General Quality and Testing Regulations for Furniture

Protection of the Environment and Personal Health

Quality Assurance

RAL-GZ 430

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RAL

DEUTSCHES INSTITUT FÜR GÜTESICHERUNG UND KENNZEICHNUNG E.V.

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Quality and Testing Regulations for Furniture RAL-GZ 430

Protection of the Environment and Personal Health

Note

Nowadays, the environment and personal health are of great importance for consumers. In close cooperation with the Federal Environment Agency and leading testing institutes, requirements have been revised to meet latest scientific findings.

These requirements apply to furniture as purchasable by consumers in furniture retail outlets.

Manufacturers must ensure that all supplied materials (even those imported from abroad) conform to German statutory regulations and the additional DGM requirements.
The first assessment and monitoring tests must be carried out in the test cycle in accordance with the General Quality and Testing Regulations as part of Point 3 Monitoring.

1. Requirements

1.1 Statutory Regulations

The essential statutory regulations concerning protection from hazardous materials:

– **Chemicals Act**

Regulation governing bans and limitations placed on the distribution of hazardous materials as well as preparations and products in accordance with the German Chemicals Act and the German Ordinance on Hazardous Substances:

– **Banned Chemicals Ordinance**
– **Ordinance on Hazardous Substances**

1.2 Other Requirements

The use of PVC should be limited to furniture elements for which no other suitable materials are available and which require the particular characteristics of PVC.

The use of PVC must be stated in the product information (PI). Removable PVC parts are not subject to this regulation, so long as they are clearly labelled as PVC parts.

Preparations (paints, adhesives, etching acid, coatings etc.) must not contain any substances of the following categories as component substances:

a, Carcinogenic of categories 1 or 2 according to Table 3.2 or categories 1A and 1B according to Table 3.1 of Annex VI of the EC Regulation 1272/2008[1]; for formaldehyde the limit values according to 3.1 “Formaldehyde emission” apply

b, Mutagenic of categories 1 or 2 according to Table 3.2 or categories 1A and 1B according to Table 3.1 of Annex VI of the EC Regulation 1272/2008

c, Teratogenic of categories 1 and 2 according to Table 3.2 or categories 1A and 1B according to Table 3.1 of Annex VI of the EC Regulation 1272/2008

d, Sensitising substances according to TRGS 907 and the EC Regulation 1272/2008, Annex VI

e, Substances which are particularly alarming due to other reasons and which have been included in the so-called Candidate List[2] that was compiled according to REACH Article 59 (1)

Excluded from these regulations are:

a, Process-related, technically unavoidable impurities that are below the classification limits for mixtures.

b, Monomers or additives that either react to polymers or are chemically (covalent) bonded to the plastic during plastics manufacturing, if their residual concentrations are below the classification limits for mixtures.

2. General Requirements for Test Samples

Investigations in test chambers can be carried out on **complete furniture units** as well as on **individual parts**. The selection of test samples should be agreed between the test centre and manufacturer and conducted in a way that all of the different models which are to be given the quality mark are represented in testing.

[1] Regulation (EC) No 1272/2008 of the European Parliament and the European Council of 16 December 2008 on Classification, Labelling and Packaging of Substances and Mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006, Annex VI Harmonised Classification and Labelling of Certain Hazardous Substances, Part 3: Harmonised Classification and Labelling. Short: CLP Regulation http://www.reach-info.de/ghs_verordnung.htm in the currently valid version. The CLP Regulation (Global Harmonisation System) which entered into force on 20.01.2009 replaces the old Directives 67/548/EEC and 1999/45/EC. Thereafter, classification, labelling and packaging of substances take place according to Directive 67/548/EEC (Dangerous Substances Directive) until 1 December 2010 and of mixtures according to Directive 1999/45/EC (Dangerous Preparations Directive) until 1 June 2015. Departing from this regulation, classification, labelling and packaging of substances and preparations can be carried out according to requirements of the CLP Regulation even before 1 December 2010 or 1 June 2015. Regulations of the Dangerous Substances Directive and the Dangerous Preparations Directive shall not apply in this case.

[2] Link for the candidate list of Regulation (EC) No 1907/2006 for Registration, Evaluation, Authorization and Restriction of Chemicals (REACH): https://echa.europa.eu/de/candidate-list-table

2.1 Test material

End products that fall within the area of application differ from each other when it comes to shape, materials and the amount of used materials. Therefore, the assessor responsible for the monitoring test or the testing institute must decide on test procedures and choose test pieces in agreement with the manufacturer in each individual case.
Two possible tests are intended for wooden and wood-based furniture with a three-dimensional surface:
a, Whole-body testing, in particular for small furniture, chairs etc.
b, Component testing, in particular for modular furniture and furniture programs with similar components.

a, Whole-body testing
The product to be examined must be taken directly from current production. Vendor parts may be max. 10 days old. A deviation from this regulation is permitted if the manufacturer can proof that individual vendor parts used in the normal production process are regularly older than 10 days.
Immediately after removal from production, the product must be placed in airtight packaging. Free standing cabinets must be closed when packed.

Note:
During component testing, it is permissible to use the following calculation formula to extrapolate the total concentration of complete products consisting of known area segments of the tested components, based on the established concentrations of volatile organic compounds of the individual components.
For each component, the proportionate area segments from the complete product must be calculated and inserted into the formula together with the determined emission values.

$$C_{determ.} = \frac{\sum_{i=10}^{N} A_i\,(>5\%) * C_i}{\sum_{i=1}^{N} A_i\,(\%)}$$

$C_{determ.}$ Calculated total concentration for the complete product in µg/m³

N Number of tested components

i Component index

A_i (%) Area segment of the i-th component in %

C_i Concentration of the i-th component in µg/m³

This method can be foregone if none of the tested components exceed the permissible emission values or if the entire product is tested.

b, Component testing

In the case of component testing, e. g. for furniture programs, the testing institute chooses the components to be examined in consultation with the manufacturer. Different used materials, in particular different coating systems, have to be taken into account here. The selection must guarantee that the requirements of the basic criteria of the product to be examined are met. For components with a total surface share of not more than 5% of the product, sample analyses and emission testing are not necessary.

Components to be examined should be taken in sufficient quantity directly from current production. Vendor parts may be max. 10 days old. A deviation from this regulation is permitted if the manufacturer can proof that individual vendor parts used in the normal production process are regularly older than 10 days. When it comes to flat components, at least 3 should be taken out as a pile and only the middle component should be used for emission testing.

The testing institute has to be consulted about the exact sample amount by taking the component's size and the necessary emission test chamber into consideration. Collected samples of identical components must be placed together in airtight packaging. The single samples should rest on top of each other as closely as possible to keep unavoidable emissions during transport to the testing institute as low as possible.

c, Transport

Packaged sample material should be transported to the testing institute as quickly as possible. The time period between packaging and arrival at the testing institute must not exceed 7 days.

2.2 Preparation of samples

Until the extraction of test pieces takes place, the sample material must be packaged while stored at the testing institute.

While preparing the test pieces for emission testing, only those flat components should be used that are stored at the core of the pile and not those stored on the sides of the pile.

Testing of components and complete products in their original state can be carried out in a large test chamber. Possible lower results for semi-volatile compounds have to be taken into account. Generally, test pieces have to be taken from sample material, which can be tested in a test chamber that is suitable for volatile organic compounds. Test pieces should represent used materials and different surfaces of the entire piece of furniture. Narrow surfaces uncovered by cutting must be sealed suitably.

Self-adhesive, low-emission aluminium foil has proven itself suitable for this. Possible emissions from the aluminium foil itself have to be identified in preliminary tests.

To calculate the emission area, the surfaces on both sides as well as the narrow sides (without - as a result of cutting of test pieces - subsequently sealed surfaces) have to be factored in.
After completing the test pieces, they have to be taken into the test chambers immediately or stored in packages until the test chamber is loaded. The time period between packaging of samples at the manufacturer and loading the chambers should be as short as possible (max. 14 days).

3. Special Emissions Requirements for Furniture

3.1 Formaldehyde emission

3.2 Emission of volatile organic compounds (VOC)

3.3 Odour

Parameter	**Cupboard Furniture**	**Upholstered Furniture (Chairs) Textile Cover**	**Leather / Artificial Leather**	**Mattresses [1)]**
Requirement for Formaldehyde after max. 28 days	≤ 0.05 ppm = ≤ 60 µg/m³	≤ 0.05 ppm = ≤ 60 µg/m³ = ≤ 240 µg/h	≤ 0.05 ppm = ≤ 60 µg/m³	≤ 0.05 ppm = ≤ 60 µg/m³
Other aldehydes after max. 28 days	---	≤ 240 µg/h = ≤ 60 µg/m³	≤ 60 µg/m³ Artificial leather	≤ 60 µg/m³
TVOC (C_6 – C_{16}) after 3 days after max. 28 days	≤ 3.0 mg/m³ ≤ 0.4 mg/m³	--- ≤ 450 µg/m³ = ≤ 1800 µg/h	--- ≤ 450 µg/m³	--- ≤ 200 µg/m³
TSVOC (>C_{16}–C_{22}) after max. 28 days	≤ 0.1 mg/m³	≤ 80 µg/m³ = ≤ 320 µg/h	≤ 80 µg/m³	≤ 40 µg/m³
CMR-substances [2)] after 3 days after max. 28 days	 ∑ ≤ 10 µg/m³ ≤ 1 µg/m³ per individual value	 ∑ ≤ 10 µg/m³ ≤ 1 µg/m³ per individual value	 ∑ ≤ 10 µg/m³ ≤ 1 µg/m³ per individual value	 ∑ ≤ 10 µg/m³ ≤ 1 µg/m³ per individual value
Odour (See following explanations)	≤ 3.0	≤ 3.0	≤ 3.0	≤ 3.0
Total VOC without NIK	≤ 0.1 mg/m³	≤ 40 µg/m³	≤ 60 µg/m³	≤ 40 µg/m³
R-Value [3)]	≤ 1	≤ 1	≤ 1	≤ 1

[1)] Testing method according to RAL-UZ 119

[2)] The substance Dimethylformamide (DMF, CAS 68-12-2) is treated separately during the assessment of CMR properties. For DMF, the limit value (based on the NIK value) is ≤15 µg/m³ after 28 days. The value after 3 days shall not be included in the summated rating. For the calculation of the R value, DMF must still be taken into account. This rule applies for a transitional period until 31.12.2021.

[3)] R-Value for an initial evaluation of the quantified test chamber concentration

Testing:

Parameter	**Cupboard Furniture**	**Upholstered Furniture (Chairs) Textile Cover Beds**	**Leather Artificial Leather**	**Mattresses**
Chamber volume	Min. 200 l	2 m^3 or 3 m^3 for single chairs	Min. 20 l	1 m^3
Temperature	23°C ± 1°C	23°C ± 1°C	23°C ± 1°C	23°C ± 1°C
Relative humidity	50 % ± 5 %	50 % ± 5 %	50 % ± 5 %	50 % ± 5 %
Air change and/or area-specific flow rate	1.0 m^3 / m^2h	4 m^3/h	1.5 m^3/m^2h	0.5 m^3/m^2h

Note: Upholstered chairs are tested with an air change of 2 m^3/h.
The following applies for upholstered beds and box-spring beds:
≤ 120 cm width with an air change of 8 m^3/h
> 120 cm width with an air change of 16 m^3/h

Evaluation as upholstered chairs (test chamber concentration)
The result reached after a 28-day duration stay in the test chamber is relevant.
If lower values are demonstrated before this, then the test may be shortened under certain conditions.

Testing
Requirements concerning test chamber procedures and the analysis thereof are based on the series of standards DIN EN ISO 16000 ff.

For textiles (e. g. upholstery fabrics and mattress cover materials), alternative test certificates according to ÖKO-TEX 100 in the Category 1 and 2 or according to IVN Naturtextil Siegel are also accepted as verification of the part “Protection of the Environment and Health” of RAL-GZ 430.

Exception: Permethrin is not included in the ÖKO-TEX Standard and must be tested separately – if it has a wool component.

3.4 Odour emission

The odour test must be carried out after a time period of **8 days at the earliest** and **28 days at the latest** in the test chamber. If there is previous testing according to Pt. 3.1 or 3.2, testing can be carried out

after the previous testing is completed. If multiple tests are carried out, the result of the last test series (longest period in test chamber) is definitive.

Requirements:
Threshold Values: Level 3
The majority of individual results must not exceed level 3.0.
Average values must be ≤ 3.0.
(Odour emission is the main reason for returned products)

Testing:

Odour neutral room:

Temperature:	*23°C ± 1°C*
Humidity:	*50 % rel. humidity, ± 5 % rel. humidity*
Air change rate:	*subject to type of test sample*
Chamber volume:	*min. 200 litres (with small test chambers, the odour test can only be used as orientation)*
Room loading:	*subject to type of test sample*

At least 7 test persons independently assess the odour intensity according to a 5-point scale:

1 = no odour
2 = weak odour
3 = distinctive, not unpleasant odour
4 = unpleasant odour
5 = unbearable odour

The following should be recorded:
Age and sex of the test persons
Room size
Room temperature
Room humidity (rel. humidity)
Date of assessment
Time span between production and odour assessment
Type of odour

Test persons:
The test team (at least 7 people, at least 3 of which must be female) should spend at least 10 minutes in a room with pure air before carrying out the assessment. The odour assessment is conducted in undiluted form. The senses of the test team should not become biased in connection with the odours to be evaluated.

Mean value:
A highest and lowest value from all the recorded data must not be used for calculating a mean value. Only the mean value is stated in test reports.

4. Additional Material Requirements

4.1 Additional material requirements for leather

	Threshold Value	Analysis Method
PCP, chlorophenols and bromphenols	each < 1 mg/kg	DIN EN ISO 17070
2-Thiocyanomethylthiobenzothiazol (TCMTB)	500 mg/kg	DIN EN ISO 13365
Methylene-bis-thiocyanate (MBT)	< 5 mg/kg	DIN EN ISO 13365
4-Chlor-3-methylphenol (CMK)	< 300 mg/kg*	DIN EN ISO 13365
N-Octylisothiazolinone (N-OIT)	< 100 mg/kg**	DIN EN ISO 13365
o-Phenylphenol (oPP)	< 500 mg/kg***	DIN EN ISO 13365
Azoic dyes, which release certain amines, are not permitted (in accordance with EU-Directive 2002/61/EC)	< 30 mg/kg	DIN EN ISO 17234-1 and -2
Carcinogenic, mutagenic or teratogenic dispersion dyes, potentially irritating dyes and pigments containing cadmium, mercury, lead or nickel must not be processed.		In accordance with DIN 54 231
Chromium (VI)	Not detectable ≤ 3 mg/kg	DIN EN ISO 17075

* Concentrations of 4-Chlor-3-methylphenol (CMK) can total up to 600 mg/kg, so long as the test chamber concentration does not exceed 12 µg/m^3 after 28 days.
** Concentrations of N-Octylisothiazolinone (N-OIT) can total up to 250 mg/kg, if concentrations of n-OIT in the test chamber are not provable after 28 days (< 1 µg/m^3).
*** Concentrations of o-Phenylphenol (oPP)) can total up to 1000 mg/kg, so long as the test chamber concentration does not exceed 23 µg/m^3 after 28 days.

Testing in the test chamber must last 28 days.

4.2 Additional material requirements for all other used materials

– **Chlorophenols**

Pentachlorophenols / Tetrachlorophenols / Trichlorophenols
Test samples: Natural fibres, wood-based materials, latex

Values to be maintained for individual biocides:

	PCP	**Tetrachlorphenols**	**Trichlorphenols**
Natural fibres:	< 1 mg/kg	< 1 mg/kg	--
Latex:	< 0.5 mg/kg	< 0.5 mg/kg	< 1 mg/kg
Wood-based materials:	< 3 mg/kg	< 3 mg/kg	--

Analysis methods
The sample is heated with 1 m KOH in a drying cabinet. An aliquot of the extract is derived with the acetic anhydride. The derivative is extracted with n-Hexane and analysed at the capillary GC using ECD. Other procedures are permitted, so long as comparability is proven.

– **Pyrethroids / Permethrin**

Test bodies: Wool material of animal origin
An effective **protection against moths** requires between 35 and 75 mg/kg, and between 75 and 100 mg/kg **against beetles**.

Concentrations between 3 mg/kg and 35 mg/kg should therefore be viewed as contamination without function and are not permitted.

The manufacturer is required to include the following sentence in the product information if products contain permethrin concentrations between 35 mg/kg and 100 mg/kg:

“Product contains permethrin to protect against pests that damage wool.”

Concentrations over 100 mg/kg are not permitted.

The following values must be maintained if the material is not protected against wool pests:

Permethrin < 3.0 mg/kg.
The concentration of the remaining proven pyrethroids must not exceed 1 mg/kg.

The manufacturer is required to include the following sentence in the product information if products adhere to this limit value:

“Not protected against pests that damage wool.”

Testing:
Determining absolute content in material samples

Approx. 1 – 5 g of material sample are weighed in an extraction thimble and closed with Glass wool or filter paper. The extraction thimble is extracted with a 1:1 n-Hexane-Acetone mixture for six hours in the Soxhlet extractor.

The extract is then compressed using a rotary evaporator and then topped up to a defined volume (approx. 5 ml) using an extraction agent.

Measurements are made on the GC-MS (SIM-Mode). Permethrin, Furmecyclox, Piperonylbutoxide, Tetramethrin, Cyfluthrin, Cypermethrin, Fenvalerate and Deltamethrin concentrations are recorded using this process.
Threshold values:
0.1 –1 mg/kg (depending on compound and initial weight)

– **Other biocides**

Test body: Textiles made from natural fibre and wool of animal origin

Insecticide/ fungicide and herbicide concentrations are to be recorded when using **natural fibres of plant origin**.

When using **fibres of animal origin,** only insecticide and fungicide concentrations need to be tested for.

Biocide tests are not required when using **synthetic fibres**.

Insecticides and fungicides:

Aldrin, Azinophosethyl, Azinophosmethyl, Bromophos-ethyl, Captafol, Carbaryl, Chlordane, Chlordimeform, Chlorfenvinphos, Coumaphos, Cyfluthrin, Cyhalothrin, Cypermethrin, DDD, DDE, DDT, Deltamethrin, Diazinon, Dicrotophos, Dieldrin, Dimethoat, Endosulfan (α- and β-), Endrin, Esfenvalerat, Fenvalerat, Heptachlor, Heptachlorepoxid, Hexachlorbenzol, Hexachlor-cyclo-hexan (α-, β- and δ-), Lindan, Malathion, Methamidophos, Methoxychlor, Mirex, Monocrotophos, Orthophenylphenol, Parathion, Parathion-methyl, Pentachlorphenol, Phosdrin/Mevinphos, Profenophos, Propetamphos, Quinalphos, Tetrachlor-phenol, Toxaphen (Camphechlor);

Herbicides:

2,4,5-T, 2,4-D, DEF, Dichlorprop, Dinoseb and salts, MCPA, MCPB, Mecoprop, Trifluralin.

The total content (sum) of detected biocides must not exceed 1 mg/kg.

Note: Proof can be supplied by submitting valid ÖKO-TEX Certificates of Category 1 and 2.

Exception: Permethrin is not included in the ÖKO-TEX Standard and must be tested separately – if it has a wool component.

Testing:
Different analytical methods are used depending on substance and family (e. g. extraction using Soxhlet column chromatography purification, qualitative and quantitative measurement using GC-ECD, GC-MS).
Threshold values: 0.1 – 1 mg/kg

– **Azodyes**

Azodyes which release certain amines are not permitted (according to Regulation (EC) No. 1907/2006).

This requirement applies to textiles and materials that come into mid- to long-term contact with the human skin (does not apply to cabinet furniture for example).

Test body: Leather, natural fibres and synthetic fibres

Threshold value(s):

The amines listed in Regulation (EC) No. 1907/2006 must not be detectable (that means < 30 mg/kg).

Testing:

The test procedure is described in the Official List of Investigative Procedures ("Amtliche Sammlung von Untersuchungsverfahren nach § 64 LFGB"):

Natural fibres:	*B 82.02-2 (DIN EN ISO 14362-1)*
Polyester fibres:	*B 82.02-4 (DIN 14362-2)*

The following must be stated in the test report, if concentrations per amine component under 30 mg/kg are found:

"According to the extent of testing undertaken, azodyes, the use of which is not permitted acc. to Regulation (EC) No. 1907/2006, were not found to be present."

Proof via manufacturer's declaration possible.

– **Dispersion dyes and pigments**

Carcinogenic, mutagenic or teratogenic dispersion dyes, potentially irritating dyes and dyes containing heavy metals are not permitted.

Testing according to DIN 54231

Proof via manufacturer's declaration possible.

– **CFC**

CFC must not be used in production (CFC-Halogen Ban).

Proof via certification.

– **Flame retardant for PUR foam**

The use of organic halogen flame retardants and plasticisers is not permitted (Exception: furniture in buildings with increased anti-fire protection, e. g. theatres).

Test body: PUR foams

Threshold value(s):

Tris(2-chlorethyl)phosphat (TCEP):	< 10 mg/kg
Tris(2-chlorpropyl)phosphat (TCPP):	< 50 mg/kg
Tris(1,2-dichlor-2-propyl)phosphate (TDCP):	< 50 mg/kg

Testing:
*Extraction und measurement using GC-MSD**
**or similar procedure*

– **Heavy metals**

The following requirements only apply to **furniture for toddlers**

Test body: Painted surfaces and any natural or synthetic fibres, e. g. seat covers etc.

T Threshold values: see Toy Standard DIN EN 71 Part 3.

– **PAC (Polycyclic aromatic hydrocarbons)**

Testing and evaluation according to AfPS GS 2014:01 PAC (Specification acc. to § 21 (1) No 3 ProdSG) and/or the relevant current standard

Proof via manufacturer's declaration possible.

Permitted PAC-maximum levels for materials of relevant contact/gripping and actuating surfaces which have to be categorised due to the results of risk assessment.

Parameter	Category 1	Category 2		Category 3	
	Materials destined to be put in the mouth or materials in toys with intended and long-term skin contact (more than 30 s)	Materials which are not part of Cat. 1, with an intended skin contact of more than 30 s (long-term skin contact) or repeated short-term skin contact		Materials which are not part of Cat. 1 or 2, with an intended skin contact of up to 30 s (short-term skin contact)	
		Toys acc. to Directive 2009/48/EC	Other products acc. to Product Safety Law	Toys acc. to Directive 2009/48/EC	Other products acc. to Product Safety Law
Benzo[a]pyrene mg/kg	< 0.2[2)]	< 0.2	< 0.5	< 0.5	< 1
Benzo[e]pyrene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[a]anthracene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[b]fluoranthene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[j]fluoranthene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[k]fluoranthene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Chrysene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Dibenzo[a,h]anthracene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[ghi]perylene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Indeno[1,2,3-cd]pyrene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Pyrene, Anthracene, Fluoranthene mg/kg	< 1 in total	< 5 in total	< 10 in total	< 20 in total	< 50 in total
Naphthalene mg/kg	< 1	< 2	< 2	< 10	< 10
Total 18 PAC[2)]	< 1	< 5	< 10	< 20	< 50

[1)] Expression “repeated short-term skin contact” from REACH Appendix XVII No 50 Supplement (VO [EU] No 1272/2013)

[2)] If the permitted limits of Category 1 are exceeded, but the limits of Category 2 can still be met, proof of suitability for contact with the oral mucosa via an additional specific migration testing for PAC-components according to the requirements of DIN EN 1186ff and § 64 LFGB 80.30-1 can be provided. Results of the migration have to be evaluated according to food law standards.

5. Environment Compatibility and Sustainability

The Deutsche Gütegemeinschaft Möbel supports the UN Global Compact and its 10 principles (Appendix 18).

The UN Guiding Principles for economy and human rights shall be implemented by the manufacturers. The implementation is documented during the monitoring tests.

The following criteria must be considered (proof via manufacturer’s declaration):

5.1 Use of materials

Solid wood and wood-based materials

Solid wood and wood-based materials must comply with the EU Regulation 995/2010 and as far as possible come from sustainable and legally cultivated forestry sources (FSC/PEFC documentation). If waste wood is used in wood-based materials, the Waste Wood Ordinance must be adhered to. Proof of pollutant limit values of the Waste Wood Ordinance according to testing in compliance with the EPF standard:

Plastic components

Plastic components >50 g should be labelled according to DIN EN ISO 11469 and not contain additives of other materials which are opposed to recycling.

Liquid coating systems

Operators of coating plants must meet the requirements of the 31st Federal Imission Control Act (BImSchV) or the European VOC Directive. This shall be proven via the manufacturer's declaration.

Adhesives

The VOC content of adhesives should not amount to more than 10% for water-based systems and more than 30% for systems based on solvents.

Wear parts

For wear parts, a functional, compatible replacement over a time period of at least 5 years is guaranteed. Because wear of upholstered surfaces is subject to the intensity of use and regular cleaning and care practices, this requirement does not apply to upholstered materials (textiles / leather).

Constructional layout

Principles of a recycling-suitable constructional layout (VDI 2243) have to be taken into account. The use of recyclable and biodegradable materials is to be preferred.

Durability

With adherence to the respective "Extra Quality and Testing Regulations" of this RAL and with an appropriate constructional layout, the durability of products is to be guaranteed.

Packaging material

Packaging material must be suitable for reuse or recycling. The design of the packaging must allow for existing volatile components of furniture to outgas.

Recycling and disposal

Concerning recycling and disposal, no material preservatives (fungicides, insecticides, flame retardants) or halogenated organic compounds may be added to the pieces of furniture or the materials used for their production (wood-based materials, adhesives, coating etc.).

This excludes fungicides which are only used for in-can preservation in water-based coatings and glues or flame retardants which use inorganic ammonium phosphates (diammonium phosphate, ammonium polyphosphate etc.), boron compounds (boric acid, borates) or other water-eliminating minerals (aluminium trihydrate etc.) for flame retardation.

5.2 Energy and eco-balance

Respective documents must show the efforts of manufacturers concerning the minimization of their atmospheric and energetic environmental pollution caused by the transport of their products and supplier material.

The use of self-generated renewable energy (e. g. the burning of waste wood) and additional purchases of CO2-neutral energy are to be preferred.

To optimize material and energy use concerning a sustainable eco-balance, the implementation of a life cycle assessment based on the systematization of the standards DIN EN ISO 14001, DIN EN ISO 14040 and DIN EN ISO 14044 is suitable.
A life cycle assessment and/or Environment Declaration of Products according to DIN EN ISO 14025 (EPD proof) is recommended.

5.3 Human and ecosystem health

Other than legal regulations on the handling of chemicals which are dangerous for mankind and the environment (e. g. REACH Regulation), this RAL-GZ 430 also includes extensive test requirements to guarantee pollutant-tested furniture.

5.4 Social responsibility

With regard to sustainable personnel development and to safeguard health, work protection and social working conditions, a company should - according to good management practice - document responsibilities and procedural rights concerning this matter.

This includes in particular:
- Fair recruitment practice
- Further training of employees
- Social responsibility for operational regulations
- Social ethics

Social ethics can include social measures for the local environment of a business facility (e. g. sponsoring of cultural or charitable institutions).

Compliance with the requirements can be proven through a membership of the UN Global Compact (see Appendix 18) or equivalent certificates.

Concerning the social responsibility for products of the supply chain that the company cannot influence directly, if possible, suppliers are to be preferred that take social standards into consideration.

6. Product Information (PI)

Notes on wearable parts and their repair or exchange, repair service if necessary: For wearable parts, a functional and compatible replacement must be guaranteed for a period of at least 5 years.

- Details concerning the origin and type of wood used
- Details concerning other used materials (Part > 3 weight percent)
- Notes concerning product assembly and disassembly for moving and subsequent material recycling. For specific product groups, the Eco-Design Directive (2009/125/EC) must be observed.
- Pieces of furniture that are subject to the Electrical and Electronic Equipment Act (ElektroG) must be appropriately labelled and the proper type of disposal must be included in the user manual.
- If the use of PVC is unavoidable, this must be stated in the product information.

7. Advertising

Adverts may not make any statements such as “biologically tested” or similar statements that play down dangers (e. g. “non-toxic”, “no risk to health”, “free from …”) as laid out in the EU Directive 67/548/EWG Article 23 (Designation) Section 4.