

Wallcoverings

Quality Assurance

RAL-GZ 479

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RAL Deutsches Institut für
Gütesicherung und Kennzeichnung e. V.
Siegburger Straße 39
53757 Sankt Augustin
Phone: (0 22 41) 16 05-0
Fax: (0 22 41) 16 05 11
E-Mail: RAL-Institut@t-online.de
Internet: www.ral.de

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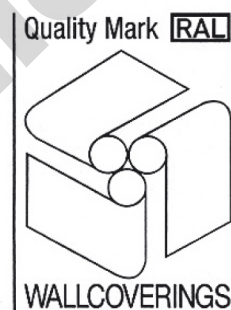
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**Wallcoverings
Quality Assurance
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**Gütegemeinschaft Tapete e.V.
Langer Weg 18
60489 Frankfurt am Main
Phone: (69) 52 00 34
Fax: (69) 52 00 36**



The following quality and test specifications were elaborated by RAL Deutsches Institut für Gütesicherung und Kennzeichnung e.V. within the framework of the fundamentals for the award of quality marks in an assessment procedure, in collaboration with the Federal Ministry of Economy together with the concerned circles of experts and circulation as well as the relevant authorities.

Sankt Augustin, in November 2002

**RAL
Deutsches Institut
für Gütesicherung
und Kennzeichnung e.V.**

Table of Contents

Quality and Test Specifications for Wallcoverings

- 1 Introduction
- 2 Ambit
- 3 Quality Specifications
 - 3.1 Technical Quality Requirements
 - 3.2 Health and Ecologic Requirements regarding the Nonobjection of Wallcoverings
 - 3.2.1 Heavy Metals and other Eco-toxicologic Relevant Elements
 - 3.2.2 Stabilizing Agents
 - 3.2.3 Plasticizers
 - 3.2.4 Vinylchloride
 - 3.2.5 Foaming Agents
 - 3.2.6 Volatile Organic Compounds (VOCs)
 - 3.2.7 Formaldehyde
- 4 Test Specifications
 - 4.1 Introduction
 - 4.2 Initial Test
 - 4.3 Internal Supervision
 - 4.4 External Supervision
 - 4.5 Retest
- 5 Certification
- 6 Amendments

Implementation Clauses for the Award and the Use of the Quality Mark

- 1 Quality Basis
- 2 Award
- 3 Use
- 4 Supervision
- 5 Punishment of Infringements
- 6 Complaint
- 7 Reaward
- 8 Amendments

Specimen 1 Certificate of Obligation

Quality and Test Specifications for Wallcoverings

1 Introduction

The Gütegemeinschaft Tapete e.V. has elaborated quality and test specifications for wallcoverings including besides technical requirements additional requirements and tests regarding the nonobjection of wallcovering from an ecologic and health-related point of view.

2 Ambit

These quality and test specifications cover the manufacture of wallcoverings according to EN 233 (ready for use wallcoverings made from paper, vinyl and plastic), to EN 234 (wallcoverings for subsequent treatment), to EN 259 (high-duty wallcoverings) and to EN 266 (textile wallcoverings).

They do not apply to glass fibre products.

3 Quality Specifications

3.1 Technical Quality Requirements

The EN standards included in the ambit cover the requirements regarding

- minimum water resistance
- washability
- colour fastness to light
- shock resistance
- grip of the yarns
- marking by symbols

These qualitative and technical requirements have to be observed by wallcoverings subject to a quality assurance.

The dimensional requirements fixed in the standards are not applicable for the quality assurance.

3.2 Health and Ecologic Requirements regarding the Nonobjection of Wallcoverings

In addition to the technical standards for wallcoverings following requirements are fixed ensuring that products subject to a quality assurance will not create any harm to health and ecology.

3.2.1 Heavy Metals and other Eco-toxicologic Relevant Elements

The user of the quality mark will refrain from using of heavy metals containing pigments basing on eco-toxicological relevant elements like arsenic, lead, cadmium, chromium (VI), mercury and selenium.

In order to ensure that the mentioned elements do not create any danger, even through production-born impurities regarding their use as well as their disposal, the total content of these elements in wallcoverings is investigated regarding the observance of following limit values:

Element	Limit value (mg/kg)
Arsenic	≤ 3
Lead	≤ 20
Cadmium	≤ 3
Chromium (VI)	≤ 20
Mercury	≤ 2
Selenium	≤ 10

The determination of the elements is carried out by means of atomic emission spectroscopy (ICP-AES) or equivalent processes (ICP-MS, AAS) subsequent to microwave-induced pressure digestion.

This method is described in detail by "Meiningshaus R., Salthammer T. and Bahadir M (1996): A new method for the simultaneous determination of heavy metals in wallcoverings. Fresenius Journal of Analytical Chemistry, **354**, p. 27-31".

For practicability reasons the determination of chromium is carried out in the first step as total chromium (oxidation classes III-VI). As far as the total chromium content of <20 mg/kg is concerned an additional analysis of acid-soluble chromium (VI) is carried out according to EN 71, 1994, safety of toys, part 3: migration of certain elements.

Barium is only used as filling agent in wallcoverings in form of the hardly soluble compound barium sulphate. Antimony or antimony compounds respectively in principle are not used in wallcoverings according to EN 233, EN 234 and EN 266. Antimony trioxide is only used in high duty wallcoverings as flame retardant according to EN 259.

3.2.2 Stabilizing Agents

The manufacture of PVC wallcoverings requires stabilizing agents. These stabilizing agents base on metalorganic compounds, for example calcium, zinc or barium.

The users of the quality mark do not use stabilizing agents containing lead, cadmium or organotin compounds. Written declarations of the producers have to be verified.

3.2.3 Plasticizers

Users of the quality mark only use hardly volatile plasticizers with a vapour pressure of <10⁻² Pa at 25 °C and with a boiling point of >300 °C at 1013 mbar.

Written declarations of the producer have to be verified.

3.2.4 Vinyl Chloride

The procedure for the determination of VC widely corresponds to the method prescribed for food and food packaging (Official collection of investigation methods according to § 35 LMBG; 80.32-1 (EG): Investigation of consumer goods, determination of the content in vinyl chloride monomer in consumer goods).

250 g of a previously disintegrated wallcovering sample are weighed into a 5 ml headspace glass and after addition of 2 ml dimethyl acetamide closed gastight using a septum. After conditioning to 60 °C for 2 hours a specimen of the headspace in the glass is directly injected into the gas chromatograph.

Quality and Test Specifications

Gaschromatographic separation conditions:

Separation column: 25 m x 0,32 mm PLOT – capillary column stationary phase Poraplot Q

Carrier gas: Hydrogen, pre-pressure 2 bar, split 50 ml/min

Column temperature: 100 °C isothermal

Detector: Flame ionisation detector (FID)

According to this method no vinyl chloride has to be detected (detection limit 0,2 mg/kg of wallcovering = 2 ppm or lower).

3.2.5 Foaming agents

Chemical expanding agents are used for the foaming of PVC wallcoverings. These foaming agents are products which disintegrate under increasement temperature, at least one of the disintegration products being a gas (nitrogen) then forming the foamed structure.

The mostly used chemical foaming agents are so-called Azo-compounds emitting nitrogen during heating or under increased temperatures.

For the foaming of PVC plastisoles in the field of foamed wallcoverings an azodicarbonamide is used. This compound with a disintegration temperature in air of 205 °C to 215 °C corresponds to the recommendations of the former Federal Health Authority regarding the manufacture of consumer goods in the sense of the food act. Under no circumstances fluorocarbons are used.

For the foaming of “acrylic wallcoverings” plastic pellets filled with an organic propellant are used. They expand under development of heat thus generating the foam effect. Residues of these gaseous compounds remain in the foam. They migrate only very slowly from the foam into the indoor air and chamber tests under residential conditions showed that they are not detectable. Under no circumstances fluorocarbons are used.

Written declarations of the producer have to be verified.

3.2.6 Volatile Organic Compounds (VOCs)

Volatile Organic Compounds are components of organic utilities necessary for the production of wallcoverings. Residues which remained in the product may be emitted into the indoor air under residential conditions. In order to limit these emissions, the manufacturers united in the Gütegemeinschaft Tapete e.V. take on the obligation to have tested qualitatively and quantitatively the specimen applying for the quality mark regarding the emission of VOC.

On one hand the determination of VOC is very lavish from the experimental point of view, and on the other hand a high sample throughput must be guaranteed. Therefore, the test chamber method was not taken into consideration for practicability reasons. The test is carried out in accordance with the VDA process No. 277 “Non-metallic materials in automobile interiors – Determination of emissions of organic compounds”. The emission potential is expressed as carbon units from the sum of all signals which the emitted individual compounds produce after gaschromatographic separation and detection with a flame ionisation detector (FID) against the reference substance toluene. The sample preparation is carried out by means of a static vapour room analysis after conditioning at 100 °C. The method is described in detail in Meininghaus R., Fuhrmann F., Salthammer T.: “A routine method for the determination of the TVOC content in wallcoverings using headspace gas chromatography”,

23 °C and 45% relative humidity, an air exchange rate of 1 h⁻¹ and a loading rate of 1 m²/m³. According to the actual state of the art a chamber equilibrium of 80 µg/m³ under the mentioned conditions may be classified as very low.

The values were given in µg/g of wallcovering. Chlorinated solvent components and those containing aromates are registered separately. Here, the total portion of the aromatic hydrocarbons toluene, ethylbenzene and o-, m-, p-xylene (TEX-aromates) should only make max 10% of the limit value of the total emission. Under the mentioned test conditions, benzenes and chlorinated solvent should not be detectable. As far as the calculation of the VOC value is concerned the foaming agents (co-called VVOC=Very Volatile Organic Compounds) approved according to 3.2.5 are not taken into consideration since under the mentioned test conditions an superproportional emission of these substances takes place leading to unrealistic and not reproducible VOC values.

All in the following limit values should be respected:

Substance	Content (µg/g)
VOC*)	100
TEX-aromates	10

3.2.7 Formaldehyde

Formaldehyde is a substance occurring in nature and since the turn of the century it is produced synthetically. It is an achromatic, strongly odorous gas which easily reacts with other substances and it quickly disintegrates under the impact of ultraviolet radiation.

The joint report of the Federal Health Authority, of the Federal Department for Labor Protection and of the Federal Environment Agency of October 9, 1984 fixes the limit value for interiors at 0,1 ppm.

For wallcoverings of the quality mark users a value of ≤ 0,033 ppm is fixed.

The test is carried out according to the WKI flask method. Here, 50 pieces each with the dimensions 5 cm x 3 cm are stored in a gastight 1000 mg-PE-wide necked laboratory bottle over 50 ml freshly distilled water at 40 °C (modified WKI flask method).

In order to eliminate adsorptively bound formaldehyde which after some time has no more influence on the equilibrium concentration, after the first 24 hour storage fresh water is filled into flasks and stored again for 24 hours. Then the formaldehyde contents of the water is determined. According to this test a formaldehyde portion of 8 mg/100 g of absolutely dry wallcovering corresponds to a test chamber equilibrium of 0,033 ppm. (Salthammer T., Schriever E. and Marutzky R.: Emissions from Wallcoverings: Test procedures and preliminary results. Toxicological & Environmental Chemistry. Vol. 40, p. 121-131).

*) without foaming agents approved according to 3.2.5

4 Test Conditions

4.1 Introduction

The test conditions are classified into initial test, internal supervision, external supervision and retest.

Basis for the test and supervisions are the quality specifications of this quality assurance.

4.2 Initial Test

The initial test is the prerequisite for the award of the quality mark. Every applicant for the quality mark has to undergo this initial test. The quality committee takes the necessary steps for the initial test; it entrusts neutral supervision authorities with the tests.

The initial test comprises the compliance with the quality and test specifications according to items 3.2.1 to 3.2.7.

On the occasion of the initial test the applicant has to prove that he is able to fulfil the requirements for a reliable internal supervision.

The person entrusted with the tests will deliver a report on the initial test. The applicant as well as the quality committee of the Gütegemeinschaft Tapete e. V. will receive a copy.

4.3 Internal Supervision

Every wallcovering manufacturer has to carry out the internal supervisions necessary for the compliance with the quality and test specifications. Great care will have to be taken over the notes related to the internal supervision. These will have to be kept for a period of 5 years and presented on the occasion of the external supervision.

4.4 External Supervision

The quality committee entrusts a neutral supervision authority with the external supervision.

As a rule, the external supervision will be carried out once a year. It comprises the revision of the notes of the internal supervision and the examination of the compliance with the quality specifications of this quality assurance. The external supervision comprises the items 3.2.1 to 3.2.7.

The person entrusted with the tests will give a written report on every external supervision. The quality mark user and the quality committee each will receive a copy.

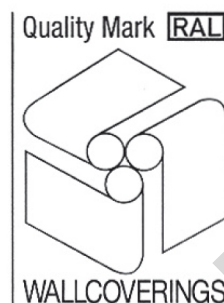
4.5 Retest

In the case of failure in the external supervision a retest will have to be carried out. If this retest is not successful either, the entire external supervision is regarded as failed.

The scope and the nature of the retest is specified by the quality committee.

5 Certification

A wallcovering corresponding to these quality and test specifications may be market with the following illustration of the quality mark:



The use of the quality mark is ruled exclusively by the implementation clauses for the award and the use of the quality mark wallcovering.

6 Amendments

Amendments of these quality and test specifications are subject to the written consent of RAL. They will be put into force through written notice by the executive committee to the users of the quality mark after an appropriate transitional period.

Implementation Clauses

for the Award and the Use of the Quality Mark for Wallcoverings

1 Quality Basis

The quality basis for the quality mark consists of the quality and test specifications for wallcoverings. They will be completed and developed further in accordance with the technical progress.

2 Award

2.1 The Gütegemeinschaft Tapete e.V. upon application awards to manufacturers the right to use the quality mark wallcovering.

2.2 The written application has to be addressed to the office of the Gütegemeinschaft Tapete e.V., Lindenring 44, 60431 Frankfurt am Main. The application has to be accompanied by a legally binding certificate of obligation (specimen 1).

2.3 The application will be examined by the quality committee. For this purpose the quality committee is allowed to entrust a neutral testing institute. The testing institute in charge without prior announcement examines the products of the applicant in accordance with the quality and test specifications. It is allowed to visit the production plant of the applicant and to take samples from the products. Further it is allowed to request and look at the documents mentioned in the quality and test specifications. The person entrusted with the test will give a written certificate on the test result which will be made available to the applicant and to the executive committee of the Gütegemeinschaft. Prior to the execution of the test institute in charge of same has to show proof of its identity. The costs for testing have to be borne by the applicant.

2.4 In case the test is passed successfully the executive committee of the Gütegemeinschaft upon proposal of the quality committee will award to the applicant the quality mark. The award will be certified. In case the test is not passed successfully the quality committee will postpone the application. The objective reasons for the postponement will have to be given in writing.

3 Use

3.1 Users of the quality mark are allowed to use same only for products corresponding to the quality and test specifications.

3.2 The Gütegemeinschaft solely is entitled to have manufactured marking utilities of the quality mark (metal embossing, stamping tools, clichés, seals, rubber stamps, etc.) and to distribute or have them distributed to the users of the mark and to prescribe more detailed its application.

3.3 The executive committee is entitled to issue particular regulations for the use of the quality mark in advertising and joint advertisement in order to guarantee the fairness of competition and to avoid any abuse of the mark. The individual advertising, nevertheless, should not be hindered. It is subject to the same maxim of the fairness of competition.

3.4 The quality committee has the right to decide in accordance with the RAL that the quality mark shall be applied for different products in different forms.

3.5 If the right to use the mark was legally withdrawn, the certificate of award and all marking utilities will have to be returned; the user is not entitled to restoration. Same is applicable when the right to use the quality mark was otherwise jeopardized.

4 Supervision

4.1 The Gütegemeinschaft is entitled and obliged to supervise the use of the quality mark and the adherence to the quality and test specifications. The continuity of the supervision has to be proved to RAL by a supervision contract with a neutral testing institute.

4.2 Every user of the mark should take greatest care in adhering to the quality and test specifications. He is obliged to carry out a statistic quality control. The internal test results will have to be recorded carefully. The quality committee or its representatives are allowed to look at the respective documents at any time. The user of the quality mark submits his products to the quality committee or its representatives according to the scope and frequency required by the quality and test specifications. The costs for the tests are borne by the user.

4.3 Persons entrusted with the tests are at any time entitled to request or take samples from the production plant of the user of the quality mark. Further, they are allowed to also take samples from the market. Requests for samples have immediately to be complied with. Persons entrusted with the tests are allowed to visit the production plant throughout the working hours.

4.4 If a test is not successfully or if there are complaints about a consignment, the quality committee will give order to repeat the test. The user of the quality mark may also ask for a retest.

4.5 The testing institute in charge has to issue a certificate for each test result. The quality committee and the user of the quality mark will receive a copy.

4.6 If there are unjustified complaints about a consignment, the costs for testing will be borne by the complaining person; if they are justified, the costs will be borne by the user of the quality mark.

5 Punishment of Infringements

5.1 If the quality committee notices any deficiencies in the quality assurance, it will suggest punishment measures to the executive committee of the Gütegemeinschaft. According to the severity of the infringement they are as follows:

5.1.1 Additional conditions regarding the internal supervision

5.1.2 Increase in the external supervision

5.1.3 Reprimand

5.1.4 Warning

5.1.5 Temporary or perpetual withdrawal of the quality mark

5.2 Users of the quality mark infringing paragraph 3 or 4 are susceptible to be severely warned.

5.3 Instead of a warning a penal sum of up to 1.000,- DM for each individual case can be imposed. This penal sum is payable to the Gütegemeinschaft e.V. within 14 days after legal notice.

5.4 The measures mentioned under 5.1 can be combined with each other.

5.5 The quality mark will be withdrawn temporarily or perpetually from users infringing repeatedly or severely paragraph 3 or 4. The same is applicable to user of the quality mark delaying or impeding the tests.

5.6 Prior to all measures the person concerned shall be given a hearing.

5.7 The punishment measures according to paragraphes 5.1 to 5.5 will become effective with their legal force.

5.8 In urgent cases the chairman of the Gütegemeinschaft is entitled to withdraw with immediate effect temporarily the quality mark. This procedure has to be confirmed within 14 days by the executive committee of the Gütegemeinschaft.

6 Complaint

6.1 Users of the quality mark have the right to lodge an appeal towards the quality committee within 4 weeks after receipt of the punishment measures.

6.2 In case the quality committee rejects the appeal, the complainant has the right to call a mediation court within 4 weeks after receipt of the rejection. Here, in detail paragraph 11 of the statutes of the Gütegemeinschaft Tapete e.V. is applicable.

7 Reward

If the right to use the quality mark has been withdrawn it may be reawarded after 3 month at the earliest. The procedure is determined in paragraph 2. Nevertheless, the executive committee of the Gütegemeinschaft is entitled to impose additional conditions.

8 Amendments

These implementation clauses including the specimens (Certificate of Obligation, Certificate of Award) are acknowledged by RAL. Amendments, even editorial ones, in order to become effective require the previous written consent of RAL. They will become effective within an appropriate term after they were brought to the knowledge of the executive committee of the Gütegemeinschaft.

Certificate of Obligation

1. The undersigned person/enterprise herewith applies towards the Gütegemeinschaft Tapete e.V. for

the admission as a member*)

the award of the right to use the quality mark „wallcoverings“.

2. The undersigned confirms that

the statutes of the Gütegemeinschaft Tapete e.V.,
the statutes of the quality mark,
the quality and test specifications for wallcoverings,
the implementation clauses with specimens 1 and 2

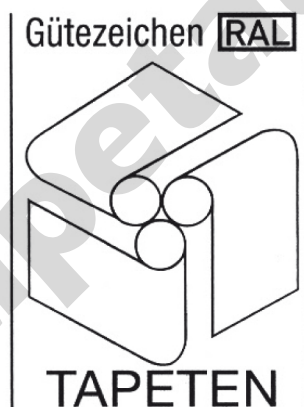
have been noted and herewith unreservedly accepted as binding.

Place and date

Company stamp/legally binding signature

*) Delete as applicable

Gütegemeinschaft Tapete e.V.



Langer Weg 18
60489 Frankfurt am Main
Phone: (069) 52 00 34
Fax: (069) 52 00 36
info@tapeten-institut.de