

The recommendations and directions for compost usage shall state the quantity of compost that should or, in occurring cases, is allowed for dispersion in different fields of applications. For usage in farming, restrictions regarding supply of plant nutriment (Table 4) and metals (Table 5) should be applied, as laid out in SJVFS 2004:62 [10] and in SNFS 1994:2. The substance which limits the dispersion must be presented.

The information brochure from the Swedish Environmental Protection Agency called "Gödsel och Miljö" should also serve as guidance.

Table 4. Supply of plant nutriment for use in farming [9].

PHOSPHORUS GROUP OF THE SOIL ¹	TOTAL PHOSPHORUS (kg/ha)	AMMONIACAL NITROGEN (kg/ha)
I och II	35	150
III – V	22	150

¹ Phosphorus content (P-AL), Group per 100 grams of dry soil:

I < 2; II 2,0-4,0; III 4,1-8,0; IV 8,1-16; V >16

Table 5. Guidance values for metal supply on fields.

METAL	ANNUAL MAXIMUM LIMIT (g/ha)
Lead	25
Cadmium	0,75
Copper	300 ¹⁾
Chromium	40
Mercury	1,5
Nickel	25
Zinc	600

1) Larger quantities of copper can be accepted if the need for an additional contribution can be proved at the particular field where the dispersion is intended.

4. THE PRODUCER'S SELF-MONITORING

4.1. General information

The producer must perform regular self-monitoring to guarantee the fulfillment of the requirements set out for carrying the certification mark. The self-monitoring must be described in the inspection program, the quality manual or equivalent, and include the requirements specified in this chapter. If the producer has a management system in accordance with SS-EN ISO 9001 or SS-EN ISO 14001 that has been certified by an accredited certification body, this may be considered to fulfill the requirements for organization, the management's inspection of the self-monitoring, documentation, and complaints described below.

4.2. Organization

4.2.1 Quality policy

The producer must have a quality policy which describes the product quality goals.

4.2.2 Responsibilities and powers

The organization of the self-monitoring must be described with names of those responsible for the inspection and with the powers to take actions to prevent defective quality.

4.2.3 Producer's representative

The producer must appoint one person to be representative applicable to the self-monitoring. The representative has authorized powers and responsibility to guarantee the fulfillment and maintenance of the intended quality on certified products.

4.3. The management's inspection of the self-monitoring

The management or producer's representative, see Section 4.2, must at least once a year perform documented inspections to guarantee the efficacy of the self-monitoring. The management's inspection is based on results from internal audits, deviation reports, test results and action plans.

4.4 Staff training

All staff whose work affects the quality of the products must complete the required training. The producer's representative must complete certification training approved by the certification system's direction committee.

4.5 Documentation

Only the most recent editions of documents may be accessible to the staff of the company. There must be a record of documents and a distribution list, as well as routines for making new documents, document changes, and collection of invalid documents.

4.6 Testing and Control

4.6.1 Input material, distributors, collection and transport

The producer must present routines for control of input material, suppliers, collection, and transport.

4.6.2 Reception

Incoming input material of importance for the quality of the product must be controlled in accordance with the documented routines. The control must be performed in the extent considered necessary to certify that the coming material and products meet the specified requirements.

If a situation would arise which means a risk of a higher content of impurities, there must be routines laid down for more elaborate analyzing and special treatment of the product.

4.6.3 Treatment process

Control during the treatment process must be of the extent considered necessary to certify that the products produced meet the specified requirements. The operational parameters stated in Section 3.5, are essential to the quality and must be documented.

4.6.4 Final product

Control of final product must be of the extent considered necessary to certify that the product meet the requirements specified. The producer must set up a sampling plan from methods laid down in Appendix 2. The sampling plan must include information such as sampling frequency, analyses and measures to be taken in case of a non-conforming result. Examples of such measures could be increased frequency of samplings, separation of non-conforming sections etc.

Access to instructions for the sampling performance is mandatory.

The minimum frequency for sampling through self-monitoring or impartial inspection during the qualification year and during the continuous control is laid down in Appendix 2.

Analysis reports are audited at the same time as the recurrent inspections.

4.6.5 Equipment and methods

Calibration, control, adjusting, and maintenance of equipment shall be presented in applicable cases. Methods laid down in Appendix 2 should be used. Other methods can be use if validated as equivalent.

4.7 Treatment of non-conforming product

Products that do not meet the specified requirements must be separated. Any labeling suggesting authorization must be removed. Non-conforming products cannot be marketed under the same name or mark as certified products. If the product has been delivered when the defects are detected the client must be informed. Thereafter the consequences will be investigated.

4.8 Directions for labeling

There must be directions for the procedure and time of the labeling of certified product.

4.9 Handling of finished products

Finished products must be handled so that a satisfactory homogenization is achieved. Prevention of damages and impairments in handling, storing, packaging and delivery should be described.

4.10 Traceability

Delivered products should be traceable to intermediate storage, period of manufacture etc.

4.11 Preventive measures

The producer must make an action plan for the guaranteeing and the amelioration of the product quality. Actions taken for the purpose of the continuous minimization of undesirable substances must be

described. Preventive measures are for example measures in the production to help avoid any defects in quality, re-infection by contaminants or contact between undesirable substances and incoming materials.

4.12 Correction measures

Measures taken in case of defects in product quality must be described, as well as measures to prevent such defects from being repeated. The routines shall at least include an investigation of the causes of the defects, and the establishment of necessary measures to minimize the risk of repetition. Investigation and measures should be documented and shown to the inspection body.

4.13 Complaints

Complaints from clients regarding certified products, labeling, marketing etc. should be documented along with measures taken, and kept accessible to the inspection body.

4.14 Quality records – record keeping

The producer must be able to prove that the products meet the specified requirements through relevant documentation. The documents may be kept as computer files or as paper copies. The documentation of inspections and tests must be made so thoroughly that it makes required traceability possible. Records must include both comments from cases of non-conforming results and a description of measures taken.

- A minimum of the following information should be presented once every year:
- Information about received quantities and the types of input material.
- Information about the quantities of compost produced.
- Results from analyses.
- Information about the quantities of certified products delivered during the past year.
- Information about the quantity of non-conforming products and how it has been handled.

Archiving times must be presented for documents from the self-monitoring. Records from inspections and tests must be kept accessible to the inspection body for a period of at least five years.

5 THE SP SUPERVISORY CONTROL

5.1 Implementation

The supervisory control is made once or twice every calendar year depending on the extent of the production, and carried out through unannounced producer visits on hours decided by the inspection body (SP). Each inspection visit is either a half day (4 working hours exclusive of travelling time) or a whole day (8 working hours exclusive of travelling time).

The inspection body makes a running assessment of the visit extent needed to ensure the fulfillment of the requirements laid down in SPCR152. The most important aspects considered when making an assessment of the extent of the visits, are a well functioning self-monitoring and products which meet the set requirements. Please note that more frequent visits may be resulted by significant alterations of the treatment process and/or changes of input material (see also Section 2.5).

In some cases a specific hygiene inspection is needed during the qualification year. In such cases a follow-up inspection should be made every five years, to follow up on any changes made at the plant etc. Which cases require such a hygiene inspection is described in Appendix 3.

On visits, the inspection body should check that the self-monitoring described by the producer operates as intended, and make a sampling and control of certified products as described in Section 5.2.

If the producer uses a quality system certified by an accredited certification body (see Section 4.1) this part of the inspection by the inspection body, the self-monitoring can normally limited to control of test results and revision reports.

5.2 Testing and controls

Supervised sampling is made at the inspection to ensure the sampling is performed correctly. The sample is then analyzed or discarded in accordance with the plant's ordinary routines. Handling and analysis of the sample must be made according to methods stated in Appendix 2.

If the producer's self-monitoring fails the inspection, the causes shall be investigated by the inspection body. The investigation may result in a new inspection visit, in a reinvestigation, or in a disapproval of the continuous control.

5.3 Measures if product or inspection of self-monitoring fails

If sampling and analysis performed after the self-monitoring show inadmissible values, the producer is obliged to report this to the inspection body or certification body.

5.4 Reporting

The supervisory control must be reported in writing to the producer, as well as to the certificate holder, if the certificate holder is someone else than the producer.

6. OTHER CONDITIONS FOR CERTIFICATION

6.1 General information

The conditions in these certification rules, Chapter 2 and 6, are based on principles presented in the SP manual for certification quality. Subcontractors typological testing and supervisory inspection must be approved by SP Certification.

SP is both certification body and inspection body. SP is in capacity as certification body included in the control body described in Section 6.9.

6.2 Revision of certification rules

SP reserve the right to make alterations in the certification rules on decision by the direction committee for certification of compost. Information about the last date of revision is found in Appendix 7. Prolongation of certificate is approved on condition that the certificate holder binds himself to follow the revised rules. The certificate holder should however be given a reasonable time of period to enable adaption to the revised rules, unless there is particular reasons for which an exception should be made.

6.3 Responsibility of the certificate holder

The certificate holder is responsible for guaranteeing that products covered by the certificate and labeled with the certification body's certification mark, in all respects conform with the certified product according to the certificate, and that these products fulfill their purpose and do not cause damage or other nuisance.

6.4 The right to use the mark

The certificate holder has the right to label products which are comprised by the certificate with the certifying authority's certification mark, and to use the mark in advertising or other publicity of the products. Advertising which could cause confusion between labeled and non-labeled products is not allowed.

6.5 Certificate

The certificate is not transferable.

6.6 Withdrawal of certificate

The certification body can with immediate effect withdraw the certificate, definitely or temporarily, if:

- a. The certificate holder has used the certification mark on or in connection with products which do not fulfill the requirements;
- b. The certificate holder has used the certification mark on products not covered by the certificate;
- c. The continuous control has stopped or given non-conforming results;
- d. The certificate holder has not complied to the conditions for the certificate in other respects;
- e. The certificate holder has failed to pay the fees within the prescribed time limits;
- f. The certificate holder has been declared bankrupt, has gone into liquidation, or has assigned the production;
- g. Certificate non-conformities are revealed. The certificate holder should however be given reasonable time for adaptation to the new conditions, given that there are no specific reasons for other measures;
- h. The product is found to be inappropriate for its purpose or in other ways capable of causing damage or nuisance.

6.7 Obligations followed by certificate withdrawal

If the certificate holder's certificate is withdrawn, definitely or temporarily, he/she must:

- a. Immediately cease all certification reference to the certificate in advertising or other publicity of the product in question;
- b. Remove the certification mark from all products in stock, if the certification body so demands;
- c. Defray all costs for replacing defect and already delivered products with products fulfilling the requirements in the certification rules, if the certification body so demands.

6.8 Certificate return

The same rules are valid when a temporarily withdrawn certificate is given back as when it was first received the first time, see Section 2.3. A new qualification year is not required if less than one year has passed since the certificate was withdrawn, on condition that no certification rules or production conditions have changed.

6.9 Responsibility of the control body

The certification system's direction committee (of which the certification body is part) is bound to see to that technical requirements of the certification rules are based on obtainable knowledge and experience, for example accredited standards or equivalent specifications, that they fulfill requirements set out in the legislation, and that the rules reflect what is considered a relevant quality level by the parties involved.

The inspection body is responsible for inspections of certified products being conform to the standards in these rules and have been carried out with due precision.

6.10 Confidentiality

All information the certification body or inspection body take part of is protected by confidentiality, apart from the following exceptions:

- The certification body or their partners keep registers of accredited certificates. The registers contain information about the certificate holder, certification number, certified products, classifications if any and validity time. These registers are published on the web site of the certification body.
- The certification body has the right to publish decisions about certification withdrawal and misuse of certification or labeling.
- The certification body has the right to publish information about the total quantity of input material and products covered by the certification system. However, not to publish information about separate plants.
- The certification body has the right to publish information about the average quality standard of products. However, not to publish information about the quality at separate plants.

6.11 Appeals

An appeal against a decision by SP should be made in writing to SP. Measures due to the appeal are decided by the SP certification board.

6.12 Fees

The fees for the initial assessment (certification), auditing, supervisory inspection and prolongation of the validity period shall be defrayed by the applicant/certificate holder.

CERTIFICATION RULES FOR COMPOST

SPCR 152

APPENDIXES

For date of last revision of each appendix,
see Appendix 7

APPENDIX 1A

Input material

Input material of certified compost must be clean, source-separated, and biodegradable waste according to Table 1.

Table 1. Input material for certified compost.

INPUT MATERIAL SOURCES	EXAMPLES
Parks, gardens and other grass areas	Leaves, grass, branches, fruit, flowers, plants and plant parts.
Gardens, garden centers etc.	Tops, weeds, soil and peat.
Households, large scale kitchens and restaurants ¹	Fruit and vegetable remainders, coffee and tea remainders, food remainders, egg shells, cardboard, paper, paper bags, biodegradable bags, plants, and flower soil. Bags for source-separated household waste should fulfill EN 13432 from 1/1 2005.
Food related retail trade and wholesale ¹	Fruit, vegetables, potatoes, dairies, paper towels, paper napkins, bread, meat, meat parts (bones etc.), delicatessen, flowers, pot-plants, soil, and peat. Approved input material is also decay products from the food industry containing additives approved for food production.
Food related refinement and packaging industry ¹	Approved input material is decay products from the food industry containing additives approved for food production.
Agriculture	Manure from pigs, neat cattle, sheep, horses, fowl, and pets. Straw, harvest remainders, silage, green material, energy crops, and catch crops. (Note that manure is regarded as ABP.)
Forestry	Bark, wood chips, sawdust and fiber sludge from the paper industry.
Animal by-products Category 2	Note that only manure, digestive tract content which has been separated from the stomach and intestine system, milk and raw milk are approved ABP in Category 2.
Animal by-products Category 3	See the ABP regulation.

¹ If this category contains animal by-products (according to the table above) the regulation for animal by-products should be followed.

APPENDIX 1B

Additives and process aids

Rules for additives and process aids are stated in Section 3.1.1.

Table 2. Approved additives.

APPROVED ADDITIVES ACCORDING TO SPCR 152
Organic ¹ or mineral fertilizer
Lime
EM-1

¹ Organic fertilizers must follow the ABP regulation.

Table 3. Approved process aids.

APPROVED PROCESS AIDS ACCORDING TO SPCR 152
Sand

APPENDIX 2

Sampling and compost analysis

In this appendix three elements are presented:

- Sampling and analysis frequency
- Sampling methods
- Analysis methods for compost

Sampling and analysis frequency

The minimum sampling and analysis frequency depend on the size of the plant as Table 4 shows. The table makes reference to sampling of the parameters mentioned in:

- Section 3.6 Final product requirements (metals, disease control, moisture content, viable weed seeds and plant plants, organic substance).
- Section 3.7 Declaration of contents.

Table 4. Minimum frequency of sampling and analyses.

SELF-MONITORING(SAMPLES/YEAR)				
Amount of input material (tonnes/year)	Qualification year		Minimum frequency of continuous control	
	All samples except the bacterio-logical	Bacterio-logical samples	All samples except the bacterio-logical	Bacterio-logical samples ¹
Less than 5 000	2	4	1	4
More than 5 000	4	4	2	4
More than 10 000	8	4	4	4

¹ The bacteriological sampling at the continuous control should at two occasions consist of a sampling where n=5 (according to the Swedish Board of Agriculture). At the other two occasions n=1 and the result should then be less than 1000. The total number of samples during a year then equals 12.

Sampling

Samples should be taken on finished products and before additives are added. If the finished product has already been sieved, the sieve size must be declared. If the compost has not yet been sieved, the final sample is sieved (mesh size is declared) in accordance with the size to be used in the next sieving.

There are two different methods to choose from for compost sampling – sampling from immobile material, and sampling from sieved material. See the sampling descriptions below.

Sample taking from immobile material by using a wheel loader

At least two sections of 500 m³ each are, by using a dumper, uncovered until half of the breadth of the string, bed or layer is laid bare. An evenly thick layer is taken from both sides to obtain a subsample of a total of 30 liters from each section. If the composition of the material is known to be uneven more subsamples must taken through excavation of more soil.

Preparation of aggregated samples

The subsamples are placed on plastic wrap. The wrap is thereafter lifted by turns in all ends to have the compost move towards the opposite end and get mixed together. This is repeated until it can be ensured by eye that a homogenized composite sample has been obtained, however at least twice.

Preparation of final sample

The aggregated sample is spread with an even layer on the plastic wrap. Eight portions are separated diagonally, after which two opposite portions are discarded (approximately 25 %). The remaining quantity is again mixed together and 25 % discarded. The procedure is repeated until a final sample of approximately 12 liters remains. At the impartial inspection the final sample consisting of three samples of each 12 liters will be taken from the same aggregated sample.

Sample sending

The final sample shall be placed in a labeled container and be sent to the laboratory in a cooling box, to as far as possible avoid any change in the sample as a result of the transport. The laboratory must receive the sample the next day to enable immediate start of the analysis. Sampling on Fridays and Saturdays is therefore inappropriate. A sampling record, signed by the sample taker and the client, should be submitted with the sample to show the sample's identity, name of client, name of sample taker, date and

location. Any deviations from the sampling directions should be noted.

Handling of incoming samples and pre-treatment

Handling of samples as well as pre-treatment prior to analysis at the laboratory must be conducted so that the results of the analysis are not negatively affected.

Sampling from sieved material

This sample taking must be performed in accordance with SS-EN 932-1. The principle of the sampling method is that a shovel or equivalent is placed in the falling stream of material, to ensure that the sample is taken from the entire cross-section of the falling stream of material. The breadth of the shovel must be at least 50 % broader than the breadth of the falling stream.

A number of subsamples which together forms the final sample are taken at each sampling day. On what days the samples are taken and how the sampling will be performed shall be declared in detail in the sampling plan. The sampling should be carried out in a way that allows the whole production to be equally represented.

Analysis methods for compost

Analysis and reporting of data should be performed according to the methods set out in Table 5. Other methods may be used if, by ring tests or otherwise, been proved to give equivalent test results with equivalent or more precise accuracy.

Table 5. Methods for analysis of compost.

ANALYSIS PARAMETERS		METHOD	REFERENCE
Total metal content (Pb, Cd, Cu, Cr, Hg, Ni, Zn)		SS 028150 ICP-AES eller ICP-MS, För Hg: AFS (SNV 4664)	Section 3.6
Visible impurities		BGKII:10 1998:4	Section 3.6
Viable weed seeds and plant parts		BGKII:9 1998:4	Section 3.6
Dry substance content (and moisture content)		SS028113, edition 1	Section 3.7
Organic substance. Measured as loss of ignition in % of the dry substance		SS 028113, 550 °C	Section 3.6 and Section 3.7
Total Nitrogen		Kjeldahl EN 13342 or Dumas SS EN 13654:2	Section 3.7
Ammoniacal Nitrogen and Nitrate Nitrogen		SS EN 13651 from CAT extraction	Section 3.7
Total Phosphorus		SS 028150 ICP-AES	Section 3.7
Freely soluble Phosphorus ¹		SS EN 13651 from CAT extraction	Section 3.7
Total Potassium, Magnesium, Sulfur, and Calcium		SS 028150 ICP-AES	Section 3.7
pH		SS-EN 13027	Section 3.7
Volume weight		SS EN 13040	Section 3.7
Stability		bgk II:98:4 (rottegrad) + solvita	Section 3.7
Particle size and stones		bgk II:10 98:4	Section 3.7
Conductivity		SS EN 13038	Section 3.7
MICROBIOLOGICAL ANALYSIS PARAMETERS ²			
Esherichia coli	NMKL no 125, 2005, 4:e edition		Appendix 3
Enterococaceae	NMKL no 68, 2004, 4:e edition		Appendix 3
Salmonella	NMKL no 71, 1999, 5:e edition		Appendix 3

¹ Phosphorus is one of the elements which can be measured with this extraction. More elements are often of interest in gardening which preferably can be analyzed in the same extract. For example Mn, Zn, K, Mg, Cu etc.

² These analyses must be performed with the standard methods presented by NMKL (Nordisk metodik-kommitté för livsmedel, National Veterinary Institute, Oslo, Norge).

APPENDIX 3

Requirements for disease control for different plant categories

Different plant categories and requirements for these are described in this appendix. The scope of the requirements depends on whether or not ABP is used as input material. For analysis methods, see Appendix 2.

Requirements for different plant categories

Table 6. Requirements for hygiene inspection, continuous operational inspection, and final product inspection for plant categories A, B and C.

PLANT CATEGORY	HYGIENE INSPECTION	CONTINUOUS OPERATIONAL INSPECTION	FINAL PRODUCT INSPECTION
A Plant treating organic waste and animal by-products category 2 and/or category 3.	X	X	X ¹
B Plant treating organic waste, including the waste types not comprised by the ABP regulation and instead are regulated by the Swedish Environmental Protection Agency's manual 2003:4	X	X	- ¹
C Plant exclusively treating waste such as park and garden waste, and fruit and vegetable waste.	-	X	- ¹

¹ Weed control is obligatory.

Requirements for product use

The compost should be used accordingly: For use on agricultural land the Swedish Board of Agriculture's rules and recommendations for stable manure shall be followed. But otherwise there are no hygienic restrictions. If the compost contains ABP and will be used on pasture lands, EG 1774/2002 and the amendment EG 181/2006 shall be followed. Other fields of application for compost are: growing vegetables in the open, growing of berries and fruit, garden centers, green houses, straw crops, technical crops, as well as private gardens, the park and green area sector, and forestry.

Preventative measures against recontamination

For plants of category A or B it is not allowed to use the same vehicle for transportation of input material to the plant as for the processed product from the plant, unless the vehicle has undergone internal cleaning and disinfection between the two transportations. Containers used for both incoming material and outgoing products shall undergo internal cleaning and disinfection between the transportations. The cleaning requirements mentioned do not concern transportations of park and garden waste. The requirements concern on the other hand category C plants is there is an obvious need.

It is every plant owners' responsibility (category A, B, and C) to be aware of process disturbances etc. that could result in uncontrollable dispersion of contaminants at the plant. If such a situation would arise the supervisory authority should be contacted for an investigation of required sanitation measures.

A manual in epizootology may provide guidance in sanitation of containers. For guidance in vehicle wash, see: Ekvall, A. Albihn, A, Bagge, E och Norin, E, Effektivitet av fordonsdesinfektion för transport av biogödsel, RVF Rapport 2005:4.

Hygiene inspection, ongoing operational inspection and final product inspection

Hygiene inspection

A hygiene inspection shall be carried out during the qualification year for category A plants. It will be verified that the Swedish Board of Agriculture has given its approval. The approval from the Swedish Board of Agriculture include for example the different types of ABP treated, standard requirements, specific requirements for premises, hygiene, treatment, and reduction of pathogens. For further information, see ABP regulation.

Since there are no operating category A plants at present, there are no detailed instructions available for how the hygiene inspection should be carried out. Such instructions will be laid down when needed and be attached as an Appendix to this document.

Category B and C plants are inspected to ensure that the hygiene conforms with the requirements presented in the Swedish Environmental Protection Agency manual. This falls within the scope of the ordinary inspections.

Continuous operational inspection

Category A plants (according to the ABP regulation, Appendix VI, Ch. 2C)

The ABP regulation is applicable for category A plants, that is the plants treating input material which fall under the ABP regulation and are NOT excluded by national rules (food waste from large-scale kitchens, households, and restaurants). This means that all material must be hygienized at 70 °C for at least one hour and that the size of the material must be maximum 12 mm. In the general case a hygienization step is here required. Also see Section 3.5 for the running operational parameters which should be measured and documented.

Category B plants:

For the time being it is the national authorities of each country who sets the requirements for a functioning composting process with reference to the reduction of pathogens of some waste types, such as food waste. These national rules are, in the case of Sweden, described in the Swedish Environmental Protection Agency manual "Metoder för lagring, rötning och kompostering av avfall". This is however on condition that no other animal by-products than those presented in the Swedish Environmental Protection Agency manual are included. If so, the ABP regulation will come into force and the plant will be classified as category A.

Composting covered by these certification rules shall follow the directions in the Swedish Environmental Protection Agency manual. This means that composting in category B plants shall conform to the Swedish Environmental Protection Agency manual 2003:4, Appendix 2. This appendix contains the following tables describing how composting should be carried out.

Table 7. Hygienization methods for composting according to the Swedish Environmental Protection Agency's rules and regulations 2003:4. The times and temperatures presented are minimum values.

TREATMENT METHOD	PARAMETERS	CONDITIONS
Wet composting	Minimum temperature: 55 °C. Minimum exposure time ¹ : 6 hours (may be performed as hygienization prior to wet composting)	The total quantity of material must reach the temperature indicated. Average dwell time for the succeeding composting: at least 7 days at 55 °C
Closed composting	See table 8	The total quantity of material must reach the temperature indicated. The water content should be 35-60%.
Open composting	See table 8. Post-treatment for a minimum of 6 months after the main process, and before use.	The parameters indicated shall be implemented three separate times, and include turning of the material after each time. The water content should be 35-60%.

1 By exposure time is meant time when no waste is added or taken from the reactor

2 Average dwell times are estimated to comprehend 95 % of the material.

Table 8. A list of obligatory combinations of times and temperatures is presented in Table 7.

TEMPERATURE, MINIMUM, °C	TIME: DAYS, (MINIMUM)
55	7
60	5
65	3
70	1

Also see Section 3.5 for the running operational parameters which should be measured and documented.

Category C plants

The chapter on hygienization in the manual 2003:4 does not include park and garden waste. Until specific operational criteria for reduction of plant pathogens are established, the operational criteria described in the Swedish Environmental Protection Agency manual 2003:4 are applicable also to category C plants, see Table 7 and 8. Measures against vermin shall also be taken. This is particularly important to areas where the Spanish slug can be found.

Final product inspection

Category A plants

(according to the ABP regulation, Appendix VI, Ch. 2D revision EG 208/2006)

Representative compost samples from during or immediately after treatment in the composting plant must, for process surveillance reasons, meet the following requirements:

Echerichia coli $n = 5, c = 1, m = 1000, M = 5000$ in 1 g

or

Enterococaceae: $n = 5, c = 1, m = 1000, M = 5000$ in 1 g

and

Representative compost samples taken during storage at the composting plant, or at the moment when storage at the plant would cease, shall meet the following requirements:

Salmonella: no findings in 25 g: $n = 5, c = 0, m = 0, M = 0$

where:

n = number of samples to be tested;

m = threshold value for the number of bacteria; the result is considered satisfactory if the number of bacteria in all the samples do not exceed m ;

M = maximum value for the number of bacteria; the result is considered unsatisfactory if the number of bacteria in one or more samples is M or more; and

c = number of samples the bacteria count of which may be between m and M , the sample still being considered acceptable if the bacterial count of the other samples is m or less.

Category B and C plants

An indication of hygienization effect is given at composting plants where inspection of the occurrence of viable weed seeds and plant parts shall be carried out. Requirements for conformity are presented in Section 3.6.

APPENDIX 4

The design of the certification mark



APPENDIX 5

Revision of SPCR 152 and Appendixes

Table 8. Date of last revision of the certification rules' separate parts.

CHAPTER	UPDATED
Certification rules for compost SPCR 152	December 2007
Appendix 1a	2004-11-02
Appendix 1b	2006-11-29
Appendix 2	2007-12-10
Appendix 3	2006-08-16
Appendix 4	2004-11-02
Appendix 5	2006-08-16
Appendix 6	2004-11-02
Appendix 7	2007-12-10

The producer's representative at any plant holding a certificate, or any plant under a qualification year, should immediately be informed by e-mail of any changes in SPCR 152.

RAPPORTER FRÅN AVFALL SVERIGE 2009

AVFALL SVERIGES UTVECKLINGSSATSNING

2009:01 Verktyg för bättre sortering på återvinningscentraler

AVFALL SVERIGES UTVECKLINGSSATSNING, BIOLOGISK BEHANDLING

B2009 Certification rules for compost

B2009 Certification rules for digestate

B2009:01 Insamlade mängder matavfall i olika insamlingssystem i svenska kommuner

AVFALL SVERIGES UTVECKLINGSSATSNING, DEPONERING

D2009:01 Övervakning av tätskikt i deponier med impedansspektroskopi

“Vi är Sveriges största miljörelse. Det är Avfall Sveriges medlemmar som ser till att svensk avfallshantering fungerar - allt från renhållning till återvinning. Vi gör det på samhällets uppdrag: miljösäkert, hållbart och långsiktigt. Vi är 9 000 personer som arbetar tillsammans med Sveriges hushåll och företag.”



Avfall Sverige Utveckling B2009

ISSN 1103-4092

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