Program OK 20

Biobased carbon content of products

Conformity mark
OK biobased ®

Certification Scheme

TÜV AUSTRIA BELGIUM nv
Registered office: Mechelsesteenweg 455 ▪ 1950 Kraainem ▪ Belgium
Phone: +32 2 253 29 11 ▪ officebelgium@tuv-a.com

TABLE OF CONTENTS

1. Scope

The development of biobased materials is considered to be a key concern for the future and has the potential to reduce the carbon footprint.

This specification proposes an objective method for determining the biobased content of raw materials, intermediates, additives and finished products, and a logo to communicate this value to the end-users.

All products (partially or completely) made of materials and/or polymers of natural origin are eligible for this certification scheme (except solid, gaseous or liquid fuels).

This technical specification considers solely the biobased content and does not give any judgement about the other environmental aspects such as energy use, end-of-life treatment, water use, the content of hazardous substances, …

A star system for the different products and materials is used to make it easier to convey information about the biobased content but is not meant to be a ranking system.

2. Marking / Logo

The OK biobased conformity mark can be applied to a product only if this product is formally certified by TÜV AUSTRIA.

Authorised use of the OK biobased logo:

The logo may be used for different purposes depending on the type of material that is covered by the OK biobased certificate. An overview of the authorised use of the OK biobased logo is featured below:

Type of product covered by a valid OK biobased certificate:	use of the logo for commercial and information purposes (on flyers, websites, information panels, … but not on promotional articles like key chains)	Use of logo on the certified material/product
Raw material Intermediate product	Allowed	Not allowed
Finished product	Allowed	Allowed

Number of stars:

The featured logo corresponds to the class that has been assigned (logo with 1, 2, 3 or 4 stars) and contains the licensee code. The logo may not be modified and this prohibition applies in particular to the number, the position, the shape and the legibility of the stars allocated to the specific product. The logo application technique (printing, embossing, …) must allow the stars obtained and not obtained to be clearly visible.

The logo featured on the finished product must show the number of stars obtained for the finished product as a whole.

Featuring the biobased content percentage:

The percentage of the biobased carbon content and organic carbon content is not shown on the logo, but may be featured on the certificate.

The percentage of the biobased carbon content may be featured on the product if and only if that product is well defined and certified. Claims about the percentage of biobased carbon content may not be included on products certified under the provisions of the Class approach (see § 7.3.2.2).

All the determinations as prescribed in "Annex 2.1 – Graphical chart logos" of the General Product Certification Rules must be followed.

OK biobased certification of a product may not be used to make a claim about compostability, (bio) degradation in the soil, (bio) degradation in water. Formal certification according to a separate standard such as *OK compost, OK compost HOME*, *OK biodegradable SOIL* or *OK biodegradable WATER* is required in order to make such a claim.

Commercial or other declarations may not mislead the final consumer. More specifically, the declarations about 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 biobased specifications when this is not true.

The use of the conformity mark (logo) is allowed on non-certified packaging when the packed product is certified. In this case it must be clearly shown near the logo that the logo on the packaging applies only to the packed product, not the packaging.

The use of the logo for marketing purposes is allowed only 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

The year of publication of the normative references is listed in document ref. TS-OK-21.

Technical specification CEN/TS 16137: "*Plastics – Determination of biobased carbon content"*

3.1 Applicable Standards

American standard ASTM D 6866: " *Standard Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples Using Radiocarbon Analysis* "

Technical specification CEN/TS 16137: "*Plastics – Determination of bio-based carbon content"*

3.2 References for terms, definitions, abbreviations and symbols

American standard ASTM D 7026: "*Standard guide for Sampling and Reporting Results for Determination of Biobased Content of Materials via Carbon Isotope Analysis* "

European standard EN 13432: "*Packaging – Requirements for packaging recoverable through composting and biodegradation – Test scheme and evaluation for the final acceptance of packaging* "

European standard EN 13137: "*Characterisation of waste. Determination of total organic carbon (TOC) in waste, sludges and sediments*"

European standard EN ISO 14021: " *Environmental labels and declarations - Type I environmental labelling - Principles and procedures* "

Technical Report CEN/TR 15932: "*Plastics – Recommendations for terminology and characterisation of bioplastics*"

Technical specification CEN/TS 16295: "*Plastics – Declaration of the bio-based carbon content"*

3.3 Technical documents

Technical document TÜV AUSTRIA : TS-OK20 – "*OK biobased – Description of the analysis methods*"

Technical document TÜV AUSTRIA : TS-OK22 – "*OK biobased – Flowchart of approaches*"

4. Definitions, abbreviations and symbols

Biobased carbon content:	Amount of carbon in a sample that is of recent origin, as evidenced by its ^{14}C isotope content (source: CEN/TS 15932, abbreviation: BCC, symbol: x_B^{TOC})
Organic material:	Material containing carbon-based compound in which the carbon element is attached to other carbon atoms, hydrogen, oxygen, or other elements in a chain, ring, or three-dimensional structure (source: CEN/TS 15932)
Inorganic material:	Inorganic compounds are mainly synthesised via inanimate, geological systems (mineral origin) or by oxidisation of molecules into the open environment. Inorganic compounds typically take the form of small molecules or of large geometrical grids.
Organic carbon:	Carbon from organic material (source: CEN/TS 16137)
Inorganic carbon:	Carbon from inorganic material
Sample:	Quantity of material, representative of a larger quantity for which the property is to be determined
Sample preparation:	Actions taken to obtain representative analyses samples or test portions from the original sample (source: CEN/TS 16137)
Total carbon:	Quantity of carbon present in a sample in the form of organic, inorganic and elemental carbon (source: CEN/TS 13137, abbreviation: TC, symbol: x^{TC})
Total organic carbon:	Quantity of carbon present in a sample in the form of organic carbon (abbreviation: TOC, symbol: x^{TOC})
Total inorganic carbon:	Quantity of carbon present in a sample in the form of inorganic and elemental carbon (abbreviation: TIC, symbol: x^{TIC})
Renewable resource:	Resource replenished by natural processes at a rate comparable to its exploitation rate
Constituent:	All pure chemical materials and substances of which a product material is composed (source: EN 13432)
Component:	Part of a product that can be separated by hand or by using simple physical means (source: CEN/TS 16295)
Product:	any tangible good

Finished product:	Product resulting from the transformation and/or the assembly of raw materials and/or intermediate materials and/or semi-finished products, destined for the end user. A component is not considered as a finished product. In case of packaging products, the primary packaging is considered as the finished product.
Materials of natural origin:	Chemically unmodified materials of natural origin, such as wood, wood fibre, cotton fibre, starch, paper pulp or jute (source: EN 13432)
Part:	Constituent or component, or combination thereof that represents less than 100% of the Unit. The different types of Parts used in this certification scheme are described in § 7.3.2.1.
Unit:	The basic material, intermediate or finished product that is presented to be certified.
Packaging:	Material that is used to protect or contain a product during transport, storage, marketing or use (source: EN 14021)
Reference mass:	See § 7.3.1
Class approach:	See § 7.3.2.2
Percentage approach:	See § 7.3.2.2
Parts approach:	See § 7.3.2.1
Entity approach:	See § 7.3.2.1

5. Application for Certification

5.1 Documents to be supplied

Identification and characterisation of the product, notably:

- (Trade) name of the product
- Product description: product type
- Material composition (dry and/or reference mass concentrations in percentages and identifications of all constituents and components - including all additives such as e.g. printing inks, colorants, processing agents, fillers, … - this identification can be in the form of the CAS number, Safety Data Sheet or the name of the supplier and reference code/name of the material by supplier)
- Colour(s) of the material and if applicable the printing inks
- For finished and/or semi-finished products: dimensions
- Other relevant specifications
- Production site(s)
- In case of different internal production sites: OKO appointment document (OKO: OK biobased officer), description of the tracking system and manufacturers agreement for each production site
- In case of different external production sites (third companies): description of the tracking system and manufacturers agreement for each production site
- In case of sublicense certification: letter of permission from the original certificate holder
- In case of the use of recycled resources: sufficient documentation about the origin, recycling and production flows of the recycled resource
- Available and relevant test reports

- Sufficient amount of representative samples for each product (family) to be certified as specified in the contract ref. 4.4.3.

5.2 Acceptance of test reports

TÜV AUSTRIA can either register a laboratory or recognise an organisation:

- Registered laboratory: laboratory that is officially approved by TÜV AUSTRIA to perform the BCC or TOC analysis
- Recognised organisation: organisation that is officially approved by TÜV AUSTRIA to manage the correct sending and tracing of samples to the laboratory

Reports from registered laboratories can be accepted.

Reports from independent laboratories that are not officially registered by TÜV AUSTRIA for the measured parameter, but are either accredited according to ISO 17025, recognised for Good Laboratory Practices (GLP) or recognised by a similar certification body, can be accepted after a positive detailed evaluation of all the requirements of the relevant test standard.

In case the test report from a registered laboratory, is over 3 years old, the report can be accepted for evaluation only according to the following two conditions:

- a sample from the archives of the laboratory has to be sent and an appropriate identification method (e.g. FTIR analysis) demonstrates that this sample is completely consistent with the sample submitted in the framework of the certification process
- the applicant has to provide a statement that the tested sample is completely consistent with the sample submitted in the framework of the certification process

At least one measurement for each applicable parameter (BCC or TOC) has to meet all three following requirements (even if only 1 measurement for the parameter is required):

- the analysis report of the measurement may not be over 3 years old at the time application
- the measurement must be performed by a registered laboratory
- the sample for the measurement has to be sent to the laboratory by TÜV AUSTRIA or by a recognised organisation

6. Classification

A classification is established on the basis of the Biobased carbon content (BCC). This classification is symbolised by stars (between 1 and 4) featured in the logo.

One star	✶	20% ≤ BCC < 40%
Two stars	✶✶	40% ≤ BCC < 60%
Three stars	✶✶✶	60% ≤ BCC < 80%
Four stars	✶✶✶✶	80% ≤ BCC

7. Evaluation

7.1 Preliminary evaluation

Collection of all the required information (see § 5.1) and preliminary inspection of the status of the material presented.

7.2 Basic Requirements

The Unit must have:

- a total organic carbon content (TOC) of at least 30%
  (expressed as proportion of the reference mass)
- a Biobased carbon content (BCC) of at least 20%
  (expressed as proportion of the TOC)

7.3 Test method

The test method is described in four blocks:

- Firstly the reference percentages and reference mass are described
- Secondly the application of the different evaluation approaches is described.
- Thirdly the required number of measurements is defined for each approach.
- Fourthly the adopted TOC and BCC values for each approach are defined.

7.3.1 References of percentages and reference mass

Reference of percentages

For the TOC, the percentage refers to the mass, meaning 100% refers to the total reference mass of the Unit.
For the BCC, the percentage refers to the TOC, meaning 100% refers to all the organic carbon in the Unit.

Reference mass

As general rule, the reference mass corresponds to the dry mass of the product.

Liquids, products containing solvents or products stored under special conditions (e.g. frozen) are exempt from this rule: their reference mass is the mass as they are packed when sold under normal conditions.

Some examples of the reference mass of specific products:

- in case glue or paint are sold as such (before use), their reference mass is the mass of the liquid including the solvents
- in case glue or paint are applied to a product, their reference mass is the dry mass of this glue or paint within the product
- the reference mass of a tissue containing perfume, is the mass of the tissue before the perfume has evaporated
- the reference mass of an ice pack, is the mass of the frozen ice pack

7.3.2 Application of the different approaches

7.3.2.1 Entity approach versus Parts approach

a) Entity approach

The Entity approach is applicable only if the Unit has a fixed composition.

If the Unit cannot be measured as a whole (e.g. because it is too large) and if the measurement cannot be undertaken for a combination of shares (see § 7.3.3.2), this Unit must be evaluated by the Parts approach (see below).

b) Parts approach

If the Unit is not evaluated as a whole, and a distinction between its Parts is required, the Parts approach is applicable.

In this case the BCC and TOC are determined by calculation, based on the reference mass, the TOC and the BCC of each Part. The calculated value is to be confirmed by a confirmation measurement as specified in the table “Overview of the number of required TOC and BCC measurements” under § 7.3.3.3.

- Variable composition

  The Parts approach is e.g. eligible if the Unit has a variable composition (variation of the concentration and/or the Parts within the Unit). In this case the minimum and maximum BCC and TOC are determined by calculation, based on the reference mass, the BCC and the TOC of each Part. The certification covers an envelope of combinations of the reference mass percentages of the different Parts, ensuring that each combination results in an assembled product with a BCC within the obtained class. Each modification of the envelope will be subjected to a formal evaluation by TÜV AUSTRIA.

- Evaluation of the different kind of Parts

  Evaluation of the Parts: all Parts are to be evaluated according to the “General rule for Parts” (see tables under § 7.3.3.3 and § 7.3.4), unless a Part can be assigned to a specific type of Parts as described below:

Type of Part:	Description:
Certified Part PA:	Any Part that is covered by a valid OK biobased certificate, based on the Percentage approach (PA), see § 7.3.2.2.a
Certified Part CA:	Any Part that is covered by a valid OK biobased certificate, based on the Class approach (CA) see § 7.3.2.2.b
Natural Part:	Part fully composed of materials of natural origin
Fossil Part:	Part fully composed of organic, non-biobased (fossil) origin
Inorganic Part without C:	Part not containing carbon (neither organic nor inorganic)
Inorganic Part with C:	Part containing inorganic carbon (not organic carbon)

- Evaluation of covered and uncovered Parts:

  Any of the types of Parts listed in the table above can be treated as a covered or uncovered Part.

	Description:
Covered Part:	Any Part without a determined TOC and BCC value, but covered by the confirmation measurement on the complete Unit.
Uncovered Part:	Any Part without a determined TOC and BCC value and not covered by the confirmation measurement on the complete Unit.

If a Part is considered as a covered or uncovered Part, the determinations regarding the required number of measurements and the adopted values always overrule the determinations for other Parts.

E.g. if a natural Part is treated as a covered Part, the adopted values of the covered Part (TOC: 90%, BCC: 0%) are applicable and not those of the natural Part.

- Maximum concentrations of covered and uncovered Parts:

	Raw materials and inter-mediates	Finished products	
		Percentage approach	Approach Class % of the reference mass of Unit
Covered Part:	BCC may not be influenced with more than 1%		10%
Uncovered Part:	BCC may not be influenced with more than 1%		5%
Total of all covered and uncovered Parts:	BCC may not be influenced with more than 1%		10%

Remark: the total is determined by adding the absolute values (e.g. |–0.3% |+ |0.5% | = 0.8%)

- Identification of covered and uncovered Part:

  The Covered Parts and Uncovered Parts do not need to be fully identified, but their function (e.g. printing ink, colorant, anti-block agent, …) must be clearly described.

  This way e.g. different inks can be assigned to the same Part (covered or uncovered Part) without having to perform different analyses on each ink.

7.3.2.2 Percentage approach (% approach) versus Class approach

For finished products, two different approaches can be applied:

a) Percentage approach (% approach)

By using the Percentage approach, the BCC will be precisely determined (as a percentage number rounded off to the integer), will be printed on the datasheet of the certificate and gives the certificate owner the right to indicate this percentage.

b) Class approach

By using the Class approach, only the class (specification of the different classes: see § 6) will be determined. The certificate owner will have the right only to indicate the BCC by class, not the exact BCC percentage.
The Class approach requires less accuracy and therefore less testing.

7.3.3 BCC and TOC measurements

7.3.3.1 Measuring methodology

Biobased carbon content

BCC is measured according to ASTM D6866 or CEN/TS 16137; methods B or C.

Total organic carbon

TOC and TC are measured according to the TÜV AUSTRIA document TS-OK20.

Remarks:

- If of all carbon present, no more than 1% is inorganic, its influence on the final TOC and BCC can be ignored and therefore TOC is regarded as equal to TC.
- For the Class approach (see § 7.3.2.2.b) only the TC may be measured with this being treated as the TOC, even if inorganic carbon is present.

7.3.3.2 When the (confirmation) measurement is not possible on the complete Unit

a) Measurement on a combination of shares

If it is not possible to perform a measurement on the entire Unit (e.g. pillow), but

- if the Unit can be easily divided by hand into different Parts (e.g. sleeve and filling), and
- if a share can be taken from each of these Parts, respecting the relative concentration (concentration in the applicable reference masses, see § 7.3.1) of each of these Parts in the Unit,

The measurements may be performed on the combination of the share of these Parts.

b) Measurement on homogenised samples

If it is not possible to perform a measurement on the entire Unit (e.g. a heterogeneous composite of fibres and resins), but

- the homogeneity of the test sample is achievable by appropriate sample preparation (e.g. mixing), and
- the concentration of the prepared sample is identical to the concentration of the Unit

the measurements may be performed on the homogenised sample

c) Alternatives to the confirmation measurement

If it is not possible to perform a confirmation measurement on the entire Unit and method a or b described above are not applicable, one or more of the methods below can be applied:

- the mass percentages are verified by an appropriate weighing technique instead of the confirmation measurement by the BCC parameter
- the BCC confirmation measurement is performed on at least one Part of the Unit
- the materials used are identified by an appropriate identification method

7.3.3.3 Number of required TOC and BCC measurements

In the following table an overview is given of the minimum number of measurements required for each parameter (TOC and BCC) and for each type of Part (description of the different types of Parts, see: § 7.3.2.1.b)

Remarks:

1) Measurement on converted material

Any measurement on a converted material or product (e.g. cutlery Z) that is 100% made of a basic or intermediate material (e.g. the cutlery Z is 100% made of the granulates XY), is also valid as a measurement for this basic or intermediate material (granulates XY) on condition that the correspondence of the basic or intermediate material and the converted product or material can be verified by FTIR or other fingerprint techniques.

This is also valid if the converting company is not the same as the producer of the raw or intermediate material.

The opposite is not true: a measurement on a basic or intermediate material (e.g. granulates XY) is not accepted for the intermediate or finished product (e.g. cutlery Z).

2) Minimum number of measurements

The number of measurements described under § 7.3.3.3 is the minimum number required. An applicant can always have more measurements performed. Unless otherwise specified in this certification scheme, all measurement results will be taken into account.

3) Samples unavailable during initial certification

If, at the time of the application, it is not possible to submit a sample of a finished product for which all Parts (except for covered and uncovered Parts, see § 7.3.2.1.b) are certified, a temporary certificate with a validity of 6 months can be issued. In this case, the BCC and the TOC can be determined by calculation.

Applicants have to submit samples as soon as the relevant product is available. The required number of measurements as defined under § 7.3.3.3 will be made on these samples.

If a sample is not submitted before the expiry date of the temporary certificate, this certificate will not be extended.

Overview of the number of TOC and BCC measurements required

Parts approach: (description of this approach: see § 7.3.2.1.b)

	TOC measurements			BCC measurements		
Description of the different kinds of Parts: see § 7.3.2.1.b	Raw materials and inter-mediates	Finished products		Raw materials and inter-mediates	Finished products	
		% approach (see § 7.3.2.2.a)	Class approach (see § 7.3.2.2.b)		% approach (see § 7.3.2.2.a)	Class approach (see § 7.3.2.2.b)
General rule for Parts:	3 / 1 [a]	3 / 1 [a]	1	3	3	1
Certified Part PA:	0	0	0	0	0	0
Certified Part CA:	3-n / 1-n [a]	3-n / 1-n [a]	1-n	3-n	3-n	0
	n = number of measurements performed in the framework of the Class approach certification					
Natural Part:	3 / 1 [a]	3 / 1 [a]	1	1	1	1
Fossil Part:	3 / 1 [a]	3 / 1 [a]	1	0	0	0
Inorganic Part without C:	0	0	0	0	0	0
Inorganic Part with C:	3 / 1 [a]	3 / 1 [a]	1 / 0 [c]	0	0	0
Covered Part:	0	0	0	0	0	0
Confirmation measurement*	1	0 / 1 [b]	0 / 1 [b]	1	1	1
Uncovered Part:	0	0	0	0	0	0

The confirmation measurement on the level of the component (e.g. tray) is accepted. No additional confirmation measurement on the level of the combined components of the Unit (e.g. tray and film) is required. However a confirmation measurement on the level of a constituent of the Unit is not valid.

Entity approach: (description of this approach: see § 7.3.2.1.a)

	TOC measurements			BCC measurements		
	Raw materials and inter-mediates	Finished products		Raw materials and inter-mediates	Finished products	
		% approach (see § 7.3.2.2.b)	Class approach (see § 7.3.2.2.b)		% approach (see § 7.3.2.2.b)	Class approach (see § 7.3.2.2.b)
Entity	3 / 1 [a]	0 / 1 [b]	0 / 1 [b]	3	3	1

Remarks:

[a] if the molecular formula and the concentration of all the constituents is known, the lowest number of measurements is sufficient
[b] only to be measured in case of doubts (e.g. large metal or glass parts)
[c] to be chosen by the applicant (see § 7.3.3.1)

7.3.4 Adopted TOC and BCC values

All values are rounded off to the integer.

Abbreviations used below:

AVERAGE: The value adopted is the average of the obtained measurement results

THEO VAL: Theoretical TOC value derived from the molecular formula (taking into account the molecular formula and the concentration of all Parts)

MEAS VAL: Value of the measurement

CERT VAL: Value as determined on the relevant OK biobased certificate

CALC VAL: the value obtained by calculation

(VER): If there is any doubt about the minimum requirement of 30% TOC (see § 7.2), either the value is obtained by calculation or the measurement is used only to verify if this requirement is fulfilled. The value as such is not featured on the certificate. If there is no doubt, this verification is not required.

CLASS: The BCC value obtained by calculation or measurement is used only to determine the class. If the measurement is performed to confirm the calculated value, the class is defined by the calculated BCC value. The BCC value as such is not featured on the certificate.

Overview of the adopted TOC and BCC values

(Description of the different values: see above)

Parts approach: (description of this approach: see § 7.3.2.1.b)

	Adopted TOC value			**Adopted BCC value**		
Description of the different kinds of Parts: see § 7.3.2.1.b	Raw materials and inter-mediates	Finished products		Raw materials and inter-mediates	Finished products	
		% approach (see § 7.3.2.2.a)	Class approach (see § 7.3.2.2.b)		% approach (see § 7.3.2.2.a)	Class approach (see § 7.3.2.2.b)
General rule for Parts:	AVERAGE / THEO VAL [a]	AVERAGE / THEO VAL [a]	MEAS VAL	AVERAGE	AVERAGE	MEAS VAL
Certified Part PA:	CERT VAL	CERT VAL	CERT VAL	CERT VAL	CERT VAL	CERT VAL
Certified Part CA:	AVERAGE / THEO VAL [a]	AVERAGE / THEO VAL [a]	MEAS VAL	AVERAGE	AVERAGE	CERT VAL
Natural Part:	AVERAGE / THEO VAL [a]	AVERAGE / THEO VAL [a]	MEAS VAL	100%	100%	100%
Fossil Part:	AVERAGE / THEO VAL [a]	AVERAGE / THEO VAL [a]	MEAS VAL	0%	0%	0%
Inorganic Part without C:	0%	0%	0%	not relevant	not relevant	not relevant
Inorganic Part with C:	0%	0%	0%	not relevant	not relevant	not relevant
Covered Part:	90%	90%	90%	0%	0%	0%
Confirmation measurement	CALC VALUE	(VER)	(VER)	CALC VALUE	CALC VALUE	CLASS
Uncovered Part:	90%	90%	90%	0%	0%	0%

Entity approach: (description of this approach: see § 7.3.2.1.a)

	Adopted TOC value			Adopted BCC value		
	Raw materials and inter-mediates	Finished products		Raw materials and inter-mediates	Finished products	
		% approach (see § 7.3.2.2.a)	Class approach (see § 7.3.2.2.b)		% approach (see § 7.3.2.2.a)	Class approach (see § 7.3.2.2.b)
Entity	AVERAGE OR THEO VAL	(VER)	(VER)	AVERAGE	AVERAGE	CLASS

Remarks:

[a] If the molecular formula and the concentration of all constituents is known, the lowest number of measurements is sufficient

7.3.5 Acceptance of results

Rule of acceptance	Treatment if not acceptable
BCC of natural Parts: Difference between the theoretical BCC value for natural Parts and the measured value may not exceed 3%.	The "natural Part" may no longer be treated as such, but falls under the General rule for Parts.
Theoretical TOC value: Difference between the theoretical TOC value (THEO VAL as described in § 7.3.4) and the measured value may not exceed 3%.	The highest number of measurements as described in the table "Overview of the number of required TOC and BCC measurements" (see § 7.3.3.3 is required).
Confirmation measurement for: • raw materials and intermediates • Percentage approach of finished products Difference between the calculated value (as applied in the Parts approach described in § 7.3.2.1.b) and the value of the confirmation measurement value may not exceed 3%.	To be treated on a case-by-case basis depending on the possible origin of the deviation. Generally an inaccurate or erroneous measurement has to be replaced by two additional measurements. In that case, the value to be taken into account is the average (rounded off to the integer) of the confirmation measurement and the two complementary measurements.
Confirmation measurement for: • the Class approach of finished products The value of the confirmation measurement may not be more than 3% below the calculated value (as applied in the Parts approach described in § 7.3.2.1.b).	
Average value: Difference between the value of an individual measurement and the average value of all relevant measurements may not exceed 3%.	This deviating measurement has to be replaced by two additional measurements.
Lower limit (Class approach only): If the number of measurements as defined in the Class approach is followed, the BCC must be at least 1% above the lower limit of a class in order to assign this class to an item. Remark - See § 7.3.4 to know which BCC – calculated/measured has to be taken into account	Either apply the Percentage approach, redefine the composition range or assign the product to the below class.

7.3.6 One product assigned to different classes

Variable concentration percentages resulting in different classes:
If, depending on the combination of the reference mass percentages of the different Parts of a Unit, this Unit can be assigned to different classes, generally one certificate for each class is issued and the envelope for each class will be clearly specified on the certificate.
However, it is also possible to specify these classes clearly describing their respective envelopes on one certificate.
Variable materials resulting in different classes:
If, depending on the used materials for a finished product, this finished product can belong to different classes, generally one certificate for each class is issued and the envelope for each class will be clearly specified on the certificate.
However it is also possible to specify these classes clearly describing their respective envelopes on one certificate.

7.3.7 Additional determinations

In clearly justified exceptional cases, the Certification Committee may decide to require additional testing.

7.4 Fingerprint of the material

Every item must be identified by FTIR spectroscopy or another appropriate fingerprint technique.

The FTIR spectrum must be recorded in a range between the wave numbers 4000 cm-1 and 650 cm-1. All spectra are entered into a spectra database.

8. Possible extensions of the certification

The use of certified components and/or constituents (raw materials, inks, colorants, master batches or additives) does not automatically imply the conformity of the finished product.
Any modification of a certified raw material, certified intermediate or certified finished product that is not described in the product description of the certification report must be notified to TÜV AUSTRIA and may require a new evaluation.

9. Validity

Unless otherwise specified, a certificate is valid for 5 years.