



**Österreichisches
Umweltzeichen**

Austrian Ecolabel Guideline UZ 06

Furniture

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Introduction

Most people spend about 90% of their time indoors. It is therefore of great importance for the quality of life to have low-pollutant furniture in living, sleeping and children's rooms, but also in offices and schools. Customary furniture can affect the room air with volatile organic compounds (VOC) for many months after furnishing. For this reason the present Guideline specifies requirements concerning the chemical substances in the primary components like varnishes, oils or glues. The limit values for pollutant emissions of the finished furniture are very low. In this way health deteriorations (e.g. Sick Building Syndrome), but also annoying odours, are to be avoided.

The Guideline covers furniture which consists predominantly of the material wood. There is no clear answer to the question whether furniture made of wood-based materials or furniture made of solid wood is more environmentally friendly. Particleboards contribute to the use of small timber and residual wood and therefore are useful in respect of waste management. Solid wood from sustainable forest management and wood-based panels with low emissions from the gluing of the wood particles can supplement each other usefully in ecological terms. Durability, stability and usability for many years are equally important ecological factors.

In any case, the types of wood used and the raw materials for the wood-based materials have to originate from legal sources. Furthermore, the entire wood is to come from forests that are managed according to the principles of sustainable forest management. Corresponding proof has to be furnished for at least 50 percent of the wood.

Requirements on the quality and durability of the furniture, on ease of repair or the availability of spare parts are principles of eco-design. They aim at enhancing the durability of the furniture and in this way serve both environmental protection and cost saving.

Ergonomic office and school furniture are indispensable for the health of users. Criteria in line with the relevant standards and the provision of information on ergonomically beneficial planning and use are therefore part of this Guideline as well.

1 Definition of the product groups

The following types of furniture are covered by the definition of the present Guideline (based on the definitions in ÖNORM A 1600-1 [1]):

- Furniture for the living area: for sleeping and living rooms, teenagers' and children's rooms, antechambers and wardrobes, kitchens and bathrooms.
- Office furniture
- Furniture for public buildings: for schools, nurseries and kindergartens, hospitals and sanatoriums, laboratories, workshops, commercial premises (shop fittings), restaurants, hotels and boarding houses, boarding schools and homes, barracks, function halls, theatres, cultural and sacred buildings, libraries, bathing and sports facilities, and meeting rooms.

Also doors, staircases and slatted frames are covered by the Guideline.

Outdoor furniture is not covered by this Guideline, but by Ecolabel Guideline UZ 28 "Weatherproof timber products".

Upholstered furniture items are covered by Ecolabel Guideline UZ 54 "Low-emission upholstered furniture", office work chairs by Ecolabel Guideline UZ 34 "Office work chairs and office chairs"; they are therefore not subject to the present Guideline.

Sauna furniture is excluded from the scope of this Guideline. In this context we would like to mention the position paper of the working group "Indoor air" at the BMLFUW¹.

1.1 Materials

Furniture carrying the Austrian Ecolabel shall predominantly (= more than 50 volume percent or weight percent) consist of the material wood. The following wood-based panels specified in ÖNORM EN 13986 [2] may be used for Ecolabelled furniture:

- Solid wood panels
- Plywood
- Oriented strand boards (OSB) made of long, thin woodchips
- Resin-bonded particleboards
- Fibreboards (e.g. MDF, soft fibreboards)

For surface treatment stains, oils and waxes, varnishes and glazes as well as powder coating are permitted.

Furthermore, also coatings with non-halogenated plastic, non-halogenated plastic lamination or edge protection are permitted.

The following non-wood materials can be part of the furniture:

¹ "Positionspapier zu Schadstoffvermeidung in Saunaanlagen"
<http://www.innenraumanalytik.at/pdfs/possauna.pdf>

- Metals – also with galvanised or anodised surface
Where galvanised metal is used, proof shall be furnished that neither chromium (VI) nor cadmium compounds are used in the galvanising process.
- Glass
- Natural stone slabs
- Resin-bonded mineral panels
- Leather provided verification of compliance with the criteria of Chapter 2.5
- Textiles provided verification of compliance with the criteria of Chapter 2.6
- HPL boards (high-pressure laminates, compact panels)
- The use of plastic components shall be explained and limited to a minimum which is functionally necessary (e.g. slide bearings). The use of halogenated synthetics is prohibited.

2 Health and environmental criteria

2.1 Origin of the wood

At least 50% of the wood or 50% of the primary raw materials for wood-based materials shall be sourced from sustainably managed forests.

The applicant shall indicate the types, annual quantities used and origins of the wood.

The following means of proof demonstrating the use of wood from sustainable forest management will be accepted:

- Certificates of FSC or PEFC for the transparency of the value-adding chain or
- any other, equivalent documentation.

Also by-products of sawing and recycled wood can be used as raw materials. The recycled wood used shall fulfil the provisions of the (Austrian) Regulation on Recycled Wood [3]. Assessment reports of the recycled wood used according to Annex 2 (Recycled wood) or Annex 3 (Recycled wood products) of the Ordinance on Recycled Wood have to be attached to the expert opinion.

For wood and wood-based materials awarded with the Austria Ecolabel Guideline UZ 07 (Wood and Wood-based Materials) the above-mentioned requirements will be deemed fulfilled.

2.2 General regulations for raw materials, auxiliary materials and feedstocks

The inspection body in charge of verification shall be notified of all materials and mixtures used for the manufacturing of the products.

Updated safety data sheets as specified in the REACH Regulation [4] shall be attached to the expert opinion in German or English language.

Materials and preparations which, during production, lose the below characteristics of hazardousness because they react shall be exempt from the quantitative restrictions mentioned.

Substances that are assigned any of the following R phrases according to the Dangerous Substances Directive [5] or H phrases according to the CLP Regulation [6] must not be used in their pure form; in mixtures they may be contained as a maximum to the limit values indicated in Table 1:

Table 1: Characteristics for classification and limit values

Annex VI to the Dangerous Substances Directive	CLP Regulation	Limit value in mass % *
Very toxic R26, R27, R28, R39/26, R39/27, R39/28	H300, H310, H330 H370	0.1
Toxic R23, R24, R25 R39/23, R39/24, R39/25 R48/23, R48/24, R48/25	H301, H331, H311 H370 H372	0.1
Carcinogenic	Carcinogenicity	
Cat.1, 2: R45, R49	Cat. 1A, 1B: H350, H350i	0.1
Cat. 3: R40	Cat.2: H351	1.0
Mutagenic	Germ cell mutagenicity	
Cat. 1, 2: R46	Cat. 1A, 1B: H340	0.1
Cat. 3: R68	Cat. 2: H341	1.0
Toxic to reproduction	Reproductive toxicity	
Cat.1, 2: R60, R61	Cat. 1A, 1B: H360F, H360D, H360FD, H360Fd, H360Df	0.1
Cat. 3: R62, R63	Cat. 2: H361f, H361d, H361fd	1.0
Addition lactation: R64	Toxic for reproduction on or via lactation: H362	1.0
Dangerous for the environment	Environmental hazards	
R50	Acute aquatic hazard: H400	1.0
R50/53	Chronic aquatic hazard Cat. 1: H410	1.0
R51/53	Cat.2: H411	1.0
R59	Hazardous to the ozone layer: EUH 059.	0.1
Substances which, according to Article 59 of the REACH Regulation, have been placed on what is known as the Candidate List. The version of the list of candidates up to date at the time of application shall apply. [7]		0.1
Substances meeting the criteria for PBT (persistent, bioaccumulative and toxic) or vPvB (very persistent and very bioaccumulative) (REACH, Annex XIII)		0.1
Substances which, according to the Regulation governing limit values [8], are clearly identified as carcinogenic agents (Annex III – A1 and A2) and classified as		0.1

Annex VI to the Dangerous Substances Directive	CLP Regulation	Limit value in mass % *
carcinogenic substance groups or compounds (Annex III – C).		
Substances which, according to the (Austrian) Regulation governing limit values ('Grenzwerteverordnung') are classified as reasonably suspected of having carcinogenic potential (Annex III – B).		1.0
<p>* The maximum quantities that may be used depend on the concentrations as from which the substances have to be mentioned in the safety data sheet. In cases where a specific limit value for the concentration has been laid down in the CLP Regulation, the lower value shall be used as the limit value.</p> <p>Substances classified as "dangerous for the environment" shall be exempted from this provision; they shall be subject to the limit values given in the table.</p>		

Halogenated organic compounds shall neither be used in production nor contained in the product. ²

The following **exceptions** shall apply:

Zinc phosphate (CAS 7779-90-0) and zinc oxide (CAS 1314-13-2) as insulating pigments can be added at a maximum of 2 %.

Diphenyl-2-ethylhexylphosphate (CAS 115-86-6) is permitted up to a level of 1.5%.

Triphenyl phosphate (CAS 115-86-6) is permitted up to a level of 0.2%.

In case this substance is put on the list of candidate substances according to REACH [7] this exception shall no longer apply; rather, the general concentration limit of 0.1% for all candidate substances, specified under REACH, shall apply.

2.3 Specific provisions for raw materials, auxiliary materials and feedstocks

In addition to Chapter 2.2, the following criteria shall apply.

2.3.1 Flame retardants

The use of halogenated flame retardants is not permitted. Where it is necessary to add flame retardants, inorganic ammonium phosphates (diammonium phosphate, ammonium polyphosphate etc.), other dehydrating minerals (aluminium hydrate or the like) or expandable graphite shall be used. The use of antimony oxides is not permitted.

² Maximum chlorine impurities permitted: 0.002 percent by mass

2.3.2 Requirements on liquid surface treatment agents and coatings

The liquid surface treatment agents and coatings used shall meet the following requirements:

- The VOC content of the oils and waxes used shall not exceed 10 w/w%.

In this context, the VOC definition set out in the DecoPaint Directive [9] shall apply:

Any organic compound having an initial boiling point of less than or equal to 250°C measured at a standard pressure of 101.3 kPa.

For varnishes and glazes:

- The VOC content of the varnishes and glazes used for the coating³ shall not exceed 8 w/w%.

In this context, the VOC definition set out in the DecoPaint Directive [10] shall apply:

Any organic compound having an initial boiling point of less than or equal to 250°C measured at a standard pressure of 101.3 kPa.

OR

- The VOC emission of 20 g/m² per coated furniture surface shall not be exceeded.

In this context, the VOC definition set out in the (Austrian) “VOC-Anlagen-Verordnung - VAV” [11] shall apply:

Any organic compound as well as the fraction of creosote, having at 293.15 K a vapour pressure of 0.1 kPa or more, or having a corresponding volatility under the particular conditions of use;

The requirements specified in Chapter 2.2 shall apply; moreover, the following ingredients shall not be added:

- Aromatic hydrocarbons (impurities up to a maximum share of 0.1 % will be tolerated).
- Biocidal finishes which go beyond in-can conservation (film/object conservation), in particular active substances against wood pests.
- Compounds containing arsenic, lead, cadmium, chromium (VI), mercury, and other toxic heavy metals. Any impurities which, however, shall not exceed

³ In case of two-component products the VOC content of the mixture ready for use mixture shall apply.

50 ppm in each case, 10 ppm for arsenic, and 2 ppm for cobalt and mercury, have to be substantiated.

- Cobalt compounds are limited to 0.1 % (as Co), manganese compounds to 0.5 % (as Mn).
- Softeners from the group of the phthalates or from the group of the organophosphates shall not be added to the varnish (impurities can be contained up to a level of 0.1 mass%).

In this context, the following exceptions shall apply (according to Chapter 2.2): Diphenyl-2-ethylhexylphosphate (CAS 115-86-6) is permitted up to a level of 1.5%.

Triphenyl phosphate (CAS 115-86-6) is permitted up to a level of 0.2%.

In case this substance is put on the list of candidate substances according to REACH [6] this exception shall not longer apply; rather, the general concentration limit of 0.1% for all candidate substances according to REACH shall apply.

- APEOs (alkylphenoethoxylates).

2.4 Emission limits

The tests for formaldehyde (Chapter 2.4.1), phenols (Chapter 2.4.2) or MDI (Chapter 2.4.3) need not be conducted if they are covered by the test-chamber measurement according to Chapter 2.4.4.

2.4.1 *Wood-based materials with binding agents containing formaldehyde*

Depending on the applied carrier material and the applied binding agent, the wood-based materials used and purchased by the applicant shall not exceed the following emission limits:

- 0.05 ppm (0.062 mg/m³) formaldehyde per m³ or
2.0 mg formaldehyde per m² and h

After the Guideline has been in force for 2 years, it is to be investigated whether there are any current developments on formaldehyde that make it necessary to discuss this limit value or any accompanying measures.

Test conditions:

The following methods can be applied to prove the concentration of formaldehyde:

Test chamber method according to **ÖNORM EN 717-1** [12] or the Formaldehyde Regulation in connection with Point 1 of the Decree implementing this Regulation [13]. The maximum admissible equilibrium concentration of formaldehyde in the test chamber is 0.05 ppm.

or

Average value of 2.0 mg formaldehyde/m²h measured using the gas analysis method as specified under **ÖNORM EN ISO 12460-3** [14].

or

Emission measurements according to Chapter 2.4.4.

2.4.2 Wood-based materials with binding agents containing formaldehyde

For boards, the test is carried out using a test chamber method according to ÖNORM EN ISO 16000-9 [15] or ÖNORM EN ISO 16000-10 [16], for products with three-dimensional surface according to ÖNORM EN ISO 16000-9 [15], and the subsequent provision in line with VDI 3485 Leaf 1 [17].

The concentration of phenols in the test chamber shall not exceed 10 µg/m³ (check after 24 h, 72 h and 28 days)

or

Measurement of emissions according to Chapter 2.4.4.

2.4.3 Wood-based materials with binding agents based on polymeric MDI (methyl diisocyanate)

For boards, the test is carried out using a test chamber method according to ÖNORM EN ISO 16000 Part 9 or ÖNORM EN ISO Part 10, for products with three-dimensional surface according to ÖNORM EN ISO 16000-9 [15], and the subsequent identification and quantification of the MDI according to ISO 16702 [18]. In the test chamber, no emissions of monomeric MDI shall be detectable (limit of detection 0.1 µg/m³).

or

Measurement of emissions according to Chapter 2.4.4.

For wood-based materials licensed under Guideline UZ 07 “Wood and wood-based products (“Holz- und Holzwerkstoffe” for the award of the Austrian Ecolabel, or under the German Ecolabel “Blauer Engel” for Low-Emission Panel-Shaped Materials (Construction and Furnishing Panels) for Interior Construction, RAL-UZ 76, the above-mentioned requirements will be deemed fulfilled.

2.4.4 Emission limits for VOCs

The products shall not exceed the following emission limits:

Substance	Day 3	Final value (Day 28)
Total Volatile Organic Compounds in the retention range C ₆ – C ₁₆ (TVOC)	≤ 3.0 mg/m ³	≤ 0.4 mg/m ³
Total Volatile Organic Compounds in the retention range C ₁₆ – C ₂₂ (∑ SVOC)	-	≤ 0.1 mg/m ³
Carcinogenic substances ⁴	≤ 10 µg/m ³ Sum	≤ 1 µg/m ³ per individual value
Total VOC not incl. LCI ^{5,6}	-	≤ 0.1 mg/m ³
R value ⁷	-	≤ 1
Formaldehyde	-	< 60 µg/m ³ (0.05 ppm)
Phenols (where wood-based materials with binding agents containing formaldehyde are used)		10 µg/m ³ ⁸
MDI (where wood-based materials with binding agents based on polymeric MDI are used)		Not detectable (Detection limit = 0.1 µg/m ³) ⁹
Ammonia ¹⁰		≤ 0.1 mg/m ³

The tests for formaldehyde, phenols or MDI can be omitted if they are detected according to Chapters 2.4.1, 2.4.2, respectively 2.4.3.

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- ⁴ Carcinogenic substances of Categories 1 or 2 according to Table 3.2 or Categories 1A and 1B according to Table 3.1 of Annex VI of Regulation (EC) 1272/2008
- ⁵ For a great number of VOCs of relevance to indoor air so-called "LCI" (Lowest Concentrations of Interest) are listed as auxiliary health-related parameters in the Annex to the AgBB assessment scheme. LCI = Lowest Concentration of Interest
- ⁶ Including non-identifiable substances
- ⁷ Substances listed in the annex to the AgBB scheme and whose concentration in the test chamber is ≥ 5 µg/m³, shall be considered in this assessment. Their quantification is substance-specific. For the assessment, the ratio R_i defined in the following equation is calculated for each compound i.
- $$R_i = C_i / LCI_i$$
- In this equation, C_i is the concentration of the substance in the test chamber. It is assumed that no effect will occur if R_i remains under 1. If the test shows that there are several compounds with concentrations ≥ 5 µg/m³, additivity of effects is assumed and it is laid down that R, that is, the sum of all R_i, must not exceed 1.
- $$R = \text{Sum of all } R_i = \text{sum of all quotients } (C_i / LCI_i) \leq 1$$
- ⁸ Determination as explained in VDI 3485 Leaf 1 [17]. Corresponds to the LCI value
- ⁹ Quantification of the MDI according to ISO 16702
- ¹⁰ Ammonia needs to be measured only in the case of wood which was treated with ammonia. The final value required for ammonia corresponds to the odour threshold.

For the assignment of the individual substances to the retention ranges C6 - C16, respectively > C16 - C22, the determination shall be based on a non-polar pillar. Individual substances comprise identified and non-identifiable compounds.

For an identification of all individual substances, in general a uniform detection limit of $1 \mu\text{g}/\text{m}^3$ is (first) used as a base to cover the emission spectrum as completely as possible in qualitative terms.

Depending on the requirements all individual substances shall be quantified and, from a concentration of $5 \mu\text{g}/\text{m}^3$, shall be considered both in the individual substance assessment and in the calculation of the relevant sums. There are exceptions for carcinogenic substances of the EU Categories 1 and 2.

Sample preparation: See ANNEX 3.

The following **measurement methods** will be recognised:

- ÖNORM EN ISO 16000-9 [15], in conjunction with ISO 16000-6 [19] and ÖNORM EN ISO 16000-3 [20] for formaldehyde
- CEN/TS 16516 [21]
- General rules of the DIBt concerning the health-related evaluation of construction products in indoor products¹¹, based on standard DIN (respectively ÖNORM) EN ISO 16000-9 [15]

Test chamber conditions:

Area-specific air flow rate $q = n/a(L) = 1.0 \text{ m}^3/\text{m}^2\text{h} \pm 0.1 \text{ m}^3/\text{m}^2\text{h}$, with

Air exchange (n) = $0.5 - 1.5 \text{ h}^{-1} \pm 3 \%$ and

Concentration in room (a (L)) = $0.5 - 1.5 \text{ m}^2/\text{m}^3 \pm 3\%$

For furniture licensed for the awarding of the German Ecolabel “Blauer Engel” according to the RAL Ecolabel for low-emission products made of wood and wood-based products (“Emissionsarme Produkte aus Holz und Holzwerkstoffen”) the above requirements will be deemed fulfilled.

Criteria for the anticipated termination of the measurement (according to the AgBB scheme [22]):

Anticipated termination of the test is permitted at the earliest 7 days after placing the test specimen into the chamber. The condition for such termination is that the values determined are less than half the requirements for the 28-day values and no significant increase in concentration of individual substances is observed in comparison to the measurement on day 3. The fulfilment of these criteria shall be sufficiently substantiated by the testing body.

¹¹ https://www.dibt.de/de/Fachbereiche/Referat_II4.html

In the event that the limit values for formaldehyde are substantiated by means of this measurement, the following criterion shall apply for anticipated termination:

The requirements on the formaldehyde emission of products that are carried out in a test chamber according to the above specifications will be deemed fulfilled where, in a determination using photometry considering EN 717-1 [12] or the DNPH method according to DIN ISO 16000-3 [23], after 3 days and 7 days the concentration of formaldehyde amounts to ≤ 0.05 ppm.

2.5 Requirements on leather ¹²

Chrome tanning

For leather, the content of chromate shall be determined; hexavalent chromate (Cr^{VI}) shall not be detectable (detection limit 3 mg/kg).

Conservation

The chemical conservation of skins and tanned semi-manufactured products for transportation and storage shall be avoided wherever possible.

Where conservation agents are used for the conservation of skins, they shall not contain substances having the following properties as constituting components:

1. Substances identified as Substances of Very High Concern under the Regulation (EC) No 1907/2006 REACH and which were put on the list prepared according to REACH, Article 59, paragraph 1, (so-called "Candidate List")¹³

2. Substances which, according to the criteria of Regulation (EC) No. 1272/2008 have been assigned to the following hazard classes and categories or which meet the criteria for such a classification:

- Carcinogenic of Category Carc. 1A or Carc. 1B
- Germ cell mutagenic of Category Muta. 1A or Muta. 1B
- Toxic for reproduction of Category Repr. 1A or Repr. 1B

3. Classified in TRGS 9055 [24] as:

- Carcinogenic (K1, K2)
- Mutagenic (M1, M2)
- Teratogenic (RF1, RF2)
- Damaging the fruit (RE1, RE2);

4. Classified in the MAK list of occupational exposure limit values [25]:

¹² The requirements on leather in accordance with Guideline UZ 54 on the awarding of the Austrian Ecolabel for Upholstered Furniture (harmonised with the Blue Angel Ordinance RAL-UZ 117 "Low-emission Upholstered Furniture").

¹³ Candidate list as applicable at the time of application. The list of candidate substances, as applicable, is available at: http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp.

- Carcinogenic working materials Category 1 or Category 2 or 3
- Germ cell mutagenic working materials Category 1 or Category 2, 3A or 3B, or

Substances which, according to the (Austrian) Regulation governing limit values ('Grenzwerteverordnung') [8], are clearly identified as carcinogenic working materials (Annex III – A1 and A2) and classified as carcinogenic substance groups or compounds (Annex III – C).

Furthermore, only conservation agents for which a determination procedure for leather exists and which have not been classified as a strong contact allergen (Cat. A) in the list of the German Federal Institute of Consumer Health and Veterinary Medicine (BgVV) [26] may be used.

Conservation agents are also subject to the maximum levels contained in the leather that are specified in ANNEX 1.

A chemical conservation of the finished leather is not permitted.

Dyes and pigments

The use of the dyes or pigments listed in ANNEX 2 is not permitted.

2.6 Requirements on textile products¹⁴

Dyes and pigments

The use of the dyes or pigments listed in ANNEX 2 is not permitted.

Biocides

Cover fabrics made of natural fibres of plant origin, of wool and other fibres of animal origin shall meet the requirements on pesticides of Oeko-Tex Standard 100 [27].

The requirements on dyes and pigments and biocides will be deemed fulfilled also if the textiles carry one of the following Ecolabels or quality labels: Oeko-Tex 100, EU Ecolabel for textile products [28], quality-label 'Natural Textile' [29], Austrian Ecolabel for Textile Products.

Mothproofing agents

For cover fabrics made of wool and other fibres of animal origin, pyrethroids / permethrin are used as mothproofing agents. A finish against moths is effective between about 35 and 75 mg/kg, against beetles between about 75 and 100 mg/kg.

¹⁴ Requirements on textile products according to Guideline UZ 54 on the awarding of the Austrian Ecolabel for Upholstered Furniture

Concentrations between 3 mg/kg and 35 mg/kg shall therefore be considered a contamination without effect and are not permitted. In the case of permethrin concentrations between 35 mg/kg and 100 mg/kg the manufacturer is obligated to add the following phrase to the consumer information:

“Product contains permethrin for wool moths pest control”.

Concentrations above 100 mg/kg are not permitted.

For woollens not treated against wool moths, the following limit values shall be complied with: Permethrin < 3.0 mg/kg. The concentration of the other pyrethroids detected shall not exceed 1 mg/kg. Complying with this limit value the manufacturer is obligated to add the following phrase to the consumer information:

“Not protected against wool moths.”

2.7 Production

The production site is defined as the place where the major part of production takes place.

- All official requirements and legal provisions, in particular concerning air, water, waste, environmental information and employee protection, shall be complied with.

Both for domestic production sites and for production sites abroad the relevant national provisions shall be met.

In cases where EU provisions are more stringent than national provisions, such EU provisions shall be complied with in any event.

The applicant shall confirm compliance with this requirement.

- A waste management concept shall be presented.
It has to contain the items listed in the Decree of the Austrian Federal Ministry of Environment, Youth and Family - BMUJF (now Federal Ministry of Agriculture, Forestry, Environment and Water Management - BMLFUW) [30] on the completeness of company-level waste management plans.

For production sites registered in accordance with the EMAS Regulation [31], the above-mentioned requirements will be deemed fulfilled. If, for the production site, there is an environmental management system certified according to the Austrian standard ÖNORM EN ISO 14001 [32], the audit results will be accepted as a means of proof demonstrating compliance with the above-mentioned requirements.

In addition, the following requirements shall be complied with:

2.7.1 Air and noise emissions (plant installation)

- Compliance with the air and noise emission limits provided for under the law and under official requirements shall be documented.

If there is an environmental management system for the production site which is certified in accordance with the Austrian standard ÖNORM EN ISO 14001 or validated in accordance with the EMAS Regulation, the audit results can be used to prove compliance with these requirements.

2.7.2 Exposure at the workplace

- With regard to the emission of solid suspended substances or agents which are harmful to health, verified compliance with the limit values, respectively the Technical Reference Concentrations, laid down in the Regulation governing limit values and the provisions of the Health and Safety at Work Act (ArbeitnehmerInnenschutzgesetz, ASchG) shall be provided.
- Minimising of noise emission in accordance with the requirements of labour law.

2.8 Durability and waste reduction

At least one of the “desirable criteria” shall be fulfilled:

➤ Repair and maintenance service

or

➤ Spare parts guarantee for wearing parts of at least 10 years and service phone for customers

or

➤ Establishment of a take-back system

2.9 Packaging

Any plastics used shall be free from halogenated organic compounds and shall not be based on styrene compounds.

Where this is possible, the products shall be packed in a way permitting the outgassing of volatile components after production.

Those putting packaging in circulation shall either take such packaging back themselves and utilise it or verifiably take part in a collection and recovery system. The provisions of the Austrian Packaging Regulation shall apply [33].

3 Fitness for use

By means of a random sample the quality of the piece of furniture and its technical properties shall be tested according to the applicable special standard. In subsequent tests, carried out for the purpose of extending the label's validity after expiration of the period of use, a different type of furniture (e.g. storage furniture, table,...) shall be investigated - where offered as an Ecolabel product.

3.1 Assessment of the quality of materials and workmanship

The quality of the materials and workmanship of furniture shall at least comply with the quality level "S" (standard) according to ÖNORM A 1610-1 [34].

3.2 Assessment of the construction, durability and safety

Construction, durability and safety shall be evaluated according to a special standard (ÖNORM or EN standard) applicable to the relevant type of furniture (e.g. storage furniture, table,...) of the tested random sample. Also comparable evidence like the GS symbol (for safety) or according to DIN Technical Report 147 will be accepted.

3.3 Assessment of the ergonomic properties

Desks shall be adjustable in height and the dimensions shall comply with the requirements of ÖNORM EN 527-1 [35].

The dimensions of the chairs and desks for the general classes at schools shall comply with the requirements of ÖNORM EN 1729-1 [36], ÖNORM EN 1729-2 [37] and ÖNORM A 1650 [38].

3.4 Drying and hardening of the surface coating

Optimum drying and hardening of the treated or coated surface shall be guaranteed (e.g. constant mass of the substances applied, monitoring of the operational effectiveness of the reflectors in radiation curing systems). The periodic maintenance of the relevant components shall be documented.

3.5 Assessment of the quality of the surface

In the test according to ÖNORM A 1605-12 [39] in combination with ÖNORM EN 12720 [40] the following evaluation categories have to be reached in respect of chemical exposure:

- General: Evaluation category 1 C
- Tabletops, kitchen fronts: Evaluation category 1 B
- Working tops: Evaluation category 1 A

If, for oil- and wax-based surfaces, care kits with instructions for maintenance and use for the different areas of application are supplied, the evaluation categories have to be reached only after the care measures described have been carried out.

3.6 Additional requirements on furniture for infants and children

Surfactants shall also comply with the requirements under ÖNORM EN 71, Part 3 [41].

4 Declaration

The following information shall be declared on the products or in a package insert ¹⁵:

- Name and headquarters of the label user (e.g. manufacturer, trader)
- Model designation (in the case of serial furniture)
- Quality of the furniture item according to ÖNORM A 1610-1 (“S” or “H”)
- Types of wood, wood-based materials and any other materials used
- Materials used for surface treatment or coating of the wood (e.g. treated with varnish, oiled / waxed)
- Dimensions (including measures important in terms of ergonomics, such as seat heights)
- Resilience (categories of evaluation)
- Care instructions
- Declaration of the services listed and fulfilled according to the “desirable criteria” under point 2.8 of the present Guideline.

In the case of office and school furniture, the following additional information shall be provided:

Information on the ergonomic design of office workplaces and classrooms which shall at least contain:

- Adjustment of the basic elements: Desk, chair, monitor, and light
- How to sit properly
- How to work properly at the monitor
- Floor space required

The entire product information (e.g. declaration, care instructions) shall be attached to the expert opinion.

¹⁵ For individual furniture items, parts of the declaration can also appear in the acknowledgement of the order. Furthermore, also the list of materials according to Point 5, with boxes to check, can be used to inform customers.

5 Normative standards, acts and other regulations

The documents referred to hereinafter contain provisions which are part of this Ecolabel Guideline. Legal provisions shall always be applied as amended. Dated references to other documents do not cover later modifications or revisions of the publication.

In the case of undated references the most recent version of the referenced document shall apply.

Austrian acts can be consulted in a binding way at <http://www.ris.bka.gv.at> ¹⁶.

The current versions of European Union Regulations and Directives are electronically retrievable at:

<http://eur-lex.europa.eu/de/index.htm>

- [1] ÖNORM A 1600-1: 2013, *Furniture – Part 1: Types and classification*.
- [2] ÖNORM EN 13986, 2005 “*Wood-based materials for use in construction - Properties, evaluation of conformity and labelling*”.
- [3] Regulation (EU) No 995/2010 of the European Parliament and of the Council of 20 October 2010 laying down the obligations of operators who place timber and timber products on the market, OJ No L 295 of 12 November 2010, p. 23.
- [4] Regulation (EC) No 1907/2006 of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Directive (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, Article 31 and Annex II; ^[1] Amendment 552/2009 Federal Law Gazette II 158/2005
- [5] Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances and its adaptations to technical progress.
- [6] Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on the 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

¹⁶ No responsibility is accepted for the correctness and completeness of the legal information system. It is exclusively the wording of the legal provisions published in the Federal Law Gazette, in a Provincial Law Gazette or in another publication medium that is decisive.

- [7] The current Candidate List is available at:
http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp
- [8] Federal Law Gazette II No. 429/2011: Regulation governing limit values 2011 ('Grenzwerteverordnung 2011', 'GKV 2011), of 20 December 2011
- [9] Directive 2004/42/EC of the European Parliament and of the Council of 21 April 2004 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products and amending Directive 1999/13/EC (OJ L 143 of 30 April 2004, p. 87) ("Decopaint Directive")
- [10] Directive 2004/42/EC of the European Parliament and of the Council of 21 April 2004 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products and amending Directive 1999/13/EC (OJ L 143 of 30 April 2004, p. 87) ("Decopaint Directive")
- [11] Ordinance of the Federal Minister of Economic Affairs, Family and Youth to implement Directive 1999/13/EC on the limitation of emissions due to the use of organic solvents in commercial plants ('VOC-Anlagen-Verordnung – VAV'), Federal Law Gazette II No 301/2002 as applicable.
- [12] ÖNORM EN 717-1:2005, *Wood-based materials – Determination of the emission of formaldehyde Part 1: Emission of formaldehyde according to the test chamber method*
- [13] Implementing Decree GZ 03 3632/1-II/6/95
- [14] ÖNORM EN ISO 12460-3: 2014, *Wood-based materials - Determination of the emission of formaldehyde. Part 3: Gas analysis method*
- [15] ÖNORM EN ISO 16000-9: 2011, *Indoor air pollutants – Part 9: Determination of the emission of volatile organic compounds from building products and furnishing - Emission test chamber method (ISO 16000-9:2006 + Cor 1:2007) (consolidated version)*
- [16] ÖNORM EN ISO 16000-10: 2006, *Emissions into indoor air – Part 10: Determination of the emission of volatile organic compounds from building products and furnishing - Emission test cell method*
- [17] VDI 3485 Leaf 1: 1988, *Measuring of gaseous pollutants; Measuring of phenols; p-nitroaniline method*
- [18] ISO 16702: 2007, *Workplace air quality -- Determination of total organic isocyanate groups in air using 1-(2-methoxyphenyl)piperazine and liquid chromatography*

- [19] ISO 16000-6: 2011, *Indoor air -- Part 6: Determination of volatile organic compounds in indoor and test chamber air by active sampling on Tenax TA® sorbent, thermal desorption and gas chromatography using MS or MS-FID*
- [20] ISO 16000-3: 2011, *Indoor air -- Part 3: Determination of formaldehyde and other carbonyl compounds in indoor air and test chamber air -- Active sampling method*
- [21] CEN/TS 16516:2013, *Building products - Evaluation of the release of hazardous substances - Determination of the emissions into indoor air - check*
- [22] AgBB: Procedure to be followed for the health-related evaluation of the emissions of volatile organic compound (VOCs) (VOC and SVOC) from building products. As applicable. Download October 2014:
http://www.umweltbundesamt.de/sites/default/files/medien/pdfs/agbb_bewertungsschema_2012.pdf
- [23] ISO 16000-3: 2011, *Indoor air -- Part 3: Determination of formaldehyde and other carbonyl compounds in indoor air and test chamber air -- Active sampling method*
- [24] GERMANY - Revised version of TRGS 905, *List of carcinogenic and mutagenic substances as well as of substances toxic for reproduction as applicable, last amended in July 2005.*
- [25] GERMANY - *List of MAK and BAT Values, Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe (Senate Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area), in Communication 43 (2007)*
- [26] *Chemikalien und Kontaktallergien – Eine bewertende Zusammenstellung.* Editors: D. Kayser and, E. Schlede, published by: Urban und Vogel, München 2001
- [27] Öko-Tex Standard 100, General and specific conditions, as applicable, last amended in January 2007. https://www.oeko-tex.com/en/manufacturers/concept/oeko_tex_standard_100/oeko_tex_standard_100.xhtml
- [28] Commission Decision 2009/567/EC of 9 July 2009, OJ L 197/70 of 29 July 2009.
- [29] International Association of Natural Textile Industry e.V., *Guideline as of 20 January 2000*
- [30] Austrian Federal Ministry of Environment, Youth and Family Affairs (now Federal Ministry of Agriculture, Forestry, Environment and Water Management): “Erlass zum Abfallwirtschaftsgesetz und seinen Verordnungen” Decree on the Waste Management Act and its ordinances of 16 August 1995 (ref. no. 47 3504/404-III/9/95),
<http://www.bmlfuv.gv.at/greentec/abfall-ressourcen/betriebliche-abfallwirtschaft/konzepte.html>

- [31] Regulation (EC) No 761/2001 of the European Parliament and of the Council of 19 March 2001 allowing voluntary participation by organisations in a Community eco-management and audit scheme (EMAS), Official Journal L 114 of 24/04/2001, pp. 0001 - 0029
- [32] ÖNORM EN ISO 14001:2009, *Environmental Management Systems - Requirements with guidance for use*
- [33] Federal Law Gazette Austrian Federal Law Gazette 648/1996
"Verpackungsverordnung" (Austrian Packaging Ordinance)
- [34] ÖNORM A 1610-1: 2014, *Furniture - requirements – Part 1: Material and workmanship*
- [35] ÖNORM EN 527-1: 2011, *Office furniture - Desks - Part 1: Dimensions*
- [36] ÖNORM EN 1729-1: 2007, *Furniture - Chairs and desks for educational institutions - Part 1: Functional dimensions*
- [37] ÖNORM EN 1729-2: 2012, *Furniture - Chairs and desks for educational institutions - Part 2: Safety requirements and test procedures*
- [38] ÖNORM A 16001650: 2007, *Chairs and desks for the general classes at school - Provisions supplementing ÖNORM EN 1729-1 and ÖNORM EN 1729-2, standard labelling*
- [39] ÖNORM A 1605-12: 2007, *Specifications for furniture testing - Furniture surfaces*
- [40] ÖNORM EN 12720 2013, *Furniture - Assessment of surface resistance to cold liquids*
- [41] ÖNORM EN 71-3: 2014, *Safety of toys – Part 3: Migration of certain elements*

ANNEX 1

Conservation agents are subject to the maximum levels contained in the leather as protection during transport and storage (maximum value I):

- | | |
|---------------------------------------|-------------|
| ➤ 4-chloro-3-methyl phenol | < 300 mg/kg |
| ➤ N-octylisothiazolinone | < 100 mg/kg |
| ➤ O-phenyl phenol | < 500 mg/kg |
| ➤ 2-thiocyanomethyl thiobenzothiazole | < 500 mg/kg |

If the maximum level I is exceeded, an emission test is required in addition. In cases where the emission test shows that the test-chamber concentrations indicated⁽¹⁷⁾ are not reached, the following maximum values shall apply (maximum II):

	<u>Maximum II</u>	<u>Concentration in test chamber</u>
➤ 4-chloro-3-methyl phenol	< 600 mg/kg	< 12 µg/m ³
➤ N-octylisothiazolinone	< 250 mg/kg	< 1 µg/m ³
➤ o-phenyl phenol	< 1000 mg/kg	< 23 µg/m ³

The following substances shall not be contained: Depending on the analytical method and the detection limit of these substances, this will be considered to be fulfilled if the following maximum values in the leather are not exceeded:

- | | |
|--|-----------|
| ➤ Chlorophenols (including salts and esters) | < 1 mg/kg |
| ➤ Bromophenols (including salts and esters) | < 1 mg/kg |
| ➤ Methylen-bis-thiocyanate (MBT) | < 5 mg/kg |

More maximum values can be incorporated into Annex 1 by the Federal Environment Agency (Germany) in coordination with LGA Bayern and the specialist leather institutes LGR Reutlingen and FILK Freiberg. In the same way the maximum values can be adjusted to the state-of-the-art.

⁽¹⁷⁾ The test is subject to the same test parameters as those described under Point 3.2.1 of the criteria for the awarding of the environmental label RAL-UZ 117 "Low emission Upholstered Furniture". In derogation thereof, the test shall not be terminated prematurely (emissions shall be measured on day 28).

Analytical methods:

For chlorophenols, bromophenols, 4-chloro-3-methylphenol and o-phenyl phenol the following methods can be applied:

- A defined amount of the chopped leather sample is heated in the heating chamber with 1 m KOH. An aliquot of the extract is derivatised using acetic anhydride. The derivate is extracted with n-hexane and analysed in the capillary GC by means of MSD. Alternatively, the halogenated phenols can also be analysed by means of ECD.
- Procedures specified in the German Food and Feed Code ("LFGB") (section 64) or similar methods.
- An accelerated extraction method, followed by a silyation (e.g. with BSTFA) and subsequent analysis with capillary GC/MS.

N-octylisothiazolinone, 2-thiocyanomethyl thiobenzothiazole (TCMTB) are determined using HPLC and UV detector. For sample preparation, a defined quantity of the chopped leather sample is extracted with methanol in the Soxhlet apparatus (or with an accelerated extraction technique) and, after filtration through a membrane, is chromatographed, e.g. with methanol/water/acetic acid 75/25/0.4.

Alternatively, also other suitable eluents can be used.

ANNEX 2

Dyestuffs and pigments that are not permitted:

Azocolourants which may release one of the following aromatic amines (according to Directive 2002/61/EC):

4-aminobiphenyl	(92-67-1),
benzidine	(92-87-5),
4-chloro-o-toluidine	(95-69-2),
2-naphthylamine	(91-59-8),
o-aminoazotoluene	(97-56-3),
2-amino-4-nitrotoluene	(99-55-8),
p-chloroaniline	(106-47-8),
2,4-diaminoanisole	(615-05-4),
4,4'-diaminodiphenylmethane	(101-77-9),
3,3'-dichlorobenzidine	(91-94-1),
3,3'-dimethoxybenzidine	(119-90-4),
3,3'-dimethylbenzidine	(119-93-7),
3,3'-dimethyl-4,4'-diaminodiphenylmethane	(838-88-0),
p-cresidine	(120-71-8),
4,4'-methylene-bis-(2-chloro-aniline)	(101-14-4),
4,4'-oxydianiline	(101-80-4),
4,4'-thiodianiline	(139-65-1),
o-toluidine	(95-53-4),
2,4-diaminotoluene	(95-80-7),
2,4,5-trimethylaniline	(137-17-7),
4-amino azobenzene	(60-09-3),
o-anisidine	(90-04-0).

Dyes that are carcinogenic, mutagenic or toxic to reproduction (according to Decision 2002/371/EC (EU ecolabel for textile products) and Oeko-Tex Standard 100):

C.I. Basic Red 9	C.I. 42 500
C.I. Disperse Blue 1	C.I. 64 500
C.I. Acid Red 26	C.I. 16 150
C.I. Basic Violet 14	C.I. 42 510
C.I. Disperse Orange 11	C.I. 60 700
C.I. Direct Black 38	C.I. 30 235
C.I. Direct Blue 6	C.I. 22 610
C.I. Direct Red 28	C.I. 22 120
C.I. Disperse Yellow 3	C.I. 11 855

Potentially sensitising dyes (according to Decision 2002/371/EC and Oeko-Tex Standard 100):

C.I. Disperse Blue 3	C.I. 61 505
C.I. Disperse Blue 7	C.I. 62 500
C.I. Disperse Blue 26	C.I. 63 305
C.I. Disperse Blue 35	C.I.
C.I. Disperse Blue 102	C.I.
C.I. Disperse Blue 106	C.I.
C.I. Disperse Blue 124	C.I.
C.I. Disperse Brown 1,	
C.I. Disperse Orange 1	C.I. 11 080
C.I. Disperse Orange 3	C.I. 11 005
C.I. Disperse Orange 37,	
C.I. Disperse Orange 76 (formerly Orange 37)	
C.I. Disperse Red 1	C.I. 11 110
C.I. Disperse Red 11	C.I. 62 015
C.I. Disperse Red 17	C.I. 11 210
C.I. Disperse Yellow 1	C.I. 10 345
C.I. Disperse Yellow 3	C.I. 11 855
C.I. Disperse Yellow 9	C.I. 10 375
C.I. Disperse Orange 39,	
C.I. Disperse Yellow 49.	

Dyes containing heavy metals

Dyes and pigments containing cadmium, mercury, lead or nickel

ANNEX 3

Whole-body testing

The product to be tested shall be taken right from the ongoing process of production. Any supply parts shall not be older than 10 days. Deviations from this provision can be made where the manufacturer provides evidence that individual supply parts are regularly older in the normal production process.

Right after the product has been taken out of production, it shall be packed airtight. In case of free-standing cabinetry, the unit shall be closed before being packed.

Component testing

In the case of component testing, for example for furniture programmes, the components to be checked are selected by the test institute in coordination with the manufacturer. Attention shall be paid to the different materials used, in particular to the different coating systems. The selection shall be carried out in a way that compliance with the requirements of the basic criteria for award for the product to be investigated is ensured. In the case of components which, in sum, do not cover more than 5% of the product's surface it is not necessary to draw samples and to conduct an emission test.

A sufficient amount of the components to be investigated shall be drawn directly from the ongoing production. In case of supply parts, the latter shall not be older than 10 days. Deviations from these provisions can be made where the manufacturer furnishes proof that individual components used are regularly older in the normal production process. In case of flat components at least 3 parts shall be taken as a stack of which only the mid one is used for the emission testing.

The exact sample size, considering the size of the component and the emission test chamber to be used, shall be coordinated with the test institute. The samples drawn of equal components shall be packed airtight together without delay. The individual samples shall be as closely stacked as possible in order to minimise the unavoidable emissions during the transport to the test institute.

Transport

The packed sample material shall be transported to the test institute as quickly as possible. There must not be more than 7 days between packing and the arrival at the test institute.

Preparation of samples

Until the extraction of the test specimen, the sample material shall be stored packed at the test institute. When preparing the test specimen for the emission test of flat components, only the components located inside, not those outside the stack shall be used. The testing of components and complete products can be carried out in the original state, in a big test chamber. Attention shall be paid to the fact that there might be too low values for semi-volatile organic compounds (see 5.1). As a general rule test specimen that can be examined in a test chamber suited for volatile organic compounds shall be drawn from the sample material. The test specimens are to represent the materials used and the different surfaces of the component. Narrow faces exposed due to the cutting shall be sealed in an appropriate manner. Self-adhesive, low-emission aluminium foil has proved to be well suited for this purpose. The aluminium foil shall be tested for self-emission in preliminary tests. When calculating the area of emission, the surfaces of both sides and the narrow faces (without the area subsequently sealed due to the cutting of test specimen) shall be considered.