TÜVRheinland®
DIN CERTCO
Precisely Right.

Certification Scheme

Biowaste Bags made of compostable materials (DIN*plus*)

according to

DIN EN 13432

if applicable, in connection with

DIN EN 14995
ISO 17088
ISO 18606
AS 4736

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Foreword

DIN CERTCO was founded in 1972 by DIN Deutsches Institut für Normung e. V., is now part of the TÜV Rheinland Group and is the certification body for issuing DIN marks and other certification marks for products, persons, services as well as companies based on DIN standards and similar specifications. Due to its independence, neutrality, competence and many years of experience, DIN CERTCO enjoys a high reputation both at home and abroad.

In order to prove the functionality of the system and our competence as a certification body, we have been accredited, certified or recognised by independent domestic and foreign bodies in both the voluntary and legally regulated areas. Our accreditations.

The "Biowaste Bags made of compostable materials (DIN*plus*)" certification scheme was created in collaboration with the DIN CERTCO "Biodegradable Materials" certification committee (ZA-BAW in its German abbreviation) and will be continuously refined. It contains the requirements for the certification of biowaste bags.

In addition to DIN CERTCO's general terms and conditions and the Testing-, Registration- and Certification Regulations, this certification scheme provides a basis for parties who provide biowaste bags to label their products with the compostability mark, the ”DIN*plus* Biowaste Bags”-logo. This documents that their products fulfill all DIN EN 13432 requirements as well as, if applicable, the additional/simultaneous requirements in DIN EN 14995, ISO 17088, ISO 18606 and/or AS 4736, respectively.

The ”DINplus”-mark creates trust among consumers, retailers, waste managers, municipalities, associations and authorities that a neutral and competent entity carefully inspected and evaluated test criteria. DIN CERTCO's regular monitoring additionally ensures that product quality remains intact, even when production is running. Thus, customers receive benefit that they can take into consideration when making purchase decisions.

Biowaste Bags made of compostable materials are given the right to use the compostability mark “DIN*plus* Biowaste Bags” upon fulfilling the requirements indicated under Section 4 according to the procedure described in this certification scheme.

All certificate holders can be viewed on the daily up-dated homepage of DIN CERTCO (www.dincertco.tuv.com).

Amendments

a) First issue

Earlier versions

First Issue

Remark

The German version of this certification scheme shall be taken as authoritative. No guarantee can be given to the English translation.

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1 Scope

This certification scheme applies exclusively for biowaste bags made of biodegradable materials or intermediates and, in connection with the testing foundations named below, contains all requirements on issuing the compostability mark “DIN*plus* Biowaste Bags”.

Mandatory background for issuing the “DIN*plus* Biowaste Bags” mark is this certification scheme, which includes DIN EN 13432 and other applicable standards mentioned in Section 2. Single certification of Biowaste Bags according to DIN EN 13432 and other applicable standards mentioned in Section 2 without additional requirement of the maximum disintegration duration of 6 weeks is not possible.

This certification scheme establishes requirements that need to be met by the product directly, as well as requirements relating to the associated testing, monitoring and certification.

If biowaste bags demonstrate conformity to the criteria specified in this certification scheme, then a certificate will be issued for that product. Furthermore, these certificates will be added to the corresponding lists of certificate holders (see Section 6.10).

There is no legal right to receiving a certificate or any other confirmation of conformity.

2 Test and certification specifications

The following referenced documents are the basis for testing and certification. For dated references, only the edition citied applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Biowaste Bags can be certified according to the following standards (certification standards):

DIN EN 13432	Requirements for packaging recoverable through composting and biodegradation
DIN EN 14995	Plastics - Evaluation of compostability - Test scheme and specifications
ISO 17088	Specifications for compostable plastics
ISO 18606	Packaging and environment - Organic recycling
AS 4736	Biodegradable Plastics – Biodegradable Plastics suitable for Composting and other microbial Treatment

Biowaste Bags are required to demonstrate compliance with the requirements of DIN EN 13432 and those of Section 4. One/several of the standards named may additionally be covered by the certification.

Laboratory testing must be performed according to the stipulations in the standards named above according to the following standards or test methods (testing standards):

DIN EN 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

DIN EN ISO 14852	Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium - Method by analysis of evolved carbon dioxide
DIN EN ISO 14855-1	Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions -- Method by analysis of evolved carbon dioxide -- Part 1: General procedure
DIN EN ISO 14855-2	Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions -- Method by analysis of evolved carbon dioxide -- Part 2: Gravimetric measurement of carbon dioxide evolved in a laboratory-scale test
DIN EN ISO 16929	Plastics - Determination of the degree of disintegration of plastic materials under defined composting conditions in a pilot-scale test
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
DIN EN ISO 10634	Water quality – Guidance for the preparation and treatment of poorly water-soluble organic compounds for the subsequent evaluation of their biodegradability in an aqueous medium
ASTM E 1676	Standard Guide for conducting Laboratory Soil Toxicity or Bioaccumulation Tests with the Lumbricid Earthworm *Eisenia fetida* and the Enchytraeid Potworm *Enchytraeus albidus*
AS 4454	Composts, soil conditioners and mulches
OECD 208	Terrestrial Plant Test: 208: Seedling Emergence and Seedling Growth Test
Federal Quality Association Compost (ed.): (Bundesgütegemeinschaft Kompost e.V. (Hrsg.))	Manual of methods for analysing organic fertilisers, soil improver and substrates

- this certification scheme
- the general terms and conditions of DIN CERTCO
- Testing-, Registration- and Certification Regulations of DIN CERTCO
- the schedule of fees in its most current version

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

3 Definitions

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

Additive	Substances and product constituents added to a product, material or intermediate in order to, for example, generate certain properties (e.g. adhesives, antiblocking agents, printing inks).
Blank compost	Compost obtained from a parallel process according to B 4 without addition of sample material
Blend	Physical mixture of 2 or more materials without reactive process.
Certification	Proof of conformity with the requirements of the named standards as well as with this certification scheme for final products. A licence to use the mark is granted.
Compostable material	Material meeting the requirements of this certification scheme.
Continuous phase	The background phase (polymer 1) of a multiphase system with at least one further phase (polymer 2) (e.g. blend). A blend always has two phases: a continuous phase and the dispersed phase.
Intermediate	Semi-finished item. Optional state between material and product, e.g. laminates consisting of several layers of material. The classification of types shall be made according to Section 6.4.
Manufactured item	Biowaste Bags according to this certification scheme.
Material	Material that is (in case of polymers) primarily based on organic chain molecules and used, for example, to manufacture intermediates or products. Materials generally contain further inorganic or low molecular weight organic materials used to influence processing or application properties. Materials can also consist of materials other than plastics.
Product	Biowaste bag that is disposed of as waste (for composting) after use, is manufactured from polymeric materials or intermediates and frequently also contains additives. Products are not necessarily packaging.
Production facility	Location at which production of manufactured items is carried out according to this certification scheme. This is not necessarily identical to the certificate holder's address.

4 Product requirements

According to the requirements of the underlying standards, the requirements named in the following must be fulfilled. Section 6 describes the details on providing the associated evidence.

- Compliance with the threshold values named in Table A.1 in DIN EN 13432.
- Ultimate biodegradability (90 % absolute biodegradation, or 90 % compared with a suitable reference substrate within not more than 6 months). Evidence must be proven via a test according to the standards named under Section 2.

- After composting for no more than 6 weeks, no remainings of the tested material's original dry weight may be found in a > 2 mm screen fraction. Evidence must be demonstrated via a test according to Section B.4 (disintegration testing).

- The germination rate and plant biomass of both plant types grown on the compost using test substance must be higher than 90 % of the corresponding blank compost. Evidence must be demonstrated via a test according to the standards named under SectionB.3.at

- Additives present in a manufactured item at concentrations less than 1 % of mass item must be harmless for the composting process.

- The total sum of the organic compounds smaller 1 % for which biodegradability need not be determined may not exceed 5 % of mass.

- For the application of ISO 18606, ISO 17088 additionally: For organic additives present in a manufactured item at concentrations of 1 % to 10 % of mass referred to the manufactured item, ultimate biodegradability must be proven separately according to Section B.2. This evidence can be proven via a certification/notification of registration according to the certification scheme “Additives according to EN 13432” or “Products made of compostable materials”. For the application of AS 4736, testing of the manufactured item on ultimate biodegradability is required additionally.

- For the application of AS 4736 additionally: The survival rate and the mean weight of the applied worm specie exposed with the compost using test substance must be higher than 90 % of the corresponding blank compost. Evidence must be demonstrated via a test according to the standard named under Section B 3.5 (Determining compost quality (earthworm toxicity test).

5 Testing

5.1 General information

To carry out the tests necessary for the evaluation and certifications, DIN CERTCO uses qualified testing laboratories .

If applicable test reports according to the certification schemes “Products made of compostable materials” (“Seedling” and/or “DIN-Geprüft”), “Products made of compostable materials for home and garden composting” and “Additives harmless for the composting process” can be accepted.

All documents must be submitted in German or English.

5.2 Types of tests

5.2.1 Initial test (Type testing)

The initial test is a type test intended to establish whether the biowaste bags meet the requirements according to Section 4 of this certification scheme.

Section 6.2 shows which tests are necessary for individual cases.

5.2.2 Verification test (Control test)

Verification testing is performed on certified biowaste bags.

Verification testing is performed in recurring, predefined intervals and establishes whether the certified biowaste bags in production phase correspond to the product tested during initial certification.

This must be evidenced on schedule via a test report with positive results from a qualified testing laboratory .

Test reports are assessed by DIN CERTCO.

For this purpose, 10 samples of the certified biowaste bags are obtained from manufacturers' production facilities and provided to DIN CERTCO at his own expense.

In the case of multiple certifications of the same certified biowaste bags in the field of compostable materials at DIN CERTCO one evidence of a verification test per manufactured item is sufficient.

5.2.3 Supplementary testing

Supplementary testing is performed when supplements, expansions or additions (see Section 6.14) are intended for a certified biowaste bag that may have an influence on conformity with the underlying requirements.

Type and scope of supplementary testing will be determined by DIN CERTCO.

5.2.4 Special test

A special test is conducted when

- defects are detected
- the production has been suspended for a period of more than 6 months
- required by DIN CERTCO - reasons to be specified
- requested in writing by a third party if a particular interest in the maintenance of proper conduct of market procedures in relation to competition or quality is involved.

If defects are detected in a special test, or if a special test is performed due to a stop in production, then the certificate holder shall bear the costs of the examination procedure.

If the special test at the request of a third party reveal no defects, the costs shall be borne by said third party.

5.3 Sampling

The biowaste bags used for initial, verification and extension testing are usually delivered by the applicant to the testing laboratory, which has been commissioned to perform the tests. The applicant bears the associated costs.

The number of samples required for product testing is agreed between DIN CERTCO and the testing laboratory unless it is already specified in the applicable basis for assessment.

5.4 Test procedure

Testing universally must be performed according to one or more of the standards named above.

According to standards DIN EN 13432, DIN EN 14995, ISO 17088, ISO 18606 and AS 4736 the following tests are required:

- Chemical characterisation according to Section B 1.
- Testing of ultimate biodegradability according to Section B 2.
- Testing of the quality of the composts (ecotoxicity) according to Section B 4.
- Testing of compostability under practice-relevant conditions (disintegration with a duration of max. 6 weeks). Certification is performed with the maximum layer thickness determined in testing according to Section B.4.
- Testing of soil toxicity under practice-relevant conditions (earthworm toxicity test) according to Section B 3.5 (only required if AS 4736 shall be applied).
- Additionally, for identifying the material it is necessary to perform an IR spectrum in accordance with Section 0.

5.5 Test report

The testing laboratory informs the client of the test results by means of a test report. An original copy of it shall be submitted to DIN CERTCO; or a digital copy sent by the testing laboratory.

As a rule, the test report may not be older than 6 months at the time of application. In individual cases, older test reports can be recognised if the testing laboratory confirms the validity of the results by means of a test report in writing and the manufacturer confirms that the biowaste bags have not been changed since testing. Test reports that are more than 5 years old can generally no longer be recognised.

The test report must correspond to DIN EN ISO/IEC17025 and must at least contain the following information:

- Name and address of the manufacturer
- Name and address of the applicant (if different than manufacturer)
- Test basis (standards and certification scheme) with date of issue
- Type of test (e.g. type test, additional test, etc.)
- Test date
- Results and evaluation of test
- If testing is being performed in parallel with multiple replicates, then the individual results must also be shown.
- Name and signature of the individual responsible for the test

6 Certification

Certification in the sense of this certification scheme relates to the assessment of conformity of a biowaste bag by DIN CERTCO on the basis of test reports submitted by qualified testing laboratories . In doing so, the biowaste bags being certified for conformity, with the require-

ments named in Section 2, are examined and subsequently monitored. As this is a modular certification system, test requirements apply according to Section 6.2.

References to manufactured items that have already been registered/certified can minimise testing expenditures. The points named in the following shall apply.

Should a reference be made to a biowaste bag that has already been certified, then an additional agreement will be required from the certificate holder. References to certified biowaste bags will only be possible if concerning an identical product.

6.1 Application for certification

Applicants can be both manufacturers according to Article 4 of the Produkthaftungsgesetz (ProdHaftG) [German Product Liability Act] or retailers who market the products independently within the meaning of the Produkthaftungsgesetz with the written consent of the certificate holder.

The following documents must be submitted by the applicant to DIN CERTCO:

- The original application for certification, with a legally binding signature and company stamp.
- Completed datasheet (part of the application form).
- List of production facilities, including complete address. If production is being carried out by companies other than the certificate holder, then the company's complete name and address must be submitted. Production can be carried out at various locations alternatively or simultaneously. In this case, all alternative production facilities must be reported to DIN CERTCO upon application.
- Material Safety Data Sheets according to REACH for all substances being used to determine additives' suitability for composting (e.g. processing auxiliaries, printing inks, etc).
- If required, an up-to-date test report according to Section 5.5 (see Section 5.4 and Section 6.2 and Section A), when the test has not been contracted by DIN CERTCO within the scope of an ongoing certification process.
- Details on construction and layer thickness, if applicable.
- Density or grammage, if applicable, e.g. for paper.
- Drawings, with data on all wall and layer thicknesses (d_{max}), if applicable.
- Test report on an infrared transmission spectrum according to Section C.
- Information on intended use as biowaste bags.
- Submitting of product samples.

  For each substance: Proof of suitability for biological waste processing, e.g. reference to published data, according to internationally recognised standards and/or guidelines (e.g. OECD) dealing with biodegradability and toxicological effects of the substance.

After receipt of the application, the applicant will receive a confirmation of order from DIN CERTCO with a procedure number and information on further processing.

6.2 Required tests/documents

Depending on the composition of the biowaste bags being certified, the tests named in the following will be required.

If assessment is finished with positive results and a positive decision is made regarding the application, the certification will be issued for the maximum layer thickness determined via testing according to Section B 4 and published according to Section 6.10.

Depending on composition and structure of the biowaste bags, a combination of the requirements named may become necessary.

6.2.1 Manufactured items consisting of materials not yet registered/certified

If certification is being requested for a manufactured item consisting of a material that is not yet registered/certified, the following documents and information must be submitted along with the application form.

a) Disclosure of chemical composition (including substances at concentrations below 1 % of mass).

b) Material Safety Data Sheets according to REACH for all substances being used to determine substances' suitability for composting.

   If substances' harmlessness cannot be determined using the Material Safety Data Sheet, then a testing of quality of the compost must be performed (e.g. ecotoxicity plant test; additionally earthworm toxicity test if norm conformity to AS 4736 is applied). This is coordinated with DIN CERTCO and, if applicable, with the testing laboratories or the assessment committee.

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

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

e) Test reports on quality of the compost as specified in Section B 4 (ecotoxicity or rather earthworm toxicity test).

f) Test reports on testing of compostability under practice-relevant conditions as specified in Section B.4 (disintegration) after composting for no more than 6 weeks.

g) An infrared transmission spectrum in accordance with Section 0.

6.2.2 Manufactured items composed of materials already registered (Blends)

If certification is being requested for a manufactured item consisting solely of materials already on the list according to Section 6.10 with existing and valid test reports according to Section 4, and no further additives are used, the following documents and information must be submitted along with the application form:

a) List of the materials used, including information on mass portions.

b) Test reports on testing of compostability under practice-relevant conditions as specified in Section B.4 (disintegration).

c) An infrared transmission spectrum in accordance with Section 0.

6.2.2.1 Special rules

The following special rules apply on the precondition that the compostable properties (disintegration) of blends are determined by the properties of the continuous phase. They only refer to the certification of ranges. The mixtures used for the testing needs to be defined in cooperation with DIN CERTCO and the testing laboratory. It needs to be representative for the continuous phase. As long as the continuous phase remains identical, different mixture proportions have no influence on compostability. The applicant must provide evidence and data on the respective continuous phase.

The maximum layer thickness will be defined depending on the layer thicknesses tested.

Blend of materials from identical material groups:

For blends of registered materials that are only distinguished by molecular weight, the disintegration test according to Section B 4 can be omitted. The requisite for this is that the manufacturing process for the materials is identical and there is certification with the same manufacturer. The maximum layer thickness is that of the material with the lowest determined layer thickness. The condition for this is that any additives used in producing the manufactured item do not cause any chemical or structural changes.

Ranges in blends made from 2 different materials:

It is possible to register composition ranges of two different materials (A and B) that have already been registered. Doing so requires disintegration tests of the various compositions and continuous phases (e.g. ratio A/B of 20/80 and 80/20).

Provided that the range within the blend remains inside a certain threshold, some of the tests may be omitted. This must be determined in coordination with DIN CERTCO and, if applicable, the testing laboratory. This requires proof that the material forming the continuous phase does not change within the range (material B instead of material A is the continuous phase). A disintegration test is required for each continuous phase that occurs. It must be demonstrated using electron microscopy that there is no phase change within the requested range.

Ranges in blends made from 3 different materials:

It is possible to register composition ranges of three different materials that have already been registered. For determining maximum layer thickness, it is sufficient to test the compostability properties of a blend for each continuous phase. Maximum layer thickness can be differentiated depending on the layer thickness tested for the continuous phase.

Provided that the range within the blend remains inside a certain threshold, some of the tests may be omitted. This must be determined in coordination with DIN CERTCO and the testing laboratory. This requires proof that the continuous phase does not change within the range. A disintegration test is required for each continuous phase that occurs. It must be demonstrated using electron microscopy that there is no phase change within the stated range.

Example:

Tests required for a range of a blend of registered materials A, B and C under the assumption that the material with a share of 60 % forms the continuous phase (this shall be evidenced in the certification procedure):

Determination of degradation properties with material A as continuous phase:

A/B/C = 60/20/20

Determination of degradation properties with material B as continuous phase:

A/B/C = 20/60/20

Determination of degradation properties with material C as continuous phase:

A/B/C = 20/20/60

6.2.3 Manufactured items consisting of natural organic substances

If exclusively chemically unmodified constituents of natural origin (e.g. wood, wood fibre, cotton fibre, starch, paper pulp or jute) and admissible for composting according to the applicable legal stipulations are used for the manufactured item, such item are accepted by DIN CERTCO as being biodegradable without testing. The following documents and information must be submitted along with the application form:

a) Disclosure of chemical composition (including additives at concentrations below 1 % of mass).

b) Material Safety Data Sheets according to REACH for all substances being used to determine substances' suitability for composting.

   If substances' harmlessness cannot be determined using the Material Safety Data Sheet, then a testing of quality of the compost must be performed (e.g. ecotoxicity plant test; additionally earthworm toxicity test if norm conformity to AS 4736 is applied). This is coordinated with DIN CERTCO and, if applicable, with the testing laboratories or the assessment committee.

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

d) Test reports on quality of the compost as specified in Section B 4 (ecotoxicity or rather earthworm toxicity test).

e) Test reports on testing of compostability under practice-relevant conditions as specified in Section B.4 (disintegration) after composting for no more than 6 weeks.

f) An infrared transmission spectrum in accordance with Section 0.

If additives are used, then the requirements according to 6.2.9 apply accordingly.

6.2.4 Manufactured items consisting of paper/recycled paper

Remark:

In paper industry, fillers are called pigments.

If certification is being requested for a manufactured item consisting of paper/recycled paper,

then the following documents and information must be submitted along with the application form:

a) Disclosure of the paper's chemical composition and structure (including additives at concentrations below 1 % of mass).

b) Disclosure of the manufactured item's chemical composition (including additives at concentrations below 1 % of mass).

c) Material Safety Data Sheets according to REACH for all substances being used to determine substances' suitability for composting.

   If substances' harmlessness cannot be determined using the Material Safety Data Sheet, then a testing of quality of the compost must be performed according to Section B 4 (e.g. ecotoxicity plant test; additionally earthworm toxicity test if norm conformity to AS 4736 is applied). This is coordinated with DIN CERTCO and, if applicable, with the testing laboratories or the assessment committee.

d) Test report on the chemical characterisation as specified in Section B 1.

e) Test reports on quality of the compost as specified in Section B 4 (ecotoxicity or rather earthworm toxicity test).

f) Test reports on testing of compostability under practice-relevant conditions as specified in Section B.4 (disintegration) after composting for no more than 6 weeks.

g) An infrared transmission spectrum in accordance with Section 0.

The requirements according to 6.2.9 apply accordingly for the additives being used.

If using recycled paper, the following additional evidence is required:

– Evidence of continuous compliance with the threshold values according to Table A.1 of DIN EN 13432 via a suitable quality assurance system.

– An additional chemical analysis performed annually according to Section B 1 within the scope of annual control testing according to 5.2.2.

Certification of biowaste bags made from paper requires information on the maximum layer thickness and grammage. Both additional conditions must be fulfilled.

6.2.4.1 Special rules

The following special rules have been developed to minimise testing expenditures.

Chemical pulp with less than 1 % additives, **without** pigmentation and without use of wet strengtheners:

– For single-sided coating, up to 50 % of the tested layer thickness of the registered polymer and up to 100 % of the tested layer thickness of the paper can be certified/registered without additional tests.

– For double-sided coating, up to 25 % of the tested layer thickness of the registered polymer and up to 100 % of the tested layer thickness of the paper can be certified/registered without additional tests.

– For single-sided coating with 2 different polymers, up to 25 % of the tested layer thickness of each polymer and up to 100 % of the tested layer thickness of the paper can be certified/registered without additional tests.

– For double-sided coating with 2 different polymers, up to 12.5 % of the tested layer thickness of the polymer and up to 100 % of the tested layer thickness of the paper can be certified/registered without additional tests.

Mechanical pulp with less than 1 % additives, **without** pigmentation and without use of wet strengtheners:

– For single-sided coating, up to 50 % of the tested layer thickness of the polymer and up to 50 % of the tested layer thickness of the paper can be certified/registered without additional tests.

– For double-sided coating, up to 25 % of the tested layer thickness of the polymer and up to 50 % of the tested layer thickness of the paper can be certified/registered without additional tests.

– For single-sided coating with 2 different polymers, up to 25 % of the tested layer thickness of each polymer and up to 50 % of the tested layer thickness of the paper can be certified/registered without additional tests.

– For double-sided coating with 2 different polymers, up to 12.5 % of the tested layer thickness of the polymer and up to 50 % of the tested layer thickness of the paper can be certified/registered without additional tests.

Chemical pulp with less than 1 % additives, **with** pigmentation and without use of wet strengtheners:

– For single-sided coating, up to 50 % of the tested layer thickness of the polymer and up to 50 % of the tested layer thickness of the paper can be certified/registered without additional tests.

– For double-sided coating, up to 25 % of the tested layer thickness of the polymer and up to 50 % of the tested layer thickness of the paper can be certified/registered without additional tests.

– For single-sided coating with 2 different polymers, up to 25 % of the tested layer thickness of each polymer and up to 50 % of the tested layer thickness of the paper can be certified/registered without additional tests.

– For double-sided coating with 2 different polymers, up to 12.5 % of the tested layer thickness of the polymer and up to 50 % of the tested layer thickness of the paper can be certified/registered without additional tests.

Recycled paper with less than 1 % additives, without pigmentation and without use of wet strengtheners

The same evaluation rules mentioned above regarding composting properties as for new paper apply.

6.2.5 Manufactured items composed of registered materials and materials indicated in Section A

If certification is being requested for a manufactured item that is intended to contain the fillers and processing auxiliaries indicated in Section A, it is possible to register individual compositions within a predefined composition range. The following documents and information must be submitted along with the application form:

a) Disclosure of the manufactured item's chemical composition (including additives at concentrations below 1 % of mass).

b) Material Safety Data Sheets according to REACH for all substances being used to determine substances' suitability for composting.

   If substances' harmlessness cannot be determined using the Material Safety Data Sheet, then a testing of quality of the compost must be performed (e.g. ecotoxicity plant test; additionally earthworm toxicity test if norm conformity to AS 4736 is applied). This is coordinated with DIN CERTCO and, if applicable, with the testing laboratories or the assessment committee.

c) The upper limit of 49 % by mass for the proportion of inorganic material and the upper limits specified in Section A for the respective fillers or processing auxiliaries may not to be exceeded in the material as a whole.

d) Safety data sheets according to REACH are to be submitted for all materials used as specified in Section A. Proof of compliance with the requirements of Section B 1 with respect to the heavy metal content must be supplied for each individual filler or processing auxiliary. Alternatively, chemical characterisation according to Section B 1 has to be performed.

e) Test reports on testing of compostability under practice-relevant conditions as specified in Section B.4 (disintegration) after composting for no more than 6 weeks.

f) An infrared transmission spectrum in accordance with Section 0.

Should various portions of the materials named in Section A be used, then the test must be performed using the largest portion being included in the application.

Provided no more than 3 % of mass consists of inorganic filling according to Section A, then the disintegration test according to Section B 4 can be omitted.

Within the separate subgroups or sections (as per Section 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 fillers or mixtures of fillers of the same subgroup or Section can be selected without restriction up to the registered upper limit, e.g. chalk can be replaced by talc without additional disintegration testing. An amendment of the certificate is required.

– In Section 1.2.4 and the subgroups 2.1 and 2.2: Proportions of the tested processing auxiliaries can be selected without restriction up to the registered upper limit, e.g. xylite can be replaced by sorbite without additional disintegration testing. An amendment of the certificate is required.

6.2.6 Manufactured items with coatings

If manufactured items are coated, then the following types must be differentiated:

6.2.6.1 Coating using substances whose biodegradation has not been proven, but have excellent water solubility and are being used in portions less than 1 % of mass

The following documents and information must be submitted along with the application form:

a) Disclosure of the manufactured item's chemical composition (including additives at concentrations below 1 % of mass).

b) Data on the coatings layer thickness.

c) Material Safety Data Sheets according to REACH for all substances being used to determine substances' suitability for composting.

   If substances' harmlessness cannot be determined using the Material Safety Data Sheet, then a testing of quality of the compost must be performed (e.g. ecotoxicity plant test; additionally earthworm toxicity test if norm conformity to AS 4736 is applied). This is coordinated with DIN CERTCO and, if applicable, with the testing laboratories or the assessment committee.

d) Test reports on testing of compostability under practice-relevant conditions as specified in Section B.4 (disintegration) over a period of maximum 6 weeks
e)
f) An infrared transmission spectrum in accordance with Section 0.

Evidence of good water solubility can be provided, for example, by the Material Safety Datasheet according to REACH. Alternative evidence is possible and will be evaluated by DIN CERTCO.

6.2.6.2 Coating using substances whose biodegradation has not been proven and are being used in portions less than 1 % of mass

The following documents and information must be submitted along with the application form:

a) Disclosure of the manufactured item's chemical composition (including additives at concentrations below 1 % of mass).

b) Data on the coatings layer thickness.

c) Material Safety Data Sheets according to REACH for all substances being used to determine substances' suitability for composting.

   If substances' harmlessness cannot be determined using the Material Safety Data Sheet, then a testing of quality of the compost must be performed according to Section B 4 (e.g. ecotoxicity plant test; additionally earthworm toxicity test if norm conformity to AS 4736 is applied). This is coordinated with DIN CERTCO and, if applicable, with the testing laboratories.

d) Test reports on testing of compostability under practice-relevant conditions as specified in Section B.4 (disintegration) over a period of maximum 6 weeks.An infrared transmission spectrum in accordance with Section 0.

6.2.6.3 Coating using materials whose biodegradation has not been proven and are being used in portions more than 1 % of mass

The following documents and information must be submitted along with the application form:

According to DIN EN 13432, DIN EN 14995:

When using significant organic additives the following tests will be required in addition to the requirements stated under Section 6.2.9.

Testing of additives:

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

And of the coated manufactured item:

b) Test reports on quality of the compost as specified in Section B 4 (ecotoxicity or rather earthworm toxicity test). Alternatively, the ecotoxicity testing can be performed on each single substance.

c) Test reports on testing of compostability under practice-relevant conditions as specified in Section B.4 (disintegration) over a period of maximum 6 weeks

d) An infrared transmission spectrum in accordance with Section 0.

Alternatively:

Testing of coated manufactured item according to 6.2.1.

According to ISO 17088, ISO 18606:

When using significant organic additives in portions between 1 and 10 % of mass the following tests will be required in addition to the requirements stated under Section 6.2.9.

Testing of additives:

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

And of the coated manufactured item:

b) Test reports on quality of the compost as specified in Section B 4 (ecotoxicity test). Alternatively, the ecotoxicity test can be performed on each single substance.

c) Test reports on testing of compostability under practice-relevant conditions as specified in Section B.4 (disintegration) over a period of maximum 6 weeks.

d) Test report on the chemical characterisation as specified in Section B 1. Alternatively, the testing can be performed on each single substance.

e) An infrared transmission spectrum in accordance with Section 0.

Alternatively:

When using significant organic additives in portions more than 10 % of mass the testing of the coated manufactured item according to Section 6.2.1 can be carried out alternatively in addition to the requirements stated under Section 6.2.9.

According to AS 4736:

When using significant organic additives in portions more than 1 % of mass the following tests will be required in addition to the requirements stated under Section 6.2.9.

Testing of substances used in portions more than 1 %:

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

And of the coated manufactured item:

b) Test reports on quality of the compost as specified in Section B 4 (ecotoxicity and earthworm toxicity test).

c) Test reports on testing of compostability under practice-relevant conditions as specified in Section B.4 (disintegration) over a period of maximum 6 weeks.

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

e) Test report on the chemical characterisation as specified in Section B 1. Alternatively, the testing can be performed on each single substance.

f) Infrared Transmission spectrum according to Section C.

6.2.6.4 Coating using certified materials being used in portions more than 1 % of mass

The following documents and information must be submitted along with the application form:

a) Disclosure of the manufactured item's chemical composition (including additives at concentrations below 1 % of mass).

b) Data on the coatings layer thickness.

c) Material Safety Data Sheets according to REACH for all substances being used to determine substances' suitability for composting.

   If substances' harmlessness cannot be determined using the Material Safety Data Sheet, then a testing of quality of the compost must be performed according to Section B 4 (e.g. ecotoxicity plant test; additionally earthworm toxicity test if norm conformity to AS 4736 is applied). This is coordinated with DIN CERTCO and, if applicable, with the testing laboratories or the assessment committee.

d) Test reports on testing of compostability under practice-relevant conditions as specified in Section B.4 (disintegration) over a period of maximum 6 weeks

e) An infrared transmission spectrum in accordance with Section 0.

6.2.7 Manufactured items consisting of multiple layer structures made of registered materials

If certification is being requested for a manufactured item consisting of multiple layers of materials already on the list according to Section 6.10, or with existing and valid test reports according to Section 4, and are therefore demonstrated to be compostable (without using auxiliary

materials), then the following documents and information must be submitted along with the application form:

a) Disclosure of the exact structure, including information on coat thickness of the individual coats.

b) Disclosure of the composition of each layer (including additives at concentrations below 1 % of mass).

c) Disclosure of other additives used (including additives used at concentrations below 1 % of mass).

d) Material Safety Data Sheets according to REACH for all substances being used to determine substances' suitability for composting.

   If substances' harmlessness cannot be determined using the Material Safety Data Sheet, then a testing of quality of the compost must be performed according to Section B 4 (e.g. ecotoxicity plant test; additionally earthworm toxicity test if norm conformity to AS 4736 is applied). This is coordinated with DIN CERTCO and, if applicable, with the testing laboratories or the assessment committee.

e) List of the materials used, including information on mass portions.

f) Test reports on testing of compostability under practice-relevant conditions as specified in Section B.4 (disintegration) over a period of maximum 6 weeks

g) An infrared transmission spectrum in accordance with Section 0.

If additives are being used, then each individual layer must fulfil the requirements of this certification scheme regarding biodegradability and the use of additives.

6.2.8 Manufactured items exceeding the maximum registered/certified layer thickness

If a manufactured item exceeds the maximum registered layer thickness of the material/intermediate/product being used, then the compostability of the manufactured item has to be evidenced separately.

Additional Test required:

a) Test reports on testing of compostability under practice-relevant conditions as specified in Section B.4 (disintegration) over a period of maximum 6 weeks
b) Infrared spectrum according to Section C

6.2.9 Manufactured items consisting of manufactured items already registered/certified and non-biodegradable additives

This can be e.g. a printed biowaste bag.

Certification of manufactured items consisting of various alternative materials/intermediates/products is possible provided the certification scheme's requirements have been met for all alternatives.

The other requirements according to Section 6.2 must be met.

6.2.9.1 Use of harmless additives with less than 1 % of mass per additive and less than 5 % of mass of non-biodegradable additives

According to Section A2.1 of DIN EN 13432, A2.1 of DIN EN 14995, 6.3.1 of ISO 17088, 6.3.1 of ISO 18606 and 5.4.2.1 of AS 4736 organic additives whose biodegradability has not been separately determined can be used on the following conditions:

– Less than 1 % of mass per organic additive.

– Less than 5 % of mass in total of organic additives whose biodegradability has not been proven.

– Additives are harmless for the composting process.

Required information/tests/documents:

a) List of all additives, including portions of mass.

b) Material Safety Data Sheets according to REACH for all substances being used to determine substances' suitability for composting.

   If substances' harmlessness cannot be determined using the Material Safety Data Sheet, then a testing of quality of the compost must be performed according to Section B 4 (e.g. ecotoxicity plant test; additionally earthworm toxicity test if norm conformity to AS 4736 is applied). This is coordinated with DIN CERTCO and, if applicable, with the testing laboratories or the assessment committee.

c) An infrared transmission spectrum in accordance with Section 0.

6.2.9.2 Using printing inks

It is generally possible to use printing inks. In addition to the requirements named in Section 6.2, the printed product must also comply with the threshold values in Table A.1 of DIN EN 13432.

No more than 1 % of mass of dry printing ink per colour (e.g. red, green, etc) may be used, and a total of no more than 5 % printing ink. Compliance with the thresholds according to Table A.1 in DIN EN 13432 is required.

Additionally, the following documents and information must be submitted along with the application form:

a) Material Safety Data Sheets according to REACH for all colours (e.g. red, yellow, etc.) being used to determine additives' suitability for composting.

   If substances' harmlessness cannot be determined using the Material Safety Data Sheet, then a testing of quality of the compost must be performed according to Section B 4 (e.g. ecotoxicity plant test; additionally earthworm toxicity test if norm conformity to AS 4736 is

applied). This is coordinated with DIN CERTCO and, if applicable, with the testing laboratories or the assessment committee.

b) For each colour used, information on heavy metal contents in the form of test reports according to Section B 1.

   Alternatively: Test report on the chemical characterisation as specified in Section B 1 of a printed product sample. The portions of the individual colours tested here will be defined as maximum useable colours.

If the individual printing inks are tested, then 80 % of the threshold from table A.1 in DIN EN 13432 may not be exceeded with the maximum colour quantity being requested.

If different colours are used, the maximum usable amount will be defined by the colour with the lowest possible concentration.

Example:

The inks A, B and C have been limited to the following amounts according to Section B 1:

– Color A: 0,1 % of mass
– Color B: 0,4 % of mass
– Color C: 0,6 % of mass

The single use of each colour are therefore limited to 0,1 % of mass 0,4 % of mass and 0,6 % of mass, respectively. Is colour A in use the overall amount of printing colour combined is limited to 0,1 %, for the use of colour B (without colour A) 0,4 % only, etc. This is also valid for mixtures of pigments used as printing colours.

6.2.9.3 Use of adhesives

Remark:

This does not refer to registered materials used as adhesive.

If an adhesive is used with mass portions of less than 1 % of mass, then the following documents and information must be submitted along with the application form:

a) List of all adhesives being used, along with mass portions and a description of distribution/areas of application.

b) Material Safety Data Sheets according to REACH for all adhesives being used to determine additives' suitability for composting.

   If substances' harmlessness cannot be determined using the Material Safety Data Sheet, then a testing of quality of the compost must be performed according to Section B 4 (e.g. ecotoxicity plant test; additionally earthworm toxicity test if norm conformity to AS 4736 is applied). This is coordinated with DIN CERTCO and, if applicable, with the testing laboratories or the assessment committee.

c) Test reports on testing of compostability under practice-relevant conditions of the biowaste bag including the adhesive as specified in Section B.4 (disintegration) over a period of maximum 6 weeks

d) Infrared Transmission spectrum according to Section C.

If an adhesives suitability cannot be determined, then a test must be performed under practice-relevant conditions for compostability and compost quality according to Sections B 4 and B.4 (disintegration and ecotoxicity/earthworm toxicity test).

6.2.9.4 Use of additives with more than 1 % of mass per additive and/or more than 5 % of mass of additives

The following documents and information must be submitted along with the application form:

According to DIN EN 13432, DIN EN 14995:

When using significant organic additives the following tests will be required in addition to the requirements stated under Section 6.2.9.

Testing of additives:

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

And of the manufactured item:

b) Test reports on testing of the quality of the compost as specified in Section B 4 (ecotoxicity). Alternatively, the ecotoxicity testing or rather the earthworm toxicity test can be performed on each single substance.

c) Test reports on testing of compostability under practice-relevant conditions as specified in Section B.4 (disintegration) over a period of maximum 6 weeks

d) Test report on the chemical characterisation as specified in Section B 1. Alternatively, the testing can be performed on each single substance.

e) An infrared transmission spectrum in accordance with Section 0.

Alternatively:

Testing of the manufactured item according to 6.2.1.

According to ISO 17088, ISO 18606:

When using significant organic additives in portions between 1 and 10 % of mass the following tests will be required in addition to the requirements stated under Section 6.2.9.

Testing of additives:

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

And of the manufactured item:

b) Test reports on testing of the quality of the compost as specified in Section B 4 (ecotoxicity). Alternatively, the ecotoxicity test can be performed on each single substance.

c) Test reports on testing of compostability under practice-relevant conditions as specified in Section B.4 (disintegration) over a period of maximum 6 weeks

d) Test report on the chemical characterisation as specified in Section B 1. Alternatively, the testing can be performed on each single substance.

e) An infrared transmission spectrum in accordance with Section 0.

Alternatively:

When using significant organic additives in portions more than 10 % of mass the testing of the manufactured item according to Section 6.2.1 can be carried out alternatively.

According to AS 4736:

When using significant organic additives in portions more than 1 % of mass the following tests will be required in addition to the requirements stated under Section 6.2.9.

Testing of substances used in portions more than 1 %:

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

And of the manufactured item:

b) Test reports on testing of the quality of the compost as specified in Section B 4 (ecotoxicity and earthworm toxicity test). Alternatively, the ecotoxicity testing or rather the earthworm toxicity test can be performed on each single substance.

c) Test reports on testing of compostability under practice-relevant conditions as specified in Section B.4 (disintegration) over a period of maximum 6 weeks

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

e) Test report on the chemical characterisation as specified in Section B 1. Alternatively, the testing can be performed on each single substance.

f) An infrared transmission spectrum in accordance with Section 0.

6.3 Design requirements

All polymer materials used in the biowaste bag must comply with the maximum degradable layer thickness and grammage yielded in the test according to Section B 4.

6.4 Definition of types, subtypes and product families

Biowaste bags that largely differ from each other in significant properties relevant to certification are defined as types or models. Properties relevant to certification include, for example:

- contents.
- Shapes.
- Product characteristics beyond differences in dimensions.

Ranges in connection with materials are grouped into one certificate.

An individual certificate will be issued for each type.

A subtype is defined as the biowaste bag that is different based on dimensions. Multiple alternative subtypes are grouped into one product family of alternative dimensions.

- Dimensions.
- Materials used.
- Printing inks or print layouts used.

Multiple subtypes can be grouped onto one certificate.

6.5 Sub-licences

According to DIN CERTCO's General Terms and Conditions and the Testing-, Registration- and Certification Regulations, the rules governing logo use and logo usage guidelines, sub-licences are necessary if certified biowaste bags are intended to be brought onto the market on behalf of companies other than the main certificate holder.

6.5.1 Sub-licences and without self-production

It is possible to issue sub-licences for all biowaste bags as defined in this certification scheme. They facilitate bringing certified biowaste bags into circulation on behalf of the sub-licence holder. Sub-licences depend on the validity of the corresponding main certificate. Biowaste bags must not be amended (e.g. printed) by sub-licence holders.

Documents and information required for application:

a) Application form with stamp and signature.

b) Sub-licence holder's declaration that the main certificate holder's products enter into commercial trade without being changed.

c) Declaration of confirmation from the main certificate holder that a sub-licence shall be issued.

A sub-licence can be issued

– With its own individual registration number.

– With the main certificate holder's registration number.

6.5.2 Sub-licences for production facilities

Sub-licences for productions facilities may be issued for certified biowaste bags. They facilitate bringing certified biowaste bags into circulation on behalf of the production facility's owner. Sub-licences depend on the validity of the respective main certificate. The production facility owner must produce the manufactured items according to the specifications indicated by the holder of the main licence.

An annual verification test must be performed according to Section 7.4.

Documents and information required for application:

a) Application form with stamp and signature.

b) Declaration from the production facility operator that the biowaste bags are being manufactured according to the main certificate's stipulations.

c) Declaration of consent from the main certificate holder that a sub-licence may be issued.

d) Forwarding of a datasheet completely filled out by the production facility operator accordingly.

e) An infrared transmission spectrum in accordance with Section C for each product.

A sub-licence can be issued

– With its own individual registration number.

– With the main certificate holder's registration number.

6.6 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.

6.7 Conformity assessment

On the basis of the documents submitted, DIN CERTCO conducts the conformity assessment. The assessment is made with the aid of the test report as to whether the biowaste bags meet the requirements of the certification scheme and of the underlying standards.
The applicant will receive written notification from DIN CERTCO in the event of any possible deviations.

6.8 Registration numbers of biowaste bags

Composition of the registration number:

– Products P7BBxxxx

6.9 Certificate and the right to use the mark

After successful testing and conformity assessment of the application documents submitted, DIN CERTCO issues a certificate to the applicant and issues the right to use the compostability mark "DINplus Biowaste Bags“ for products in conjunction with the respective registration number.

Biowaste bags for which a right to use the compostability mark "DIN*plus* Biowaste Bags“ has been issued must be marked with the "DIN*plus* Biowaste Bags“ mark and the respective registration number.

Logo and registration number may only be used for the biowaste bags for which the certificate has been issued and that corresponds to the type-tested biowaste bags.

For each respective type, a registration number shall be issued. For design types (sub-types) of a type, the same registration number shall be issued (for information, see Section 6.4).

For each respective type, a registration number shall be issued. For design types (sub-types) of a type, the same registration number shall be issued (for information, see Section 6.4).

Sub-certificate holder gain the same right to use the mark as the main certificate holder regardless of whether an own registration number has been issued.

The General Terms and Conditions and the **Testing-, Registration- and Certification Regulations** of DIN CERTCO also apply.

6.10 Publication

All certificate holders can be viewed on the daily up-dated homepage of DIN CERTCO (www.dincertco.de) under <Certificates and Registrations>. Manufacturers, retailers, users and consumers use this research possibility for obtaining information on certified products.

Besides the contact details of the certificate holders (telephone, telefax, e-mail, homepage), it is also possible to view the technical data regarding dimensions and maximum layer thicknesses for the certified biowaste bags.

6.11 Validity of certificates

The validity of the certificate for biowaste bags is 5 years. The period of validity is shown on the certificate. On expiry of the certificate, the right to use the mark also expires.

6.12 Renewal of certificates

If the validity of certification is to remain valid beyond the date indicated, an application for renewal must be submitted to DIN CERTCO sufficiently in advance prior to validity expiring.

The biowaste bags current composition must be submitted with the application for renewal. For renewals, DIN CERTCO will make an assessment based on the certification schemes valid at the time of renewal and may request supplemental documentation.

Furthermore, if no deviations were found during the verification tests performed during the validity, the certificate may be renewed.

6.13 Expiration of certificates

In the event that the new standard conformity examination according to Section 5 has not been completed before expiration of the validity period, the certificates the respective registration number expires without the necessity for explicit notification from DIN CERTCO.

Furthermore, certificates can expire if, for example:

– the surveillance according to Section 7 is not performed punctually or completely.

– the compostability mark "DIN*plus* Biowaste Bags“ is misused by the certificate holder.

– the requirements laid down in the certification scheme or its accompanying documents are not fulfilled.

– the certification fees are not paid on the due date.

– the prerequisites for the issuing of the certificate are no longer fulfilled.

6.14 Alterations/Amendments

6.14.1 Alteration/Amendment to a product

The certificate holder is obliged to notify DIN CERTCO of all alterations to the manufactured item without delay. DIN CERTCO will, decide the extent to which testing according to Section 5.2.3 must be performed and whether the change is significant.

Should DIN CERTCO determine a substantial alteration, the certificate with the corresponding registration number shall expire. For the modified manufactured item, a new application for initial certification may be submitted.

The certificate holder remains obliged to notify of any changes in the formal details (e.g. name of certificate holder or his address). For this purpose an application for amendment must be sent to DIN CERTCO. The certificate will be changed respectively.

The certificate holder may apply to DIN CERTCO for an extension of the existing certificate /confirmation of acceptability for further design-types (sub-types) of the same type. It is for DIN CERTCO to decide whether these amendments require a complementary examination.

The design-types shall be entered in the certificate for the already certified biowaste bags and, provided that the conditions are fulfilled, shall be regarded as an integral part of same.

6.14.2 Alterations to the basic test specifications

If the basic test specifications for the certification are modified, an application for the alteration of the certification shall be generally submitted within 6 months of receiving written notification from DIN CERTCO, and, as a rule, after 12 months, proof of conformity with the modified examination specifications shall be submitted in the form of a positive test report, if applicable (see Section 5.5).

The time limit will be defined by DIN CERTCO and might last up to the next renewal at the latest.

6.15 Defects in products

In the event that a certified biowaste bag on the market is found to be defective, the certificate holder shall be summoned in writing by DIN CERTCO to rectify the defects.

In conjunction with the testing laboratory, DIN CERTCO shall decide whether it is a serious or a minor defect.

In the case of defects having a direct or indirect effect on the degradation properties (serious defects), the manufacturer must ensure that, until the defects have been rectified, the biowaste bags are no longer marked with the mark of conformity.

The defects must also be rectified without delay in installed products or products in storage. The manufacturer must submit proof to DIN CERTCO within 3 months, in the form of a test report on a special test in accordance with Section 5.2.4, that the defects have been rectified and that the product in question again fulfils the stipulated requirements.

In the case of defects that have no influence on the technical safety or functionality of the product (minor defects), the manufacturer must submit suitable proof to DIN CERTCO within 3 months that the defects in the product in question have been rectified.

Should the manufacturer fail to observe these deadlines, he and the distributor of the biowaste bags will no longer be permitted to use the ”DINplus Biowaste Bag” mark.

Should grounds for complaint continue to exist, DIN CERTCO shall initially suspend the certificate and at the same time issue a final deadline for the rectification of the defects. Should the certificate holder fail to meet this demand, or fail to meet it within the grace period, or if it is again not possible to prove that the defects have been rectified, the certificate shall be annulled.

7 Surveillance

7.1 General

The constant surveillance of the certified product or the registered material or intermediate is an integral component of the certification itself.

7.2 Surveillance by the manufacturer

The manufacturer must ensure, by suitable quality management measures, that the product characteristics confirmed by the certification are maintained. This can be accomplished by means of an in-house factory production control (FPC) focussed on the product itself or on the production and, in addition, can be guaranteed within the framework of a quality management system (QM-System) in accordance with the standard series DIN EN ISO 9000 ff.

7.3 Surveillance by DIN CERTCO

DIN CERTCO examines the conformity of the product with the requirements laid down in the certification scheme

The costs incurred in such tests will be charged to the certificate holder on their completion.

In individual cases, supplemental tests may be defined within the scope of certification.

7.4 Verification tests (Control tests)

The verification shall be performed at regular intervals of one year.

If production is being carried out at multiple production facilities, the following additional requirements shall apply:

– The control test is performed on biowaste bags from various production facilities. If there are 3 alternative production facilities, then one sample must be alternatingly submitted from each production facility for the control test. If there are more than 3 alternative production facilities, then samples must be submitted on an alternating basis of $\sqrt{n}$ of the production facilities for the control test. The number is rounded up to the next integer digit.

– Samples are to be additionally marked with information regarding the corresponding production facility.

The control test covers the following:

a) Check of identification of the biowaste bags with the “DIN*plus* Biowaste Bags” mark and corresponding registration number.

b) Check of compliance with the certified maximum admissible wall/layer thickness (d_{max}), density and/or grammage using the samples submitted.

c) Checking whether all polymeric materials, intermediates and additives used in manufacturing the product and present in the product to a percentage by mass greater than 1 % are identical with those specified in the type testing.

d) For this purpose, one of the 10 submitted samples is used to perform an infrared transmission spectrum according to Section C. Evidence is demonstrated by comparing the results of the spectral analysis submitted during type testing with the results of the spectral analysis for control testing. When compared, the spectra must show that the two sets of polymeric materials, intermediate and/or additives are identical to the polymer materials or intermediates and additives from type testing.

e) Performance of one chemical characterisation according to Table A.1 of DIN EN 13432 during the validity.

f) When using recycled paper, the performance of a chemical analysis according to Section B.1 (see Section **Fehler! Verweisquelle konnte nicht gefunden werden.**.) is required annually.

7.5 Assessment of verification test (Control test)

7.5.1 General

The conformity requirements which are tested during verification test have to be fulfilled basically.

7.5.2 Design requirements

If non-conformities are established during testing for compliance with the maximum permissible wall thicknesses according to Section 7, the remaining 9 samples must also be tested. At least 9 of the 10 tested samples of the certified product must meet the specified requirements.

If the criteria are met by fewer than 9 samples, another 10 samples will be tested immediately. If at least 9 of the 10 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.

7.5.3 Infrared Transmission Spectra (Identification of materials)

If deviations from the spectral analyses submitted with the application are established while comparing spectral analyses from the tested samples, then the customer will be requested to send a written statement. If no positive assessment can be reached on the basis of that position statement, then new samples must be submitted for testing.

7.5.4 Complaints

If the requirements according to Section 7.5 are not met after the re-test, the validity of the certificate will be suspended. The certificate holder will be informed immediately in written form and requested to ensure compliance with the criteria within 3 months after receipt of such notice.

While the certificate is suspended, the certificate holder is not entitled to sell the respective “DIN*plus* Biowaste Bags” as certified .

If a complaint is made, the control test will be repeated within 3 months. If this re-test yields no further cause for complaint, the certificate will be set valid again. Should reason for complaints continue to exist, the certificate will be cancelled. The latest re-test named will not

apply as a regular control test, but rather as a special test for which the certificate holder must cover the costs.

A Fillers, colors and processing auxiliaries

Materials that may be used in varying proportions up to the given upper limits as additives in manufacturing or processing of compostable materials according to Section 6.2.5.

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 oxides (pigment)
- Gypsum
- Mica
- Graphite (pigment)
- Kaolin
- Chalk
- Sodiumcarbonate
- 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: Non- modified native cellulose

- Vegetable fibers

Section 1.2.2: Non-modified native Ligno-Cellulose

- Wood flour/wood fibers
- Vegetable fibers
- Cork
- Bark

Section 1.2.3: Non-modified natural starch

- Starch
- Rye flour and other flours

Section 1.2.4: Unmodified naturally occurring Poly-hydroxo-alkanoates

- PHB, PHBH, PHBV

Main Group 2: Processing auxiliaries

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

- Benzoic acid/sodium benzoate
- Euric acide amide/euric amide
- Glycerol monostearate
- Glycerol monooleate
- Natural waxes
- Polyethylene glycol (up to molecular weight 2000)
- Metal Stearates, Calcium stearate

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

- Glycerin/glycerol
- Sorbite
- Citric acid ester (with linear, aliphatic chains up to a chain length of C22)
- Glycerol acetates
- Xylite

B Tests

B 1 Chemical characterisation

B 1.1 According to DIN EN 13432, DIN EN 14995, ISO 17088, ISO 18606 or AS 4736

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

B 2 Testing of ultimate biodegradability

Table 1 Overview about the test methods depending on the standard which is applied for

Testing may be performed in accordance with the following standards	DIN EN 13432 (mandatory)	DIN EN 14995	ISO 17088	ISO 18606	AS 4736
DIN EN ISO 14855-1	x	x	x	x	x
DIN EN ISO 14855-2			x	x	
DIN EN ISO 14851	x*	x*		x*	x*
DIN EN ISO 14852	x*	x*		x*	x*
ASTM D 5338			x		
DIN EN 14046	x				

* Only possible if the nature and properties of the test material do not permit testing to ISO 14855-1.

B 2.1 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:

– DIN EN ISO 14855-1 "Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions -- Method by analysis of evolved carbon dioxide -- Part 1: General procedure"

– DIN EN 14046 “ Packaging - Evaluation of the ultimate aerobic biodegradability of packaging materials under controlled composting conditions - Method by analysis of released carbon dioxide”

Alternatively, one of the following methods can be used:

– DIN EN 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"

– DIN EN ISO 14852 “Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium – Method by analysis of evolved carbon dioxide“

B 2.2 As specified in DIN EN 14995

If the type and properties of the material being tested permit, the controlled aerobic composting test according to EN ISO 14855 must be applied:

DIN EN ISO 14855-1 “Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions -- Method by analysis of evolved carbon dioxide - Part 1: General procedure“

If alternative methods are necessary, then the following methods can be used:

– DIN EN 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"

– DIN EN ISO 14852 "Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium – Method by analysis of evolved carbon dioxide“

B 2.3 As specified in ISO 17088

Testing of ultimate biodegradability is conducted in accordance with the criteria of ISO 17088 by one of the following methods:

– DIN EN ISO 14855-1 "Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions -- Method by analysis of evolved carbon dioxide - Part 1: General procedure"

– DIN EN ISO 14855-2 ”Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions -- Method by analysis of evolved carbon dioxide - Part 2: Gravimetric measurement of carbon dioxide evolved in a laboratory-scale test”

– ASTM D 5338 "Standard Test Method for Determining Aerobic Biodegradation of Plastics Materials Under Controlled Composting Conditions"

B 2.4 As specified in ISO 18606

Testing of ultimate biodegradability is conducted in accordance with the criteria of ISO 18606 by one of the following methods:

– DIN EN ISO 14855-1 "Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions -- Method by analysis of evolved carbon dioxide - Part 1: General procedure"

– DIN EN ISO 14855-2 ”Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions -- Method by analysis of evolved carbon dioxide - Part 2: Gravimetric measurement of carbon dioxide evolved in a laboratory-scale test”

If alternative methods are necessary, then the following methods can be used:

– DIN EN 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"

– DIN EN ISO 14852 “Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium – Method by analysis of evolved carbon dioxide“

B 2.5 As specified in AS 4736

If the type and properties of the material being tested permit, the controlled aerobic composting test according to EN ISO 14855 must be applied.

If alternative methods are necessary, then the following methods can be used:

– DIN EN 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"

– DIN EN ISO 14852 "Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium – Method by analysis of evolved carbon dioxide“

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

B 3.1 As specified in DIN EN 13432

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<u>Determining compost quality (ecotoxicity):</u>

The criteria for the quality of composts are assessed according to Section 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. According to DIN EN ISO 16929, the addition of 10 % testing material to the disintegration testing is necessary. The basis of determination is the (modified) OECD Guideline 208.

To assure the quality of the blank compost, the respective criteria of the OECD Guideline 208 are to be applied:

1. min. 2 weeks after 50 % of the seedlings in the control have emerged, plants are harvested and weighted

2. Validity: min. 80 % of control seeds should produce healthy seedlings

Deviating from the standard, the use of minimum 50 seeds per replicate is required, if the test is performed using barley.

It is possible to test theoretical samples.

B 3.2 As specified in DIN EN 14995

Determining compost quality (ecotoxicity):

The criteria for the quality of composts are assessed according to Section 8, A.4 and E of DIN EN 14995 by way of a test of the ecological toxicity with not less than two types of plants. According to DIN EN ISO 16929, the addition of 10 % testing material is necessary. The basis of determination is the (modified) OECD Guideline 208.

To assure the quality of the blank compost, the respective criteria of the OECD Guideline 208 are to be applied:

1. min. 2 weeks after 50 % of the seedlings in the control have emerged, plants are harvested and weighted

2. Validity: min. 80 % of control seeds should produce healthy seedlings

Deviating from the standard, the use of minimum 50 seeds per replicate is required, if the test is performed using barley.

It is possible to test theoretical samples.

B 3.3 As specified in ISO 17088

Determining compost quality (ecotoxicity):

The criteria for the quality of composts are assessed according to Section 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. According to DIN EN ISO 16929, the addition of 10 % testing material is necessary. The basis of determination is the (modified) OECD Guideline 208.

To assure the quality of the blank compost, the respective criteria of the OECD Guideline 208 are to be applied:

1. min. 2 weeks after 50 % of the seedlings in the control have emerged, plants are harvested and weighted

2. Validity: min. 80 % of control seeds should produce healthy seedlings

It is possible to test theoretical samples.

Deviating from the standard, the use of minimum 50 seeds per replicate is required, if the test is performed using barley.

B 3.4 As specified in ISO 18606

Determining compost quality (ecotoxicity):

The criteria for the quality of composts are assessed according to Section 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. According to DIN EN ISO 16929, the addition of 10 % testing material is necessary. The basis of determination is the (modified) OECD Guideline 208.

To assure the quality of the blank compost, the respective criteria of the OECD Guideline 208 are to be applied:

1. min. 2 weeks after 50 % of the seedlings in the control have emerged, plants are harvested and weighted

2. Validity: min. 80 % of control seeds should produce healthy seedlings

Deviating from the standard, the use of minimum 50 seeds per replicate is required, if the test is performed using barley.

It is possible to test theoretical samples.

B 3.5 As specified in AS 4736

Determining compost quality (plant ecotoxicity test):

The criteria for the quality of composts are assessed according to Section 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. According to DIN EN ISO 16929, the addition of 10 % testing material is necessary. The basis of determination is the (modified) OECD Guideline 208.

To assure the quality of the blank compost, the respective criteria of the OECD Guideline 208 are to be applied:

1. min. 2 weeks after 50 % of the seedlings in the control have emerged, plants are harvested and weighted

2. Validity: min. 80 % of control seeds should produce healthy seedlings

It is possible to test theoretical samples.

Deviating from the standard, the use of minimum 50 seeds per replicate is required, if the test is performed using barley.

Determining compost quality (earthworm toxicity test):

The criteria for the quality of composts are assessed according to ASTM E 1676 by way of a 14-day *Eisenia Fetida* earthworm toxicity test. According to DIN EN 13432, Sections 8, A.4 and E, the addition of 10 % testing material is necessary.

In addition to the requirements defined in ASTM E 1676 the respective criteria are to be applied:

1. Blank compost needs to reach at least 90 % of the result of the reference substrate.

2. At least 90 % of the number and mean weight of the respective living worms used in the blank compost shall be traceable.

B 4 Testing of compostability under practice-relevant conditions with a maximum duration of 6 weeks

Compostability under practice-relevant conditions (disintegration):

The following test methods can be used for testing in a pilot-scale test:

– DIN EN ISO 16929 "Plastics - Determination of the degree of disintegration of plastic materials under defined composting conditions in a pilot-scale test"

Maximum degradable layer thickness must be determined in all cases. The optical quality of the compost prepared from biodegradable materials may not be significantly poorer than that of normal compost (testing in accordance with Methodenhandbuch zur Analyse organischer Düngemittel, chapter II, No. C1 und C3).

In addition, physico-chemical parameters must be determined according to Section 8.2 of DIN EN 13432.

The following test methods do not meet the certification scheme's requirements:

– Tests in a laboratory scale, for example according to DIN EN ISO 20200 "Plastics - Determination of the degree of disintegration of plastic materials under simulated composting conditions in a laboratory-scale test”

– Qualitative disintegration tests based on DIN EN ISO 16929 or DIN EN 14045

Additionally to the requirements specified above in Section B.4, the following additional requirements are set:

Using a mixing ratio of 1 % dry mass of biowaste bags related to the wet mass of biowaste used, disintegration testing is performed in accordance with DIN EN ISO 16929 over a period of maximum 6 weeks. Afterwards, no remainings shall be found after sieving with a 2 mm sieve.

Other requirements on the validity of the test result (pH, VFA, C:N ratio, humidity, volatile solids) and the quality of the test report (test result, characterization of the composting process, etc.) are unchanged referring to DIN EN ISO 16929.

C Infrared transmission spectrum

The spectrum shall be recorded at least in a range between the wave numbers 4000 cm^{-1} and 650 cm^{-1}, and a transmission level from 0-100 % being indicated on the vertical axis.