Certification scheme

Products made of compostable materials

(Edition: August 2006)
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1 Scope

This certification scheme, entitled "Products made of compostable materials", applies to products for which application is made for certification and for a licence to mark them with the Compostability Logo (German = BAW-Zeichen, hereinafter designated 'logo', for short). It further applies to polymeric materials, intermediates and additives, for which registration is applied for, and to the issue of confirmations of acceptability for products made of compostable materials.

2 Principles of certification

2.1 Documents

All work undertaken in the context of this certification scheme is based on the specifications made in the following documents.

- General Terms and Conditions
- Schedule of fees for use of the Compostability Logo (DIN CERTCO document)
- this certification scheme, "Products made of compostable materials".
- DIN EN 13432 "Packaging – Requirements for packaging recoverable through composting and biodegradation - Test scheme and evaluation criteria for the final acceptance of packaging" February 2000 edition,
- ISO 14851 "Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium – Method by measuring the oxygen demand in a closed respirometer", May 1999 edition,
- ISO 14852 "Determination of the ultimate aerobic biodegradability of plastics materials in an aqueous medium – Method by analysis of evolved carbon dioxide", May 1999 edition,
- ISO 14855 "Determination of the ultimate aerobic biodegradability and disintegration of plastic materials under controlled composting conditions – Method by analysis of evolved carbon dioxide", May 1999 edition,
- ISO/DIS 15985 "Plastics - Determination of the ultimate anaerobic biodegradability and disintegration under high-solids anaerobic-digestion conditions - Method by analysis of released biogas", April 1999 edition,
- ISO/DIS 16929 "Plastics - Determination of the disintegration of plastics materials under defined composting conditions in a pilot-scale test", April 2000 edition,
- DIN EN 14045 “Packaging - Evaluation of the disintegration of packaging materials in practical oriented tests under defined composting conditions”; German version EN 14045:2003
- DIN EN 14046 “Packaging - Evaluation of the ultimate aerobic biodegradability of packaging materials under controlled composting conditions - Method by analysis of released carbon dioxide”; German version EN 14046:2003
- ASTM D 6400-99 "Standard Specifications for Compostable Plastics"
- ASTM D 6002-96 "Standard Guide for Assessing the Compostability of Environmentally Degradable Plastics"
2.2 Credibility of test reports

All tests and analyses required in connection with the procedures described in this scheme shall be undertaken by testing laboratories that have been approved by DIN CERTCO. A list of testing laboratories currently approved to perform the various types of test involved is maintained by DIN CERTCO and can be supplied on request at any time. Analyses of compostability in accordance with section B.3 shall only be assigned to independent testing laboratories that are not connected with the manufacturer in any way.

2.3 Confidentiality

The members of committees set up to implement this certification scheme are under obligation to observe strict secrecy. The members of all participating bodies further undertake by signing a declaration of commitment not to pass on to third parties any information on products and companies they may obtain in connection with their certification activities.

2.4 Issue of a certificate and other confirmations of conformity

If a product demonstrably conforms with the criteria specified in this certification scheme, then a certificate will be issued for that product. In addition, the conformity of materials and additives will be confirmed by the issue of registration notices and their inclusion in the corresponding positive lists (cf. clauses 5.1 and 5.2).

In special cases, a confirmation of acceptability as described in clause 5.7 may be issued following an analogous procedure of application, and subsequent to positive testing and assessment. There is no legal claim that a certificate or any other confirmation of conformity be issued.

2.5 Use of the logo

The applicant can only be granted the right to use the logo on the basis of a certificate for a product. The use of the Compostability Logo is detailed in clause 7 of this certification scheme and in the Annex D “Licence conditions on the use of the Compostability Logo”.

- ASTM D 6868-03 “Standard Specification for Biodegradable Plastics Used as Coatings on Paper and Other Compostable Substrates”
- E DIN EN 6042 "Organic compounds – Test methods - Analysis by infrared spectroscopy"
- ASTM D 6247 "Standard Test Method for Analysis of Elemental Content in Polyolefins by X-ray Fluorescence Spectrometry"
- DIN 51418 “X-ray emission and X-ray fluorescence analysis (RFA)
- Bundesgütegemeinschaft Kompost e.V. (Hrsg.), Methodenhandbuch zur Analyse von Komposten (Federal Quality Association Compost (ed.): Manual of methods for analysing composts)
- VDI 3891 “Emission control - Crematoria”, edition may 2001

The obligation to comply with laws and regulations governing the products concerned is in no way affected by this certification scheme.
3 Definitions

For the purposes of this certification scheme, the following definitions shall apply:

3.1 Polymeric material

Material consisting of polymers or polymer blends in processable condition, mainly composed of organic chain molecules, as used, for example, in the manufacture of intermediates or finished products. They generally contain other inorganic or low-molar organic materials that serve to influence polymer characteristics in terms of processing or use (e.g. softeners, nucleating agents, pigments).

3.2 Compostable material

Polymeric material that is compostable as defined in Section B.3.

3.3 Intermediate

Optional state between polymeric material and finished product, e.g. laminates made up of several layers of polymeric materials.

3.4 Additive

Materials required in addition to the intermediate in order to manufacture a given product, e.g. adhesives, anti-blocking agents, printing ink/colours, labels.

3.5 Product

Article that is disposed of as waste after use, is manufactured from polymeric materials or intermediates, and frequently also contains additives.

3.6 Product range

Group of products largely sharing the same product characteristics (e.g. bin liners made of film of the same thickness and manufactured in particular/specified size ranges), all of which meet the following criteria:

- same basic shape (smaller layer thicknesses of the materials/intermediates used are acceptable);
- identical polymeric materials or intermediates (identical in composition);
- identical additives;
- comparable use.
4 Procedure for registration and certification or issue of confirmations of acceptability

Applications for assessment of conformity (registration of materials and additives and certification of products) or for the issue of confirmations of acceptability for products, as well as for the licence to use the logo, are to be submitted to DIN CERTCO using the appropriate application forms. Application forms are available on request from DIN CERTCO. The documentation specified as required for the relevant tests (cf. clause 5) shall be enclosed with the application.

DIN CERTCO is officially responsible for handling all applications and undertakes assessment in co-operation with the certification committee. The following diagram outlines the various stages in the certification process:

Certification process for products made of compostable materials

DIN CERTCO

5 Conformity testing

5.1 General

Application and testing can be simplified by using components that have already been tested and/or approved as suitable and are hence included in one of the following positive lists.

1. "Register of materials and intermediates approved for the manufacture of certified products of compostable materials".

2. "Register of additives approved for the manufacture of certified products of compostable materials".

These registers are obtainable on request from DIN CERTCO.
5.2 Registration of polymeric materials

5.2.1 Basic requirements

For conformity assessment purposes, the following documents and samples are to be submitted together with the application for registration.

a) Test report on the chemical test as specified in Section B.1

Note. A number of parameters such as the elemental analysis are, depending on the methods selected to establish biodegradability, to be determined in accordance with Section B.2.

b) Test report on testing of ultimate biodegradability as specified in Section B.2

c) Test reports on testing of compostability under practice-relevant conditions and of the quality of the compost as specified in Section B.3

d) An infrared transmission spectrum in accordance with Section C.1

e) A sample of the material

Note. Separate proof of biodegradability is not necessary for natural organic components that have not been chemically modified and are approved under current legislation on composting. A chemical test as specified in Section B.1 and a disintegration test as specified in Section B.3 shall, however, be performed.

If the application is successful, the material is registered with its maximum compostable material thickness as determined by testing to Section B.3 and included in the appropriate positive list.

5.2.2 Special case: "Material is composed of materials that have already been registered"

If application is made to register a material that consists exclusively of other materials that are already included in the positive lists referred to in clause 5.1 and that are hence of proven compostability (possibly with the addition of natural organic components, cf. note to clause 5.2.1), then the following documents and samples are to be submitted:

a) A test report on one of the two tests for compostability under practice-relevant conditions as specified in Section B.3

b) An infrared transmission spectrum in accordance with Section C.1

c) A sample of the material

Note. Separate proof of biodegradability is not necessary for natural organic components that have not been chemically modified and are approved under current legislation on composting. A chemical test as specified in Section B.1 and a disintegration test as specified in Section B.3 shall, however, be performed.

If the application is successful, the material is registered with its maximum compostable material thickness as determined by testing to Section B.3 and included in the list referred to under No. 1 in clause 5.1.
5.2.3 Special case: "Variable composition - materials containing varying proportions of materials listed in Annex A"

If a material containing varying proportions of the fillers and processing auxiliaries listed in Annex A is to be used for processing purposes, the registration of individual mixtures within a defined mixture range is possible under the following conditions:

a) The basis material used must meet the conditions specified in Sections B.1 to B.3.

b) The upper limit of 49 % by mass for the proportion of inorganic material and the upper limits specified in Annex A for the fillers or processing auxiliaries concerned are not to be exceeded in the material as a whole.

c) Safety data sheets are to be submitted for all materials specified in Annex A that are used. Proof of compliance with the requirements of Section B.1 with respect to the heavy metal content shall be supplied for each filler or processing auxiliary.

d) For each mixture to be registered, an infrared transmission spectrum in accordance with Section C.1 and a sample of the material are to be submitted. The exact composition shall be stated.

e) To permit specification of the upper limits for the mixture range of materials/material mixes as per Annex A applied for, a test report on a composting test as specified in Section B.3 shall be submitted for the particular mixture to be registered.

Within the separate subgroups or sections (as per Annex A), other mixtures may, under the following conditions, be registered up to the upper limit documented in the test report:

- In subgroup 1.1 or sections 1.2.1, 1.2.2 or 1.2.3: Other materials or material mixes of the same subgroup or section can be selected without restriction up to the registered upper limit.
- In section 1.2.4 and the subgroups 2.1 and 2.2: Proportions of the tested materials can be selected without restriction up to the registered upper limit.

If these conditions are met, the material, or the mixture from the empirically verified range of composition, is registered and included in the positive list as per subclause 5.1.

5.3 Registration of intermediates

Separate proof of biodegradability is not necessary for natural organic components (in compounds) that have not been chemically modified and are approved under current legislation on composting. A chemical test as specified in Section B.1 and a disintegration test as specified in Section B.3 shall, however, be performed.

For conformity assessment purposes, the following documents are to be submitted together with the application for registration of an intermediate.

5.3.1 Case 1: Materials already tested and included in the positive lists

a) Description of composition of intermediate

b) List of all materials used with details of proportion by mass of each component in the intermediate

c) For each material in the intermediate: Reference to its listing in accordance with clause 5.1
d) A test report for the intermediate on one of the two tests for compostability under practical conditions as specified in Section B.3

e) An infrared transmission spectrum in accordance with Section C.1

f) A sample of the intermediate

5.3.2 Case 2: Intermediate materials not included in the positive lists referred to in clause 5.1

a) Description of composition of intermediate

b) List of all materials used with indication of the proportions by mass of the intermediate components

For all materials in the intermediate separately, or, alternatively, for the finished intermediate:

c) Test report on the chemical test as specified in Section B.1.

Note. A number of parameters such as the elemental analysis are, depending on the methods selected to establish biodegradability, to be determined in accordance with Section B.2.

d) Test report on testing of ultimate biodegradability in accordance with one of the methods specified in Section B.2

e) Test reports on testing of compostability under practice-relevant conditions and of the quality of the compost as specified in Section B.3

f) Test reports and documents for additives

- For all additives present in the intermediate to a percentage by mass of more than 1 % test reports as specified in Sections B.1 and B.2 must be submitted.

Alternatively, the biodegradability of these product constituents may be demonstrated by way of internationally recognized standard test methods (e.g. OECD).

- The total mass of all additives shall not exceed an upper limit of 5 % of the mass of the intermediate. That total does not include additives for which compliance with the requirements specified in Sections B.1 to B.3 has been demonstrated.

g) An infrared transmission spectrum in accordance with Section C.1

If the materials have been tested separately; additionally for the intermediate:

h) A test report on one of the two tests for compostability under practice-relevant conditions as specified in Section B.3

i) A sample of the intermediate

5.3.3 Special case: Two-layer laminates

Testing to Section B.3 may be dispensed with in the case of two-layer laminates, if the layer thickness of the two materials do not exceed half the maximum compostable material thickness as determined in a test as specified in Section B.3. This provision applies to laminates and co-extruded materials. i.e. it does not apply to blends that have been manufactured, for example, from two materials by a reactive extrusion process.
5.4 Registration of additives

For conformity assessment purposes, the following documents are to be submitted together with the application for the registration of an additive.

a) Description of chemical composition

b) Test report on the chemical test as specified in Section B.1

Note. A number of parameters are, depending on the methods selected to establish biodegradability, to be determined in accordance with Section B.2.

c) Test report on testing for ultimate biodegradability in accordance with one of the methods specified in Section B.2

d) An infrared transmission spectrum in accordance with Section C.1

Alternatively to test reports b) and c), test reports of testing to other internationally recognized standard test methods for determining biodegradability and demonstrating ecological non-toxicity may be submitted.

Note. In individual cases, ecological non-toxicity may be demonstrated by reference to published sources (copies of original analyses to be submitted). These may possibly obviate the need for analysis.

5.5 Certification of products

5.5.1 Design requirements

All polymeric materials used to manufacture the product shall comply with the maximum compostable material thickness established by testing in accordance with Section B.3; in addition, the conditions specified in clauses 5.5.1.1 and 5.5.1.2 shall apply. The sum total of the organic compounds for which compostability need not be determined shall not exceed 5%.

5.5.1.1 Special case: hollow body

In the case of hollow bodies with small diameter apertures, the maximum permissible wall thickness, \( d_{\text{max}} \), is limited to 50 % of the maximum compostable material thickness determined in accordance with Section B.3 for the material (or intermediate) used. This applies to all hollow bodies for which the ratio of aperture area to volume gives a value for \( x \) greater than 10 cm. Calculation is based on the following formula:

\[
\frac{\text{Volume of container}}{\text{Aperture area}} = x
\]

Hollow bodies for which \( x \) is 10 cm or less may have wall thicknesses up to \( d_{\text{max}} \), if a test report is submitted on the determination of the maximum compostable material thickness in accordance with one of the two methods specified in Section B.3 for this product. Where justified in exceptional cases, the performance of further tests specified in Section B.3 may be required by the assessment committee.
5.5.1.2 Special case: Bonded laminates

In the case of products that consist of two or more materials, or materials and additives, inseparably joined together in the manner of bonded laminates, the requirements specified in clause 5.3 shall apply.

5.5.2 Assessment of product documentation (type testing) and award of certificates

For conformity assessment purposes, the following documents are to be submitted together with the application for the certification of a product.

a) Construction drawing, with indication of all wall or layer thicknesses \(d_{\text{max}}\) for all polymeric materials or intermediates used. The conditions specified in clause 5.5.1 are to be met.

b) Description of product and its use

c) List of all materials, intermediates and additives used with indication of their respective percentage by mass.

d) For each polymeric material and for each intermediate with polymeric materials

- Reference to the listing of the material or intermediate in the positive list (cf. clauses 5.1 and 5.2)

- If not listed, all documents specified in clauses 5.2 and 5.3, respectively.

e) For each additive present in the product to a percentage by mass of more than 1 %

- Reference to the listing of the additive in the list referred to in clause 5.1, No. 2

- If not listed, the details and test reports specified in clause 5.4.

f) For each additive present in the product to a percentage by mass up to 1 %

- Proof of suitability for biological waste processing (e.g. copy of the safety data sheet, references to published sources, or inclusion in the positive list of the "Directive on materials and articles of plastic intended to come into contact with food (90/128/EEC)"

h) An infrared transmission spectrum in accordance with Section C.1

i) A sample of the product

For each such substance: Proof of suitability for biological waste processing, e.g. reference to inclusion in Annex 1 of the Biowaste Regulation or the positive list of the EU Directive 90/128/EEC. Proof may also be provided by reference to data in published sources or to relevant toxicological data in safety data sheets.

j) Declaration by the applicant on the assumption of liability that the information supplied is complete and correct. It shall be expressly stated that no materials or intermediates and additives are used in the product other than those indicated.
If the application is successful, a certificate will be issued that is valid for three years. Together with the certificate, the product is assigned a registration number. On the issue of the certificate, the applicant will be offered the conclusion of licence conditions on the use of the logo. The right to use the logo depends on the applicant accepting the conditions on surveillance specified in clause 6 and the rules on the use of the logo specified in clause 7.

5.6 Optional supplementary tests for specific products

Manufacturers of specific products can test and certify voluntarily supplementary further product characteristics, specified below:

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<td>piety products (e.g. body bags)</td>
<td>VDI 3891 “Emission control - Crematoria”; edition May 2001</td>
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5.7 Confirmations of acceptability for products

On application, a confirmation of acceptability may be issued for products (e.g. injection-moulded parts such as disposable cutlery) after the evaluation of the required test reports in accordance with the conditions specified in this clause. The confirmation attests that the products concerned are compostable within the meaning of Annex B, but that, without mechanical pre-treatment, they will not in all cases disintegrate entirely in the course of a unit processing period in a composting plant. Such confirmations serve to document that the products are acceptable for composting purposes in cases where the geometry of the products concerned (e.g. \( d > d_{\text{max}} \)), or other reasons, preclude the award of a certificate.

Confirmation of acceptability does not imply the right to use the compostability logo. Its sole purpose is to facilitate communication between the partners at the various stages of the waste disposal process.

a) For conformity assessment purposes, the application for a confirmation of acceptability shall be submitted together with the documents specified for the application for the certification of a product (clause 5.5).

b) To document disintegration, the test report as specified in Section B.3 shall be supplemented by a detailed photographic record and a calculation of the weight of the specimens representing the state of degradation reached on completion of the test period specified in the relevant standard.

c) Alternatively, a report may be submitted on an extended test that continues the composting process until the required level of 90 % degradation has been reached. In addition, recommendations on expedient methods of pre-treatment (e.g. commination) preliminary to the composting process may be included in the confirmation of acceptability. If the application is successful, a confirmation of acceptability will be issued that is valid for three years.

6 Testing of products in connection with surveillance: verification tests for certified products

6.1 Routine verification tests

Within the period of validity of the certificate, annual verification tests are carried out. For this purpose, five samples of the certified product shall be obtained by the manufacturer from routine production and provided to DIN CERTCO.
Assessment is undertaken by organisations approved by DIN CERTCO (cf. list of approved testing laboratories). It comprises the following points:

1. Checking whether the marking of the product with the logo and the corresponding registration number complies with the terms of the current licence agreement.

2. Checking whether all polymeric materials or intermediates used in the manufacture of the product comply with the certified maximum permissible wall thicknesses or material thicknesses ($d_{\text{max}}$).

3. Checking whether all polymeric materials or intermediates and additives used in the manufacture of the product and present in the product to a percentage by mass greater than 1 % are identical with those specified in connection with the type test. For this purpose, an infrared transmission spectrum as per Section C.1 shall be recorded, and an X-ray fluorescence analysis as per Section C.2 performed, for one of the five samples of each intermediate and additive. These shall be compared with the spectral analyses submitted when the materials or intermediates and additives were registered (or those from the type test). When thus compared, the spectra must show that the two sets of polymeric materials or intermediates and additives are identical.

At random intervals during the three year period in which the certificate is valid, two further such verification tests will be carried out on the basis of the certification scheme applying at the time when the original application was made. The costs incurred in such tests will be charged to the licensee on their completion.

If no nonconformities are found in any of the three verification tests performed during the period of validity of the certificate, then the certificate will be renewed by DIN CERTCO for a further period of three years on condition that the product also complies with the requirements of the certification scheme applying at the time of renewal.

Where necessary, the certification committee may increase the number of verification tests to be performed. These supplementary tests have the same status as the routine verification tests. As a rule, however, verification tests will be initiated by DIN CERTCO, only.

6.2 Evaluation of the verification test

6.2.1 General

The criteria of conformity of the certification scheme that are checked in the course of verification tests are to be met.

6.2.2 Design requirements

If nonconformities are established when testing for compliance with the maximum permissible wall thicknesses in accordance with clause 6.1, No. 2, then the remaining four samples are also to be subjected to this test. At least four of the five samples of the certified product under test must meet the specified requirements. If the criteria are met by less than four samples, then ten further (anonymously purchased) samples shall be subjected forthwith to a verification test. If at least nine of the ten samples tested comply with the requirements of the certification scheme applying at the time when the certificate was issued, then no complaint will be made.
6.2.3 Spectra (identity of the materials)

If comparison of the spectra of the samples reveals differences to those of the polymeric materials or intermediates and additives originally submitted for the certification of the product, then spectral analysis shall be performed on the remaining four samples. At least four of the five samples must correspond to the spectra submitted. If not, ten further samples shall be tested analogously to clause 6.2.2.

6.2.4 Complaints

If the conditions stated in clauses 6.2.2 and 6.2.3 are not met after the additional samples have been examined, the validity of the certificate will be suspended. The licensee will be informed without delay and requested to ensure compliance with the criteria within three months after receipt of such notice. While the certificate is suspended, the licensee shall cease marketing the products bearing the logo. In the event of complaint being made, the verification test shall be repeated within three months. If this repeat test gives no further cause for complaint, the certificate shall retain its validity. If there is again cause for complaint, the certificate will be revoked. This repeat test does not count as a regular verification test, but as a supplementary verification test for which the licensee bears the cost.

6.3 Supplementary verification tests

Third parties may apply at any time for supplementary tests to be performed. Such tests are carried out in the same way as a routine verification test. Where a third party has applied for a verification test to be carried out, the licensee concerned will be advised and requested to comment. Irrespective of such comments, the certification committee may invite the licensee to attend a hearing. The requested supplementary test will, however, be performed in any case. The comments of the licensee and a hearing, if any, have no suspensive effect.

The costs of the supplementary test will be charged to the applicant. These costs comprise the costs incurred by the laboratory for testing, the costs of sampling, and those arising in connection with the evaluation of the test. In the event that the objection brought forward was justified, the above costs are to be reimbursed by the licensee of the product concerned. In such cases, the validity of the certificate will be suspended, further measures then being taken in accordance with clause 6.2.4.

7 Use of the logo

7.1 Granting of licence

The right to use the logo is granted by way of a current licence agreement to be concluded between DIN CERTCO and the applicant. The applicant receives a certificate for each product that conforms to the certification scheme. The certificate includes a registration number for the product and a reference to the right to use the logo on the basis of the licence conditions. Logo and registration number may only be used for that product for which the right of use has been duly granted.

7.2 Expiry of the licence

Irrespective of the provisions of clause 10 below, the right to use the logo for the certified product expires

- if the current "Licence agreement on the use of the logo" is terminated;
- when the validity of the certificate expires;
• if the product is altered in such a way that the requirements of the certification scheme are no longer met;
• if there is any infringement of the provisions of the certification scheme or current licence agreement.

Note. In the first two of the above cases, any stocks of the products marked with the logo remaining in the possession of the customers of the licensee when the licence expires may be used up.

7.3 Implementation of the licence

The logo shall be affixed to the certified product in the following form:

![Logo](image)

The registration number for the certified product and the word "compostable", in English or in the respective national language, shall be placed directly adjacent to the logo. The logo may also be used in advertising material, in sales documents and product information. Logo and registration number shall in such cases be referred to in immediate relation to the product for which a licence to use the logo has been granted by DIN CERTCO. The logo may be supplemented by further elements that make it easier to distinguish between non-compostable and compostable products (e.g. lattice or honeycomb structures). Further provisions on the use of the logo are laid down in the current licence agreement.

7.4 Identifiability of compostable packaging

To ensure correct disposal, packaging made of compostable materials shall, besides being marked with the logo in accordance with clause 7.3, be designed in such a way that it can be clearly and unmistakably identified as compostable.

7.5 Publication of information on licences

DIN CERTCO publishes information on licences that have been granted or that have expired.

8 Alterations

If the certificate holder alters the certified product in any way that affects the certified characteristics of that product, then DIN CERTCO must be notified thereof without delay. The continuing validity of the certificate depends in such cases on whether the altered product still complies with the conformity criteria indicated in clause 5.5. The certificate holder must substantiate that this is the case. Irrespective thereof, DIN CERTCO, or the certification committee, may require a verification test to be performed.
9 Objections

If there are doubts as to whether a certified product complies with the requirements of this certification scheme, third parties may apply for a supplementary verification test to be carried out as specified in clause 6.3.

10 Suspension of certificates

If unacceptable nonconformities with respect to the requirements to be met by a certified product are detected in the course of a verification test, the validity of the certificate will be suspended. While the certificate is suspended, the logo and the registration number assigned to the product concerned are not to be used. The licensee shall cease to market the product concerned. Stocks of the product held by customers of the licensee need not, as a rule, be recalled.

The certification committee can, however, oblige the licensee to inform his customers in suitable form of the suspension of the certificate and to require them to take necessary steps to prevent further distribution of the product concerned.

11 Explanatory notes

This certification scheme has been prepared by DIN CERTCO in collaboration with the following bodies:

- the BAW Project Group at Rosenheim Technical College, with funds from the Federal Ministry of Food, Agriculture and Forestry in connection with Project 93NR108 (project management by Fachagentur Nachwachsende Rohstoffe e. V. = Technical Agency for Self-regenerating Resources)
- the Kuratorium Kompostierbarkeitskennzeichen der Interessengemeinschaft Biologisch Abbaurbare Werkstoffe e. V. (= Compostability Logo Board of the Interest Group for Biodegradable Materials)

It was ratified by the responsible certification committee in October 1997. Amendments to this certification scheme require prior approval of the certification committee. The certification committee first revised the certification scheme at its meeting in March 1998. A further revision was undertaken in April 2001. This present revision was ratified at the meeting of the certification committee held in July 2001.
Annex A

Materials that may be used in varying proportions up to the given upper limits as additives in the manufacture or processing of compostable materials as specified in clause 5.2.3.

Main group 1: Fillers

Subgroup 1.1: Inorganic fillers and pigments - admixture up to a maximum of 49 %

- aluminium silicates
- ammonium carbonate
- calcium carbonate
- calcium chloride
- dolomite
- iron oxide (pigment)
- gypsum
- mica
- graphite (pigment)
- kaolin
- chalk
- sodium carbonate
- natural silicates
- carbon black (pigment)
- silicon dioxide; quartz
- talc
- titanium dioxide (pigment)
- wollastonite

Subgroup 1.2: Organic fillers - admixture up to a maximum of 49 %

Section 1.2.1: Unmodified true cellulose

- vegetable fibres

Section 1.2.2: Unmodified true lignocellulose

- wood flour/wood fibres
- vegetable fibres
- cork
- bark

Section 1.2.3: Unmodified natural starch

- starch
- rye flour and other flours

Section 1.2.4: Miscellaneous

- starch acetate (up to a substitution level of 1)
Main group 2: Processing auxiliaries

Subgroup 2.1: Processing auxiliaries - admixture up to a maximum of 10 %

- benzoic acid/sodium benzoate
- erucic acid amide
- glycerol monostearate
- glycerol monooleate
- natural waxes
- paraffins, paraffin waxes (natural)
- polyethylene glycol (up to molecular weight 2000)
- stearates

Subgroup 2.2: Processing auxiliaries - admixture up to a maximum of 49 %

- glycerol
- sorbate
- citric acid ester (with linear, aliphatic chains up to a chain length of C22)
- glycerol acetates
- xylite
Annex B

The certification procedure for products made of compostable materials may be performed on the basis of the following standards:

- DIN V 54900-1 to -3
- DIN EN 13432
- ASTM D 6400-99

The tests are to be conducted consistently in accordance with one of the three standards, i.e. the chemical test, the test for ultimate biodegradability and the testing of compostability under practice-relevant conditions and of the quality of the composts. Testing of intermediates according to ASTM D 6400-99 alternatively can be conducted according to ASTM D 6868-03. Which standard served as the basis of testing will be indicated on the certificate.

B.1 Chemical testing

B.1.1 As specified in DIN V 54900

The chemical test is conducted in accordance with the requirements of DIN 54900-1.

B.1.2 As specified in DIN EN 13432

The chemical test is conducted in accordance with the requirements of DIN EN 13432.

B.1.3 As specified in ASTM D 6400

In addition to the requirements of clause 6.4.1 of ASTM D 6400-99, the limiting values specified in DIN EN 13432 are also to be met.

B.2 Testing of ultimate biodegradability

B.2.1 As specified in DIN V 54900

Testing of ultimate biodegradability is conducted in accordance with one of the methods specified in DIN V 54900-2.

- Method 1: Measuring the oxygen demand in a closed respirometer
- Method 2: Analysis of evolved carbon dioxide in an aqueous medium
- Method 3: Analysis of evolved carbon dioxide in compost

B.2.2 As specified in DIN EN 13432

Testing of ultimate biodegradability is conducted in accordance with the criteria of DIN EN 13432 by one of the following methods:

- ISO 14855 "Determination of the ultimate aerobic biodegradability and disintegration of plastic materials under controlled composting conditions – Method by analysis of evolved carbon dioxide"
- DIN EN 14046 "Packaging - Evaluation of the ultimate aerobic biodegradability of packaging materials under controlled composting conditions - Method by analysis of released carbon dioxide"; German version EN 14046:2003

1 After the withdrawal of this standard in February 2004 the testing basis is only used for those product certifications where the basic material according to this standard is registered by DIN CERTCO.
As an alternative the following method can be used:

- ISO 14851 "Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium – Method by measuring the oxygen demand in a closed respirometer"
- ISO 14852 "Determination of the ultimate aerobic biodegradability of plastics materials in an aqueous medium – Method by analysis of evolved carbon dioxide"

**B.2.3 As specified in ASTM D 6400**

Testing is conducted in accordance with the methods specified in subclause 6.3 of ASTM D 6400-9:

- ASTM D 6002-96 "Standard Guide for Assessing the Compostability of Environmentally Degradable Plastics"

A level of degradation of 90 % (absolute) for Heteropolymers and 60 % (absolute) for Homopolymers shall be achieved.

Where radioactively marked test materials are used, the duration of the test shall not, contrary to the specification made in clause 6.3.3.2 of ASTM D 6400-99, exceed 180 days.

**B.3 Testing of compostability under practice-relevant conditions and of the quality of the composts**

**B.3.1 As specified in DIN V 54900**

The testing of ultimate compostability under practice-relevant conditions is conducted in accordance with DIN 54900-3:

- Testing in a pilot-scale test under optimised process conditions (with determination of maximum compostable material thickness)
- Testing in a composting plant under real conditions (with determination of maximum compostable material thickness)

Testing of the quality of composts is conducted in accordance with subclause 5.1 of E DIN 59400-4 (or with LAGA-Merkblatt M 10 E 2.6.1) by way of

- a test of the ecological toxicity in respect of the parameter of plant tolerance (spring barley)

**B.3.2 As specified in DIN EN 13432**

The following methods are available for testing ultimate compostability under practice-relevant conditions in accordance with DIN EN 13432:

- Testing in a pilot-scale test
- Testing in a composting plant under real conditions
The standard DIN EN 13432 indicates the criteria for a successful test under item A.4, but it does not prescribe a specific method for the practical performance of the test. Compliance with the provisions on the performance of tests given in DIN 54900-3 is thus recommended. Alternatively, reference may also be made to ISO/DIS 16929 or DIN EN 14045. The determination of the maximum compostable material thickness is a requirement in all cases. The optical quality of the compost prepared from compostable materials shall not be significantly poorer than that of normal compost (testing in accordance with chapter IV, item 12.2 of BGK Methodenhandbuch zur Analyse von Komposten – Manual of methods of analysing composts).

- The criteria for the quality of composts are assessed in accordance with clause 8, A.4 and E of DIN EN 13432 by way of a test of the ecological toxicity with not less than two types of plants. The basis of the determination is the (modified) OECD Guideline 208.
- In addition, the physical-chemical properties are to be determined in accordance with subclause 8.2 of DIN EN 13432.

**B.3.3 As specified in ASTM D 6400**

Testing of the ultimate compostability under practice-relevant conditions is conducted in accordance with the method specified in subclause 6.2 of ASTM 6400-99:

- Subclause 7.2.1 of D 6002-96 "Standard Guide for Assessing the Compostability of Environmentally Degradable Plastics"

Note. The duration of the compostability test is 45 days (5 weeks).

The optical quality of the compost prepared from compostable materials shall not be significantly poorer than that of normal compost (testing in accordance with chapter IV, item 12.2 of BGK Methodenhandbuch zur Analyse von Komposten – Manual of methods of analysing composts).

The testing of the quality of the composts is conducted in accordance with the method specified in subclause 6.4.2 of ASTM D 6400-99:

- Subclauses 7.5.2.2 and 7.5.2.3 of D 6002-96 "Standard Guide for Assessing the Compostability of Environmentally Degradable Plastics"

A test of ecological toxicity with cress and at least two other types of plant (OECD Guideline 208) and an earthworm is to be conducted in accordance with OECD Guideline 207.
Annex C

C.1 Infrared transmission spectrum

The infrared transmission spectrum shall be prepared in accordance with E DIN 6042. The spectrum shall be recorded in a range between the wave numbers 4000 cm\(^{-1}\) and 400 cm\(^{-1}\), a transmission level from 0-100 % being indicated on the vertical axis. In addition to the paper copy, the testing laboratory shall also send the certification body an electronic file of the spectrum which will be entered into a spectra database.

C.2 X-ray fluorescence analysis

The X-ray fluorescence analysis shall be performed in accordance with ASTM D 6247 or DIN 51418. The requirement is a quantitative verification of the concentration of the following elements: Zn, Cu, Ni, Cd, Pb, Hg, Cr, Mo, Se, As and F. Alternatively, testing to other methods (e.g. AAS or AES) may be performed.
Annex D
Licence conditions
on the use of the Compostability Logo

§ 1 Object and scope of condition

(1) European Bioplastics (former IBAW Interessengemeinschaft Biologisch Abbaubare Werkstoffe e.V.) operates in conjunction with DIN CERTCO Gesellschaft für Konformitätsbewertung mbH, Burggrafenstraße 6, 10787 Berlin, Germany, and in accordance with a certification agreement concluded between European Bioplastics (former IBAW) and DIN CERTCO, a certification system which serves to ensure that only those products bear the mark reproduced in Annex 1 to this licence conditions which in their material composition and product design meet the requirements specified in DIN V 54900 / DIN EN 13432.

(2) European Bioplastics is the owner of the logo reproduced in Annex 1 to this licence conditions and intended for use on products conforming to DIN V 54900 / DIN EN 13432. The logo is registered under the number 396 37 198 at the German Patent Office.

§ 2 Definitions

For the purposes of this licence conditions, the following definitions apply:

Suppliers

Natural or legal persons who manufacture a product made of biodegradable materials in accordance with the requirements of legislation on the promotion of the recycling industry and on securing the non-polluting disposal of waste, or who first place such a product on the market.

Products

Products which by virtue of their material composition, physical form, mode of manufacture, and nature and level of pollution, are compostable after use and for which the supplier has acquired a licence to affix the logo reproduced in Annex 1 to this licence conditions.

Waste disposal systems

Systems for collecting and disposing of household waste, established and operated either by municipal waste disposal bodies as defined in § 15 of the Recycling Industry/Waste Disposal Act, or by private waste disposal bodies.

Actually marketed

Products that have been delivered to a customer by their manufacturer in accordance with the requirements of the packaging regulations for retail to final consumers.

Licence conditions

The licence conditions concluded or to be concluded between DIN CERTCO and suppliers on the use of the mark reproduced in Annex 1 to this licence conditions.

Licence identification number

Means of identifying the suppliers, specified in the licence conditions.
Registration number

The number assigned to a certified product.

§ 3 Entitlement to use the logo

(1) Under the terms of this licence conditions, the supplier is entitled and obliged to affix the mark reproduced in Annex 1 inseparably to the product for which a valid certificate exists.

(2) The logo is to be affixed to the product in a manner and in a size that is agreed in each individual case between DIN CERTCO and the supplier. The word "compostable" is to be inscribed beneath the logo, and the registration number defined in § 2 shall be placed next to it. The logo and the two inscriptions shall all be inseparably affixed in the same way to the product. The manufacturer undertakes not to place any inscriptions near the mark that express a right to disposal of the product via public biowaste collection.

(3) The licence includes the right to use reproductions of the product with the mark in advertisements (right to advertise). This right subsists only for advertising for the product itself, but not for advertising that relates to the general business operations of the supplier.

(4) DIN CERTCO may revoke this right to advertise if:

- the supplier in exploiting the right to advertise contravenes binding law, in particular the law against unfair competition or other legal norms applying to advertising, or if

- the supplier in exploiting the right to advertise acts contrary to the interests of DIN CERTCO or European Bioplastics.

If DIN CERTCO exerts its right to revoke the right to advertise, the supplier loses such right with reference to those advertising measures to which the revocation refers.

This provision does not affect the right to terminate the licence conditions on the grounds of a serious infringement of the laws on advertising.

§ 4 Certification of product

(1) The supplier shall have the product tested by DIN CERTCO for compliance with the requirements of the certification scheme. Testing serves to establish whether the product does in fact meet these requirements.

(2) By virtue of this licence conditions, DIN CERTCO is entitled to conduct at any time surveillance inspections as an essential part of the certification scheme. The certification scheme will be continually modified in line with developments in the state of the art. The supplier will be advised of such developments and undertakes to adapt production and product design within three months of receiving such notification to ensure that any changes in the requirements are met.

(3) The supplier undertakes to grant authorized agents of DIN CERTCO access to business premises and production sites at any time for purposes of undertaking further inspections and also to provide DIN CERTCO on request the number of products required.

§ 5 Payment of DIN CERTCO

DIN CERTCO shall receive payment for the certification and for the use of the logo on the basis of the valid schedule of fees.
§ 6 Duration and termination of licence conditions

The duration of this licence conditions depends on the duration of validity of the certificate. The licence conditions expires three months after the validity of the certificate has elapsed.

§ 7 Jurisdiction and arbitration

(1) This licence conditions are subject to German law, only.

§ 8 Final provisions

(1) Amendments and supplements to this licence conditions must be made in writing in order to be effective. That also applies to any amendment of this provision.

(2) Should any provision of this contract prove or become invalid, then the parties to the contract undertake to replace the invalid provision by a valid provision that in content most closely approximates to the originally intended economic result. The same applies analogously to any loopholes in the contract.
Enclosure 1 picture trademark Compostability Logo