

	TÜV AUSTRIA			
	OK biodegradable SOIL : Initial acceptance tests			
	Doc Ref : OK10-e	Edition : C		
	Application Date : 2012-03-01	Page : 1 / 5		
	Replace : Edition B			
<p><u>Program OK 10</u></p> <p>Bio products – degradation in soil</p>				

Ref. Determination

1. Scope

- 4 The OK biodegradable SOIL certificate can be granted to the following materials or products:
- All raw materials
 - All components and constituents also known as intermediate products
 - All finished products
- 6 The approach for the evaluation of a finished product formed by different components is described in document ref. TS-OK-17.

2. Marking / Logo

- 11 The OK biodegradable SOIL conformity mark can be applied to a product only if this product is formally certified by TÜV AUSTRIA.
- 12 In addition to the above specification, the use of the OK biodegradable SOIL conformity mark is only allowed on finished products for horticultural and agricultural application that have a function in the same environment (soil) where they are meant to biodegrade.
- 15 All the determinations as prescribed in “Annex 2.1 – Graphical chart logos” of the General Product Certification Rules must be followed.
- 18 OK biodegradable SOIL certification of a product may not be used to make a claim of (industrial or home) compostability, (bio)degradation in water or renewability. Formal certification to a separate standard such as OK compost INDUSTRIAL, OK compost HOME, OK biodegradable WATER or OK biobased is required in order to make such a claim.
- 22 Commercial or other declarations may not mislead the final consumer. More particularly the declarations concerning the use of a certified component or constituent may not give the end user the impression that the finished product is certified and complies with the OK biodegradable SOIL specifications when this is not true.
- 24 The use of the conformity mark (logo) is allowed on non certified packaging in case its content is certified. In this case it must be clearly communicated near the logo that the logo on the packaging only concerns the packed product, not the packaging.
- 25 The use of the logo for marketing purposes is only allowed in flyers, information papers, technical sheets or equivalent documents or on websites. The use of the logo on promotional tangible goods (such as bags, ball points, boxes, ...) is not allowed if they are not officially certified.

3. Normative References

- 27 The year of publication of the normative references is listed in document ref. TS-OK-18.

3.1 Applicable Standards




- 29 European standard EN 13432 : "*Packaging - Requirements for packaging recoverable through composting and biodegradation - Test scheme and evaluation criteria for the final acceptance of packaging*"
- 30 European standard EN 14995 : "*Plastics — Evaluation of compostability — Test scheme and specifications*"
- 32 Adapted for degradation in the soil



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	TÜV AUSTRIA			
	OK biodegradable SOIL : Initial acceptance tests			
	Doc Ref : OK10-e	Edition : C		
Application Date : 2012-03-01	Page : 2 / 5			
Replace : Edition B				




Ref. Determination

3.2 Other references

- 38 International standard ISO 17556: "*Determination of the ultimate aerobic biodegradability in soil by measuring the oxygen demand*"
- 39 International standard ISO 11266: "*Soil quality - Guidance on laboratory testing for biodegradation of organic chemicals in soil under aerobic conditions*"
- 40 International standard ISO 14851: "*Determination of the ultimate aerobic biodegradability of plastic material in an aqueous medium - Method by measuring the oxygen demand in a closed respirometer*"
- 41 International standard ISO 14852: "*Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium - Method by analysis of evolved carbon dioxide*"
- 42 European standard EN 29408: "*Water quality. Evaluation in an aqueous medium of the "ultimate" aerobic biodegradability of organic compounds: method by determining the oxygen demand in a closed respirometer*"
- 43 European standard EN 29439: "*Water quality. Evaluation in an aqueous medium of the "ultimate" aerobic biodegradability of organic compounds: method by analysis of released carbon dioxide*"
- 44 International standard ISO 9408: "*Water quality - Evaluation in aqueous medium of the "ultimate" aerobic biodegradability of organic compounds - Method by determining of the oxygen demand in a closed respirometer*"
- 45 International standard ISO 9439: "*Water quality - Evaluation in aqueous medium of the "ultimate" aerobic biodegradability of organic compounds - Method by analysis of released carbon dioxide*"
- 46 American standard ASTM D.5271: "*Test Method For Assessing the Aerobic Biodegradation of Plastic Materials in an Activated Sludge Wastewater-Treatment System*"
- 47 American standard ASTM D.5988: "*Standard Test Method for Determining Aerobic Biodegradation in Soil of Plastic Materials or Residual Plastic Materials After Composting*"
- 48 Document with reference OECD 301 C: "*Aquatic respirometric biodegradation test (MITI)*"
- 49 Document with reference OECD 301 B: "*CO2 Evolution (Modified Sturm Test)*"
- 50 American standard ASTM D.6691: "*Standard Test Method for Determining Aerobic Biodegradation of Plastic Materials in the Marine Environment by a Defined Microbial Consortium or Natural Sea Water Inoculum*"
- 55 Document with reference OECD 208: "*Terrestrial Plant Test: Seedling Emergence and Seedling Growth Test*"
- 56 European standard EN 13193: "*Packaging. Packaging and the environment. Terminology*"
- 57 European Standard EN 13137: "*Characterisation of waste. Determination of total organic carbon (TOC) in waste, sludges and sediments*"

4. Terms and definitions

- 59 **Quantitative disintegration test:** disintegration test in accordance with Standard ISO 16929 or EN 14045 (sieving method)
- 60 **Qualitative disintegration test:** disintegration test based on Standard ISO 20200, while clearly specifying the temperature at which the test has been conducted and without a precise balance of mass. Mostly the test material is put in slide frames before adding to the compost.
- 61 **Product family:** Set of products whose key features are identical.
- 62 Terms and definitions as described in the above listed standards.

	TÜV AUSTRIA			
	OK biodegradable SOIL : Initial acceptance tests			
	Doc Ref : OK10-e	Edition : C		
	Application Date : 2012-03-01	Page : 3 / 5		
	Replace : Edition B			

Ref. Determination

5. Application for Certification

5.1 Documents to be supplied

- 65 Identification and characterisation of the product, notably:
- 66 - (Trade) name of the product
- 67 - Product description: product type
- 68 - Material composition (dry weight concentrations in percentages and identifications of all constituents and components - including all additives like e.g. printing inks, colorants, processing agents, fillers, ... - this identification can be in format of CAS-number, Safety Data Sheet or name of the supplier and reference code/name of the material by the supplier)
- 69 - Colour(s) of the material and if applicable the printing inks
- 71 - For finished and/or semi-finished products: dimensions
- 72 - Other relevant specifications
- 73 - Production site(s)
- 74 - In case of different internal production sites: OCO-appointment document (OCO: OK compost INDUSTRIAL officer), description of the tracking system and manufacturers agreement for each production site
- 75 - In case of different external production sites (third companies): description of the tracking system and manufacturers agreement for each production site
- 76 - In case of sublicense certification: permission letter of the original certificate holder
- 77 - In case of the use of recycled resources: sufficient documentation about the origin, recycling and production flows of the recycled resource
- 78 - Available and relevant test reports
- 79 - A representative sample for each product (family) to be certified

5.2 Acceptance of test reports

- 81 Reports from laboratories that are officially approved by TÜV AUSTRIA are accepted.
- 82 Reports from independent laboratories that are not officially approved by TÜV AUSTRIA, but are either accredited according to ISO 17025, recognized for Good Laboratory Practices (GLP) or recognized by a similar certification body, can be accepted after a positive evaluation in detail of all requirements of the relevant test standard.
- 83 In case the test report comes from a laboratory that is not officially approved by TUV AUSTRIA, is older than 3 years, the report can only be accepted for evaluation on the following two conditions:
- a sample from the archives of the laboratory has to be sent and FTIR analysis demonstrates that this sample fully corresponds to the sample submitted in the framework of the certification
 - the applicant has to provide a statement that the tested sample fully corresponds to the sample submitted in the framework of the certification




6. Classification

85 None

7. Evaluation

7.1 Preliminary evaluation




- 88 Collection of all required information (see § 5) and preliminary inspection of the status of the material presented.

	TÜV AUSTRIA			
	OK biodegradable SOIL : Initial acceptance tests			
	Doc Ref : OK10-e	Edition : C		
	Application Date : 2012-03-01	Page : 4 / 5		
	Replace : Edition B			

Ref. Determination

7.2 Basic Requirements

- 91 The test programme meets the European standard with reference EN 13432, unless mentioned differently as below:
- 92 The approach for the evaluation of a finished product formed by different components is described in document ref. TS-OK-17.
- 7.2.1 Biodegradation
- 95 The period of application for the biodegradation test specified in the test methods shall be maximum of 2 years.
- 96 The required percentage of biodegradation is exactly the same as specified in EN 13432 (§A.2.2.2), namely absolute or relative 90 %.
- 97 The preferred type of biodegradation test is a soil biodegradation test according to ISO 17556.2, ISO 11266 or ASTM D.5988-96.
- 98 Alternatively, also an aquatic, aerobic biodegradation test can be used with the prerequisite that these tests are executed at ambient temperature (between 20°C and 25°C). Standards : ISO 14851, ISO 9408, OECD 301 C, ASTM D.5271-92, EN 29408, ISO 14852, ISO 9439, OECD 301 B, ASTM D.5209-92, EN 29439. This aquatic biodegradation test is only accepted if the material had a positive result after a quantitative or qualitative disintegration test (definition: see § 4) as described in the OK compost INDUSTRIAL or OK compost HOME test program.
- 102 The specification regarding significant organic constituents as specified in EN 13432 (§A.2.1) is applicable.
- 103 The exemption for materials of natural origin as specified in EN 13432 (§4.3.2) is applicable.
- 108 All constituents and their maximum concentrations as specified on the positive list (technical sheet ref. TS-OK-10) are regarded as fulfilling the biodegradation requirements.
- 7.2.2 Disintegration
- 124 No disintegration requirements have to be met. Nevertheless materials or products containing constituents or components that include an evident risk of visual contamination are not accepted.
- 7.2.3 Environmental safety (Ecotoxicity)
- 138 The concentration of test material to be added to the compost must be 10 % on wet mass basis (of which 9 % as powder or granulates) according to Standard ISO 16929 (§ 6.1.1.4) or Standard EN 14045 (§ 6.1.1.4). Correspondingly the concentration in which a separate constituent must be tested in the compost is always at least one tenth of the concentration in which that constituent is added to the final product (concentrations on wet mass basis).
- 139 Alternatively to the above determination it is also valid that the test material is tested in a soil substrate instead of compost. In this case the concentration of this test material to be added to the soil must be 1 % on wet mass basis (as powder or granulates). Correspondingly the concentration in which a separate constituent must be tested in the soil is always at least one hundredth of the concentration in which that constituent is added to the final product (concentrations on wet mass basis).
- 140 An assessment of the negative effects (ecotoxicity) of constituents accounting for less than 0.1% of the dry weight of a material or product does not have to be checked provided the total percentage of these constituents does not exceed 0.5% of the dry weight of this material or product.
- 141 All constituents and their maximum concentrations as specified on the positive list (technical sheet ref. TS-OK-10) are regarded as fulfilling the compost quality requirements.
- 142 All food additive approved ingredients are regarded as fulfilling the compost quality requirements.
- 143 Constituents that appear on the (candidate) list of Substances of Very High Concern (Annex XIV or the REACH) are not accepted.
- This must be verified for all constituents that are not tested for ecotoxicity, do not appear on the positive list and are not food additive approved ingredients.

	TÜV AUSTRIA			
	OK biodegradable SOIL : Initial acceptance tests			
	Doc Ref : OK10-e	Edition : C		
	Application Date : 2012-03-01	Page : 5 / 5		
	Replace : Edition B			

Ref. Determination

7.2.4 Chemical characteristics

- 147 All organic constituents on the positive list (technical sheet ref. TS-OK-10) are regarded as fulfilling the chemical characteristics requirements.
- 148 All inorganic constituents on the positive list (technical sheet ref. TS-OK-10) are regarded as fulfilling the chemical characteristics requirements except for the limitations of the elements Hg, Cd, Pb, Cu, Cr and Zn, which still have to be measured.
- 149 In case recycled resources are used, the most critical chemical elements will be selected during the initial certification. These critical elements function as indicators and must be measured once a year after initial certification. On the condition that during the two years after initial certification, the indicators have not revealed any risk of exceeding the required limitations of heavy metals and fluorine and on the condition that sufficient documentation can be submitted in order to prove that the recycling process is well known and controlled, the follow up of the indicators can be omitted.
- 150 All food additive approved ingredients are regarded as fulfilling the chemical characteristics requirements.

7.2.5 Additional determinations

- 152 The conformity mark, granted to a well-known basic material, is valid for a variant of this same material on condition that this variant contains the same and no more constituents as the certified basic material and the ratio between the different constituents does not vary more than 20 % relatively speaking (i.e. the certification of a basic material with a composition of 70% - 20% - 9% - 1% is also valid for a variant with a composition of 70 +- 14% - 20 +- 4% - 9 +- 1.8% - 1 +- 0.2 % for the same components, taking into account that the total is still 100%).
- 153 If the components used are different from those used for the certified basic material, an extension of the certified basic material is not possible without additional tests or/and examinations.
- 154 Any change to a certified material or product has to be notified to the TÜV AUSTRIA services.
- 156 In well-founded exceptional cases, the Certification Committee can decide to require additional testing.