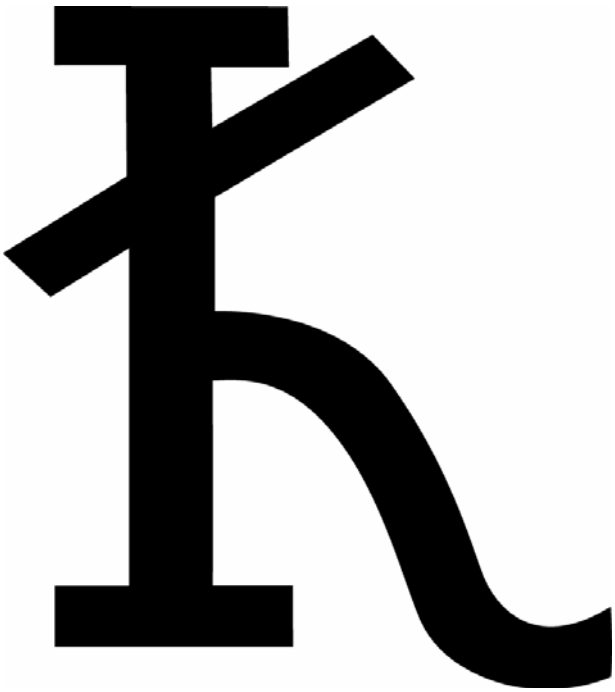
SPCR 141

SP Sveriges Tekniska Forskningsinstitut

Certification rules for

Classification for treatment of polymeric waste



SP Sveriges Tekniska Forskningsinstitut
SP Technical Research Institute of Sweden
Certifiering - Certification
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Abstract

Certification rules for classification for treatment of polymeric waste

After permission from SP Technical Research Institute of Sweden, manufacturers may use the symbols of SP to mark their polymeric material, polymeric product or combined polymeric product. Before a marking permit is given it must be verified that the material, product or combined product fulfils the requirements contained in one or several standards, or equivalent, recognised by SP. An agreement must also be made concerning continuous quality control of the material or product.

These certification rules and related appendices contain the quality requirements for classification of polymeric waste concerning recycling.

The continuous quality control is made by the manufacturer. SP inspects the manufacturer's quality control system during visits at the production site. Unannounced inspections at the production site or where the product is for sale can also be made by SP. The main purpose with the control is to see that the quality requirements for certified waste concerning recycling of the polymeric materials or products are fulfilled. During these inspections, samples are taken for subsequent testing.

Key words: certification, polymeric waste, composting, recycling, biodegradation, disintegration, digestion, ecotoxicity

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Preface

These certification rules set out the terms and conditions for certification, technical requirements and requirements in respect of ongoing inspection of polymeric materials, polymeric products and composed polymeric products in respect of various types of waste treatment.

The technical requirements set out in Chapter 3, and the requirements in respect of ongoing inspection (i.e. the manufacturer's own inspection and SP`s surveillance inspection) as set out in Chapters 4 and 5, have been drawn up by SP Chemistry and Materials Technology in conjunction with primary industry, manufacturers, consumers and waste disposal industry. Certification is performed by SP-Certification, as described in Chapter 2.

The ongoing inspection consists of the manufacturer's own inspection – which covers polymeric materials, polymeric products and composed products containing polymers – and SP´s supervisory or surveillance inspection, which is performed by visit to the supplier and involves examination and auditing of the supplier's own inspection procedures.In addition, random samples of finished materials or products can be taken for subsequent testing to confirm the results of the supplier's own inspection. This can be done at the supplier or in the market.

The certification rules are based on current standards and guidelines. However, they may be revised in the future, e.g. to bring them into line with the requirements of other European or international standards. A review can also be legitimate if new regulations are introduced or as a result of new information gained from applying certification rules. Where precise or additional information is required with regard to the rules, a concise report to be integrated into any future new version of the rules is issued.

This is the fifth issue of this document, replacing earlier issues, the latest from December 2009. The document is published in an English and a Swedish issue.

Borås in November 2010

SP Technical Research Institute of Sweden
Certification

Lennart Månsson

1 Introduction

1.1 Certification by SP - General

Certification involves confirmation by an independent third party that a material or product fulfils requirements specified in standards or in some other form of specification. Within SP, certification is performed by a special department, SP Certification, that is organisationally completely separate from the other testing and inspection departments. It is responsible to a Certification Board, comprising representatives of various industry sectors. The Board can appoint expert groups for various product areas, e.g. as technical committees. Certification of products by SP is performed in accordance with SS-EN 45011 (ISO Guide 65).

The requirements that must be fulfilled are set out in special certification rules (SPCR), developed for each product sector. Before certification starts, the certification rules must have been discussed with interested parties and then have been approved by SP's Certification Board. This procedure ensures that certification in based on rules that have been thoroughly considered and are firmly based.

Materials and products, that, after initial assessment that includes testing, show that they fulfil specified requirements, can be certified by SP. This is confirmed by the issue of a certificate, which usually represents permission (a licence) to use a certification symbol. Ongoing inspection, consisting of the manufacturer´s own inspection and SP´s survillance inspection, is intended to ensure that the requirements continue to be fulfilled during the validity of the certificate.

1.2 Coverage of these certification rules

These certification rules apply for voluntary certification of polymeric materials including special components and master batches, polymeric products and composed polymeric products for marking in respect of different types of environmentally correct treatment of waste. Certification rules and the appendices include requirements for materials and products suitable for various types of degradation such as industrial composting, home composting, digestion, degradation by a combination of abiotic and biotic processes, mechanical recycling, controlled combustion and special cases (e.g. degradation in marine waters).

1.3 Definitions

Polymeric materials	Materials composed of polymers and possible additives
Prodegradant system	An additive intended to use in polymeric material to accelerate degradation processes that reduce its molecular weight
Masterbatch	A concentrated mixture of additives encapsulated during a heat process into a carrier resin which is then cooled and cut into a granular shape
Polymeric products	Products made of one or more polymeric materials with possible additives
Composed polymeric products	Products composed of combined materials that are not homogenously distributed and where at least one material is polymeric, as for instance laminate.
Abiotic degradation	Degradation without influence from microorganisms, e.g. hydrolysis or oxidation by heat and/or light

2 Terms and conditions for certification of polymeric materials, polymeric products and composed polymeric products in respect to waste treatment

2.1 General

Certification consists of an initial appraisal of the material or product and of the manufacturer's procedures for ongoing inspection. When the requirements are fulfilled, a certificate can be issued that then applies provided that the material or product fulfils the requirements and that the ongoing inspection continues to operate correctly. Other terms and conditions are set out in Chapter 6 (below).

2.2 Application

Applications for certification shall be submitted in writing, and shall be accompanied by:

1. technical data (test report, drawing, etc) in accordance with section 2.3.1;
2. a description of the supplier’s own inspection procedures, in accordance with section 2.3.2;
3. a proposal for marking in accordance with section 2.3.3; and
4. an agreement about ongoing inspection

When a material or a product entirely or partially consists of already approved components (the report must not be older than 3 years), parts of the test scheme may be excluded for these components after consultation with SP.
Reports relevant information and reference material must be included in the application for certification.

2.3 Initial assessment

The initial assessment involves examination of the submitted documents for compliance with the requirements of these rules. When assessment is complete, and when the applicant’s material is regarded as fulfilling the requirements, SP will visit the manufacturer to check that the manufacturer’s own inspection procedures, as described, are being applied. If SP decides that this is the case, it will sign a contract with the manufacturer concerning ongoing inspection in accordance with Chapter 2.3.3 below, after which a certificate can be issued.

2.3.1 Technical data

The applicant shall submit technical data for the component, material or product concerned, containing the following information:

Examination starts out from a composition stipulated by the manufacturer. The stipulated composition shall be connected to the unambiguous product name stated by the manufacturer. The manufacturer shall supply relevant documents that form the basis for the examination as described below:

Test report

The test report(s) shall show that the technical requirements in accordance with Chapter 3 are fulfilled. The report(s) must not be more than three years old at the time of application.

Component, material or product description

The description shall contain a declaration of contents of the component, material or product including the information about the type and quantity of the materials included. All types of additives shall be declared. Technical drawings shall be attached where appropriate. The thickness of the polymeric material in a product shall be given.

Dismantling instructions

If a product contains parts that must be dismantled before waste handling, a dismantling instruction shall be enclosed.

Note. Technical basic data shall be provided with designation or number, date and the latest revision date.

2.3.2 Ongoing inspection

Ongoing inspection shall ensure that certified components, materials and products continue to fulfil the requirements in these certification rules. It shall consist of the manufacturer's own inspection, as described in Chapter 4, complemented by surveillance inspection, performed by SP, as described in Chapter 5.

The extent of the surveillance inspection shall be agreed and set out in the contract between the manufacturer and SP. If several suppliers are involved SP will sign agreements with each supplier.

2.3.3 Marking

The marking of materials or products carrying SP´s certification symbol(s) according to below and to the appendices shall also contain the number of the certificate, name of the certificate holder, product name/designation, classification and production number or equivalent identification. The design of all marking shall be approved by SP.

Example of SP's certification symbol. For the actual design, see the specific appendix

2.4 Validity of the certificate

The validity of a certificate is normally five years. Based on new tests and the results of surveillance inspection, the validity may be extended if requested by the holder of the certificate. For products where the risk of quality changes is very low, the validity period can be extended to ten years.

2.5 Changes to certified material or product

The holder of the certificate is required to notify SP of his intentions before making any changes to the composition of the component, material or product. SP will decide whether the changes can be approved: if so, this will normally be notified by a revision of the certificate.

3 Technical requirements

Current requirements for polymeric waste and corresponding test methods are summarised in the appendices below:

Appendix 1: Industrially compostable polymeric waste – Requirements and test methods
Appendix 2: Polymeric waste compostable in small scale (home) composts – Requirements and test methods
Appendix 3: Polymeric waste for digestion – Requirements and test methods
Appendix 4: Polymeric waste degradable by abiotic and subsequent biological degradation (A+B degradable) – Requirements and test methods
Appendix 5: Mechanical recycling of polymeric waste – Requirements and test methods
Appendix 6: Controlled incineration of polymeric waste – Requirements and test methods
Appendix 7: Treatment of particular polymeric waste – Requirements and test methods

Each appendix (1-7) contains specific technical requirements and test methods for the various groups:

1. Components (prodegradants, masterbatches, etc)
2. Polymeric materials
3. Polymeric products
4. Composed polymeric products

4 The manufacturer’s own inspection procedures

The manufacturer shall operate inspection procedures to ensure that products marked with SP's certification symbol fulfil the requirements set out in these certification rules. These procedures shall be described in a quality manual, inspection instructions or corresponding document(s), and shall fulfil the requirements set out in this chapter.

If the manufacturer has an ISO 9001 quality system that has been certified by an accredited certification body, it can be accepted without further examination as fulfilling the following requirements in respect of organisation, management reviews, document management, processing of defective products, corrective actions, handling of completed products and complaints.

4.1 Organisation

The organisation of the manufacturer's own inspection system shall be described, with the names of those persons responsible for inspection and details of their authority to act in order to prevent sub-standard quality.

The manufacturer shall appoint a person to represent him for the purpose of contact with SP concerning manufacturer's own inspection procedures. He/she shall be responsible, and shall have the necessary authority, for ensuring that the intended quality of the certified products is fulfilled and maintained.

4.2 Management reviews and internal auditing

The management shall conduct documented reviews of the company's internal inspection procedures at reasonably regular intervals in order to ensure that the procedures are remaining effective.

4.3 Document management

Only the correct editions of documents may be available to persons concerned within the company. There shall be a list of the documents and a distribution list for them, together with written procedures for the preparation of new documents, changes to existing documents and the collection of invalid or replaced documents.

4.4 Testing and inspection

4.4.1 Reception inspection (materials inward inspection)

Reception inspection (materials inward inspection) shall be performed to the extent necessary in order to verify that incoming materials etc. conform to specified requirements.

4.4.2 Manufacturing inspection

Manufacturing inspection shall be performed to the extent regarded as necessary in order to ensure that manufactured products fulfil the specified requirements.

4.4.3 Inspection of finished products

Finished products shall be inspected to the extent regarded as necessary in order to ensure that they fulfil the specified requirements. A sampling plan shall indicate the procedures for sampling, the methods of testing employed and state what measures are taken to deal with products or processes that fail inspection.

4.4.4 Equipment

Equipment shall be calibrated, inspected, adjusted and maintained as appropriate.

4.5 Actions if products fail manufacturer's own inspection

Products that do not meet specified requirements shall be separated, while deciding what is to be done with them. Non-compliant products may not be sold under the same name or designation as certified products.

4.6 Corrective actions

Any non-compliances detected by the manufacturer's own inspection and/or by SP's surveillance inspection shall be investigated by the supplier, and appropriate corrective action shall be taken as needed to prevent a repetition.

4.7 Handling of materials or finished products

Damage and deterioration in connection with handling, storage, packing and delivery shall be prevented.

4.8 Traceability

It shall be possible to trace products that have been supplied back to the relevant production batch, materials batch etc.

4.9 Marking

The marking (see Section 2.3.3) shall be applied to the product when the company's own inspection has shown that the requirements are fulfilled.

4.10 Complaints

Complaints from customers or others in respect of certified products, marking, marketing etc., shall be documented, together with details of the action taken in response thereto, with the documentation being kept available for inspection by SP for 10 years.

4.11 Quality documents – Keeping of records

The manufacturer shall be able to confirm, by means of collecting and retaining relevant documents, that the products fulfil specified requirements.

Inspection and testing shall be documented to such an extent that the necessary traceability can be assured. Records shall contain comments when results depart from those expected, together with descriptions of actions taken in response thereto.

Archiving times shall be stated for documents relating to manufacturer's own inspection. Test and inspection records shall be kept available for inspection by SP, and shall be retained for at least ten years.

5. SP's surveillance inspection

The surveillance inspection consists of inspection visit and testing of a sample of the certified product.

5.1 Execution

Surveillance inspection will be carried out at least twice during a 5 year period if the manufacturer has a quality management system that is certified by an accredited certification body. Otherwise the surveillance inspection is normally to be performed once a year, in the form of a visit to the manufacturer/supplier, at times to be determined by SP. After judgement in each specific case, the frequency of the visits may be changed.

The supplier shall grant SP's representative(s) unrestricted access as needed in order to perform the surveillance inspection. ,

On these visits, SP will inspect to determine whether the supplier's described inspection procedures are operating as intended, and will take samples of certified components, materials or products.

Sampling, testing and inspection will be carried out by SP as described in Section 5.2.

5.2 Testing and inspection

Surveillance inspection, the manufacturer's own inspection, and sampling is performed according to procedures for each separate component/material/product which are set out in the agreement concerning surveillance inspection.

Testing is performed and evaluated according to test methods and requirements that are stated in the specific appendixes listed in chapter 3.

5.3 Actions if SP's surveillance inspection results in failure

If inspection testing and/or surveillance inspection of the supplier's own inspection procedures results in failure, the reasons for the failure shall be investigated. The results of this investigation may lead to a further surveillance visit, further testing or failure to approve the manufacturer's/supplier's own inspection procedures.

5.4 Report

The results of SP's surveillance inspection shall be reported in written to the supplier and, if the supplier is not the holder of the certificate, also to the holder of the certificate.

6. Other terms and conditions for certification

6.1 General

The terms and conditions in these certification rules, Chapters 2 and 6 are based on principles set out in SP's Quality Manual for Certification. Sub-contractors for type-testing and surveillance inspection shall be approved by SP Certification.

6.2 Responsibilities of the certificate holder

The holder of the certificate is responsible for ensuring that the products covered by the certificate and which are marked with SP's certification mark conform in all respects with the certified product in accordance with the certificate, and that the products are suited for their purposes and cannot in any way cause damage or harm. This applies even if the holder of the certificate is not the manufacturer of the product, although the agreement on surveillance inspection has been signed by the manufacturer and SP.

6.3 Use of SP's certification symbol by the certificate-holder

The holder of the certificate shall be entitled to mark the products covered by the certificate with SP's certification symbol, and shall also be entitled to use the symbol in connection with advertising or marketing of the products. Advertising shall not be performed in such a way that there is any risk of confusion between marked and unmarked products.

6.4 Recall of the certificate

With immediate effect, SP can recall certificates definitively or temporarily if:

a) the holder of the certificate has applied SP's certification symbol to, or used it in connection with, products that do not fulfil the requirements, *or*
b) the holder of the certificate has applied SP's certification symbol to, or used it in connection with, products not covered by the certificate, *or*
c) surveillance inspection has ceased, or has resulted in failure, *or*
d) the holder of the certificate has in some other way failed to comply with the terms and conditions associated with the certificate, *or*
e) the holder of the certificate has not paid fees within the prescribed time, *or*
f) the holder of the certificate has been declared bankrupt, has gone into liquidation or has transferred the business, *or*
g) the certificate has been found to have been issued incorrectly. However, the holder of the certificate shall be granted a reasonable time for adjusting to changed circumstances, unless there are special reasons to the contrary. *or*
h) the product shows itself to be unsuitable for its purpose or in another way can cause harm or nuisance.

In addition to recall of the certificate, misuse of SP's certification symbol or certificate can result in legal action.

6.5 Obligations of the certificate-holder in the event of recall of the certificate

The holder of a certificate who has been notified that the certificate has been recalled, whether definitively or temporarily, shall:

a) immediately cease making any reference to the certificate in advertisements or other publicity material for the product(s) concerned;
b) ensure that SP's mark is removed from all products that are in stock, if so required by SP;
c) meet all costs associated with replacing the sub-standard products by products that fulfil the requirements in the certification rules, if so required by SP.

6.6 Re-issue of the certificate

The same rules apply to re-issue of a certificate that has been temporarily recalled as applied to the original issue of the certificate, as described in Section 2.3. The same material may be used as was used for type examination in connection with the original issue of the certificate if a period of less than one year has passed since the certificate was recalled, unless the rules for certification, or production conditions, have been changed.

6.7 SP's responsibility

SP is responsible for ensuring that the technical requirements in these certification rules are based on available knowledge and experience, such as accepted standards or corresponding specifications, and also for ensuring that the rules reflect what is generally regarded by the interested parties as a relevant quality level.

SP is responsible for ensuring that assessment of the certified products against the requirements in these rules has been carried out with all due care and in accordance with the procedures set out in SP's quality system.

SP is not responsible for certified/marked materials or products (see Section 6.2).

6.8 Confidentiality

With the following exceptions, all information obtained by SP will be regarded as commercially confidential:

- SP - or other parties working with SP - maintain(s) registers of current certificates. These registers contain details of the names and addresses of the holders of each certificate, the certificate number, certified products, classification, date of issue and validity period of the certificate. The registers are published on SPs web site for certified products, www.sp.se/cert. Copies of the certificates can also be published on the web site.
- SP shall be entitled to publish decisions concerning recall of certificates and misuse of certificates or marking.

6.9 Revised certification rules

SP reserves the right to modify certification rules. In the event of extension of the validity of certificates issued under older rules, the holder of the certificate will be required to comply with the revised rules. However, unless special reasons to the contrary apply, the holder of the certificate shall be allowed a reasonable time for adjustment to the revised rules.

6.10 Fees

Fees for initial assessment (certification) and for review and extension of the validity of a certificate are given in a separate price list, and shall be paid by the applicant / holder of the certificate.

Fees for surveillance inspection are regulated by agreement between SP and the supplier.

Costs of other inspection, as set out in Section 6.11, will be billed to the holder of the certificate only if the results of such inspection show that the requirements in the certification rules are not being fulfilled.

6.11 Other inspection

SP shall be entitled, at any time and in/at any place, to carry out other inspection of the products, to ensure that the products are continuing to fulfil the requirements set out in the relevant certification rules.

6.12 Appeals

Appeals against SP's decisions shall be submitted in writing. Action in response to such appeals will be decided by SP's Certification Board.

7 References

1. SS-EN 45011, General requirements for bodies operating product certification systems. (ISO Guide 65)

2. SS-EN ISO 9001:2008, Quality management systems – Requirements

3. CEN/TR 15351, Plastics – Guide for vocabulary in the field of degradable and biodegradable polymers and plastic items.

4. ISO 14021, Environmental labels and declarations – Self-declared environmental claims.

5. SS-EN 13432, Requirements for packaging recoverable through composting and biodegradation – Test scheme and evaluation criteria for the final acceptance of packaging.

Note! See also relevant appendix.

8 List of appendices to SPCR 141

Appendix 1: Industrially compostable polymeric waste – Requirements and test methods
Appendix 2: Polymeric waste compostable in small scale (home) composts – Requirements and test methods
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Appendix 0: Catalogue of documents.