Österreichisches Umweltzeichen

Austrian Ecolabel
Criteria UZ 17

Wall paints

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Introduction

Low-pollutant wall paints are applied over large areas and are therefore particularly important for the quality of indoor air. Most people spend about 90 % of their time indoor. Some solvents and other volatile organic compounds (VOCs and SVOCs) can affect a room’s air for months after the painting.

The present Guideline allows the labelling of indoor wall paints that contain only traces of organic solvents and SVOCs and do not contain biocidal active substances for film or object conservation. To keep the risk of allergies as low as possible the use of biocidal active substances for in-can conservation is strictly regulated. Ingredients which have a harmful effect on health or may have negative impacts on the environment are largely excluded from use. In addition, sufficient fitness for use of the paint must be proved.

A detailed declaration is to allow safe and proper application of paints as well as the environmentally sound disposal of product residues. This ensures that paints which have been awarded the Ecolabel represent an environmentally sound alternative on all levels of the product cycle.

1 Definition of the product group

Low-emission indoor wall paints. Silicate paints must not contain organic ingredients; dispersion silicate paints may include not more than 5 % of organic components [1]. Distemper must not contain more than 2 % of organic components other than cellulose. The Ecolabel will not be awarded to:

- Coating materials whose biocide equipment goes beyond in-can conservation (film or object conservation).
- Fillers and renders (with a thickness of > 400 µm or more).
- Wall paints which are advertised with specific functions, like “energy-saving paints”, “anti-mould paints” etc. [1]

All % or ppm data refer to the mass of the ready to use product. The below requirements apply accordingly to the means of pre-treatment indicated mentioned.

2 Health and environmental criteria

2.1 General regulations for raw materials, auxiliary materials and feedstocks

The bodies in charge of verification have to be informed of all materials and mixtures used to manufacture the products.
Updated safety data sheets (date max. 2 years ago) as specified in the REACH Regulation [2] have to be attached to the opinion in German or English language.

Biocides used for in-can conservation are subject to the rules under 2.2.1 and under 2.1 only to the regulations for CMRs.

Substances and mixtures which, during production, lose the below characteristics of hazardousness (e.g. where they have been allowed to react) are exempt from the quantitative restrictions mentioned.

<u>The following applies:</u>
Substances assigned to any of the following H phrases pursuant to the CLP Regulation [3] must not be used or applied in their pure form to manufacture the products.
In mixtures, used or applied to manufacture the products, these substances may as a maximum be contained to the amounts specified in Table 1.
In cases where a specific concentration limit has been set the CLP Regulation, the lower value has to be used as the limit. Only the limits for “environmental hazards” apply generally.

> Note: The maximum quantities that may be used correspond to the concentrations as from which the substances have to be mentioned in the safety data sheet. Hence, if a

[1] Exception: If a specific function can be proved via an appropriate standard or at least two independent, recent verification opinions and is not in contradiction with the other requirements and objectives of this Guideline (e.g. a biocidal equipment which goes beyond in-can conservation is excluded from the Ecolabel).
In this context, advertising relates to all media (e.g. packs, brochures, technical data sheet, internet). If necessary, also quantitative advertising statements on a function have to be checked.

substance falling within one of the hazard categories under 3.1 of the safety data sheet, the substance or the mixture must not be used.
Exception: Environmental hazards. In this case, compliance with the concentration limits listed has to be verified.

Table 1: Hazard statements (hazard categories) and respective general limits.

Hazard statements (Hazard categories)	**General limit in weight %**
Acute Toxicity of Category 1, 2 or 3	
H300 (Acute Tox., oral Cat. 1 and 2) **H310** (Acute Tox., dermal Cat. 1 and 2) **H330** (Acute Tox., inhalation Cat. 1 and 2)	0.1
H301 (Acute Tox., oral Cat. 3) **H311** (Acute Tox.. dermal Cat. 3) **H331** (Acute Tox., inhalation Cat. 3)	0.1
Specific Target Organ Toxicity (STOT) of the Category 1	
H370 (STOT single exposure Cat. 1) **H372** (STOT repeated exposure Cat. 1)	1.0
Carcinogenicity	
H350, H350i (Cat. 1A, 1B)	0.1
H351 (Cat. 2)	0.1
Germ cell mutagenicity	
H340 (Cat. 1A, 1B)	0.1
H341 (Cat. 2)	1.0
Reproductive toxicity	
H360F, H360D, H360FD, H360Fd, H360Df (Cat. 1A, 1B)	0.1
H361f, H361d, H361fd (Cat. 2)	0.1
H362 (Toxic to reproduction on or via lactation)	0.1
Sensitizing	
H334 (respiratory sensitisation Cat. 1 and 1B)	0.1
H334 (respiratory sensitisation Cat. 1A)	0.01
H317 (skin sensitisers Cat. 1 and 1B)	0.1
H317 (skin sensitisers Cat. 1A)	0.01
Environmental hazards	
H400 (Very toxic to aquatic life)	1.0
H410 (Toxic to aquatic life with long lasting effect, Cat. 1)	1.0
H411 (Toxic to aquatic life with long lasting effect, Cat. 2)	1.0
H420 Harms public health and the environment by destroying ozone in the upper atmosphere	0.1

Hazard statements (Hazard categories)	General limit in weight %
Substances that, 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 that is up to date at the time of application shall apply.[2]	0.1
Substances classified as PBT **(persistent, bioaccumulative and toxic)** or vPvB **(very persistent and very bioaccumulative)** (REACH, Annex XIII)	0.1
Substances which, according to the (Austrian) Ordinance on Occupational Exposure Limits (*"Grenzwerteverordnung"*) are **clearly identified as carcinogenic agents** (Annex III – A1 and A2) and classified as carcinogenic substance groups or compounds (Annex III – C).[4]	0.1
Substances which, according to the *"Grenzwerteverordnung"* are classified as **reasonably suspected of having carcinogenic potential** (Annex III – B).	1.0

The following **exceptions** apply:

- Biocides for in-can conservation approved according to 2.2.1.

2.2 Specific regulations for raw materials, auxiliary materials and feedstocks

The following substances must not, or only in limited amounts, be added to the product:

- The wall paint may be contaminated with no more than 500 ppm VOC [5], of which no more than 100 ppm may be aromatic hydrocarbons. This applies also to ready to use paints from colour mixing systems.
  Evidence: Determination according to ÖNORM EN ISO 11890-2 [6] or ÖNORM EN ISO 17895 [7] carried out by an accredited test laboratory. If colours are applied for, a test has to be carried out according to the worst-case principle.
- Plasticisers according to VdL-RL 01 [8], see **Annex A** to this Guideline.
- The wall paint must not contain more than 200 ppm SVOC [9] (including any contaminations by plasticisers - evidence by means of formula and safety data sheets).
  Evidence in the case of samples: Determination based on ÖNORM EN ISO 11890-2 [6] with the marker substances n-Tetradecane (n-C14) and n-Docosane (n-C22).
- Halogenated organic compounds must not be used in production or contained in the product. Maximum chlorine impurities permitted: 0.002 percent by mass.

[2] https://echa.europa.eu/de/candidate-list-table

- Compounds containing arsenic, lead, cadmium, mercury, and other toxic heavy metals. Any impurities have to be substantiated, but in any case must not exceed 50 ppm in the individual case, 10 ppm for arsenic, 3 ppm for chromium (VI), and 2 ppm for cobalt and mercury.
  Declaration by the producer which can be verified by means of samples (evidence in the case of samples: Mercury as specified in ÖNORM EN ISO 12846, all others as specified in ÖNORM EN ISO 17294-2).
- APEOs (alkylphenolethoxylates).
- The titanium dioxide used must comply with Directive 2010/75/EU [10]

2.2.1 Preservatives

Conservation is permitted exclusively for storage and transport and only using the substances (mixtures) and concentrations listed below:

The content of preservatives from in-can conservation or from preserved pre-products must not exceed the following quantities:

CIT (CAS 26172-55-4)	15 ppm
MIT (CAS 2682-20-4)	15 ppm
CIT / MIT (CAS 55965-84-9)	15 ppm
BIT (CAS 2634-33-5)	200 ppm
Sodium pyrithione (CAS 3811-73-2)	200 ppm
Bronopol (CAS 52-51-7)	200 ppm
3-iodo-2-propinylbutylcarbamate (IPBC, CAS 55406-53-6)	80 ppm
free formaldehyde (CAS 50-00-0)	10 ppm

In case of combinations, a maximum of 400 ppm of preservatives may be contained; the above-mentioned single values must not be exceeded and must not lead to an H317 product labelling. The values must be calculated using the data from the safety data sheets and the formula.

If a paint is labelled as being preservative-free, the following limits apply at a maximum content of altogether 10 ppm:

CIT (CAS 26172-55-4)	0.5 ppm
MIT (CAS 2682-20-4)	1.5 ppm
BIT (CAS 2634-33-5)	2 ppm
Sodium pyrithione (CAS 3811-73-2)	2 ppm
Bronopol (CAS 52-51-7)	2 ppm
3-iodo-2-propinylbutylcarbamate (IPBC, CAS 55406-53-6)	2 ppm
free formaldehyde (CAS 50-00-0)	2 ppm

For detection in the case of labelling as preservative-free or in the case of samples, see **Annex B.**

Furthermore, in the case of paints containing in-can preservatives, anti-contamination measures have to be taken and proved (choice of raw material, hygiene measures during the production process to minimise in-can preservation).

If paints are labelled as being “biocide-free” or “preservative-free” (accordingly), the requirements have to be met:

- A quality assurance system (QA system) for the company hygiene is in place.
- Use-by date on the pack (“Use before...” - month and year).

2.2.2 Synthetic nanomaterials

Synthetic nanomaterials of 1 - 100 nm (as specified in the EU Commission definition – for more detailed definition and further details on nanomaterials, see **Annex C** to this Guideline- may be added only in line with the principle of precaution and subject to the following conditions:

- Nanomaterials contained in the product, as defined in the present Guideline, and information about the benefit or added value of the “nano-product” compared to the conventional product must be explained in the opinion[3].
- In addition an objective assessment of the (higher) benefit gained due to the addition of the nanomaterial is desirable.
- The available data and literature must sufficiently document the safety of use in respect of humans, health and the environment. The basic test has to be carried out using the Swiss precautionary matrix for synthetic nanomaterials (“Vorsorgeraster”), avalable at: www.dv-nano.de/fileadmin/user_upload/PDF-Dateien/5_bag_vorsorgeraster.pdf
- Nanomaterial has to be declared using “Name of the material (nano)” in analogy to the Cosmetics Regulation [11]:

  + if “nano properties” are used to advertise the product

  or

  + if the product achieves special properties that are based on nanotechnologies: e.g.: self-cleaning paints, varnishes for UV protection, photocatalytic paints, varnishes with enhanced UV protection - see also, for example, position paper of the FCIO [12].

2.3 Prohibited classifications of the mixtures

Substances and mixtures with hazardous properties in concentrations leading to a classification and labelling of the final mixture with a CLP hazard pictogram for health and environmental hazards must not be added to the product.

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3 See also “Interessengemeinschaft Detailhandel Schweiz (IG DHS)”, among others point 3.2: https://ig-detailhandel.ch/download/219/coc_nanotechnologien_d_150210.pdf.

The updated safety data sheets as specified in the REACH Regulation of the products to be labelled shall be attached to the opinion in German or English language. They must in no case be older than 2 years.

2.4 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, the EU provisions must be complied with at all events.
  The applicant shall confirm compliance with this requirement.

- A waste management concept as specified in the (Austrian) Waste Management Act 2002 (“AWG 2002”) [13] has to be presented.

For production sites registered in accordance with the EMAS Regulation [14], 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 [15], the audit results will be accepted as a means of proof demonstrating compliance with the above-mentioned requirements.

2.5 Packaging

- Any plastics used has to be free from halogenated organic compounds.
- For liquid or viscous products, the packaging has to be re-closeable.
- For DIY paints, the offer of batch sizes has to be differentiated enough to ensure that consumers will not generally produce excessive residues of products.
- 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 Ordinance shall apply [16].

3 Fitness for use

Compliance with the below-mentioned requirements for a product’s fitness for use has to be proved for at least one colour of the colour scale of a product type, according to the free coice of the reviewer. The examinations have to be carried out in the system (e.g. using primers).

The criteria of the fitness for use are defined in analogy to ÖNORM EN 13300 and ÖNORM EN 13300/AC [17].

- Opacity and spreading rate:

- Contrast ratio class 3 as a minimum, measurement of the spreading rate (for information, see [18]).
- Wet scrub resistance
- If, in the declaration, the compliance with the requirements of other national or international standards is used to advertise the product, this has to be proved by means of suitable verification certificates.

As regards the above-mentioned requirements, the expert opinion shall be accompanied by a test report based on ÖNORM EN 13300 and, if necessary, further standards.

4 Declaration

- Product labelling and classification as prescribed by the law.
- Information on the grounds for which the paints can be used and the pre-treatment of old paint coatings.
- Instructions for use in the system (e.g. primer) and drying time.
- Data concerning the opacity (class according to ÖNORM EN 13300 with indication of the contrast ratio in %) in connection with the spreading rate (m²/l or m²/kg) and wet scrub resistance.
- Protective measures when working with the product:
- "Ensure proper ventilation when working with the product and during the drying process."
- At any rate, the potential pH-value has to be checked by the expert reviewer and indicated in the expert opinion in the case of mineral paints or "biocide-free" paints.
- Measures concerning disposal:
- Information concerning cleaning and dilution according to the principle of minimum environmental stress.
- Information concerning disposal for product and packaging residues.
- On the packaging, all ingredients have to be declared in line with VdL Guideline 01 according to the following groups of raw materials, in decreasing order of the quantities added (without indication of the quantity) [8]:

  ⇒ Group of the binder(s)

  ⇒ Pigments: Separately by anorganic and organic groups

  ⇒ Fillers

  ⇒ Additives
  and type of the preservative(s) or (if the product is declared as being "biocide-free" - see 2.2.1):
  Use-by date on the pack ("Use before..." - month and year).

  ⇒ If the product contains sensitizing substances, in any case the name of the substance and a phone number for information have to be indicated (exception labelling and evidence for products not containing preservatives as defined in point 2.2.1):
  "Information for allergic persons available under phone no:....."

In the case of professional paints which are exclusively sold as B2B and not as DIY paints, it is permitted to indicate only groups on the pack (e.g. metal oxides), if it is clearly indicated there that a more detailed list of the ingredients is given in the technical data sheet. It shall be clearly recognisable in the detailed declaration

which pigment is part of which colour. Moreover, it must be indicated where the information sheets are available (phone number or address).

- Batch number

  The verification opinion shall also include the code, which allows finding out the date of manufacture of the paint.

  Alternatively, the date of filling and/or the use-by date can be given on the pack (if these data are coded, the key for the code has to be indicated in the verification opinion as well).

5 Normative standards, acts and other regulations

The documents listed below contain provisions which are part of this Ecolabel Guideline. Legal provisions shall be applied as amended.

For Austrian law, see: www.ris.bka.gv.at; there you will also find the link to the EU legislation: www.eur-lex.europa.eu.

[1] DIN 18363: 2016, German construction contract procedures (VOB) - Part C: General technical specifications in construction contracts (ATV) - Painting and coating work General technical specifications in construction contracts (ATV) - Painting and coating work - Coatings.

[2] Regulation (EC) No 1907/2006 of 30 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), OJ L 396 p.1 as applicable.

[3] Regulation (EC) No 1272/2008 of 16 December 2008 on classification, labelling and packaging of substances and mixtures (CLP), OJ L 353, p. 1 as amended.

Austrian Ordinance on Occupational Exposure Limits (“Grenzwerteverordnung 2018 – 2018” – GKV 2018, Federal Law Gazette II No. 253/2001 as amended.

[5] In this context ‘volatile organic compound’ as defined in Directive 2004/42/EC means any organic compound having an initial boiling point less than or equal to 250°C at a standard pressure of 101.3 kPa.

[6] Draft ÖNORM EN ISO 11890-2: 2019 06 01, Paints and varnishes - Determination of the volatile organic compound (VOC) content and semi volatile organic compound (SVOC) content - Part 2: Gas-chromatographic method. As of about mid-2020 as regular ÖNORM EN ISO 11890-2.

[7] ÖNORM EN ISO 17895: 2005, Paints and varnishes - Determination of the volatile organic compound content of low-VOC emulsion paints (in-can VOC).

[8] Guideline on the declaration of paints, lacquers, varnishes, renders, fillers, primers and related products, VdL-Guideline 01 (“Richtlinie zur Deklaration von Lacken, Farben, Lasuren, Putzen, Spachtelmassen,Grundbeschichtungsstoffen und verwandten Produkten” (VdL-RL 01 edition of 1 January 2018), see: http://www.wirsindfarbe.de/service-publikationen/vdl-richtlinien.

[9] High-boiling or semi-volatile organic compounds (SVOC) means organic substances having boiling points between 250°C and 370°C at a standard pressure of 101.3 kPa. As opposed to highly volatile substances, high-boilers evaporate very slowly and therefore may affect the indoor air for a long time.

[10] Directive (EU) 2010/75 on industrial emissions (integrated pollution prevention and control), OJ L 334 of 24 November 2010 p. 17 as amended.

[11] Regulation (EC) No 1223/2009 of 30 November 2009 on cosmetic products, OJ L 342 p. 59 as amended.

[12] Fachverband Chemische Industrie, Berufsgruppe Lackinustrie (2018): https://lacke.fcio.at/media/8752/positionspapier-nanotechnologie.pdf.

[13] Austrian Waste Management Act 2002 ("Abfallwirtschaftsgesetz 2002", "AWG 2002"), Federal Law Gazette I No 102/2002 as amended.
BMNT guideline on the waste management concept, available at https://www.bmnt.gv.at/umwelt/abfall-ressourcen/betriebliche-abfallwirtschaft/konzepte/awkleitfaden.html

[14] Regulation (EC) No 1221/2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS), OJ L 342 of 22 December 2009 p. 1 as amended.

[15] ÖNORM EN ISO 14001: 2015, Environmental Management Systems - Requirements with guidance for use.

[16] Austrian Packaging Ordinance (“Verpackungsverordnung 2014 – VVO 2014”, Federal Law Gazette II No 184/2014 as amended.

Reference documents are available at:
https://www.bmnt.gv.at/umwelt/abfall-ressourcen/verpackungen/merkblaettervvo2014.html

[17] ÖNORM EN 13300: 2019, Paints and varnishes - Water-borne coating materials and coating systems for interior walls and ceilings - Classification

[18] VdL-RL 09: Guideline on the determination of the opacity (“VDL-Richtlinie Deckvermögen”), edition 15/03/2018:
www.wirsindfarbe.de/service-publikationen/vdl-richtlinien.

ANNEX A (Plasticisers)

Plasticisers as specified in VdL-RL 01 (**VdL Guideline 01** (January 2018)

are substances which are added to a coating to increase the plasticity/elasticity of the coating (see also DIN EN ISO 4618). A distinction is made between external and internal plasticisers. Unlike internal plasticisers, external plasticisers are not firmly (covalently) bonded to the polymer; they do not become an inherent part of the coating. They may therefore be released from the coating or diffused very slowly.

External plasticisers

Substance classes: Acetates, adipates, benzoates, dibenzoates, citrates, glutarates, maleinates, phosphates, high-molecular >=7C ortho-phthalates, vegetable oil-based materials, sebacates, terephthalates, trimellitates.

Chemical names: Diethylhexyl adipate (DEHA), dioctylterephthalate (DOTP), acetyltributylcitrate (ATBC), diisodecyl adipate (DIDA), diisodecyl adipate (DTDA), diisononyl adipate (DINA), dibutyl sebazate (DBS), dibutyl terephthalate (DBT), dimethyl sebazate (DMS), 2-propylheptyl phthalate (DPHP), dimethyl succinate, dimethyl glutarate, dimethyl adipate, dibutyl maleate, epoxidized linseed oil (ELO), epoxidized soybean oil (ESO), 1,2-cyclohexane dicarboxylic acid diisononyl ester, hydrogenated castor oil, isononyl benzoate (INB), isodecyl benzoate (IDB), trioctyl trimellitate (TOTM).

As opposed to the Vdl Guideline, plasticisers can be tolerated as impurities according to UZ 17 only up to a maximum of 200 ppm.
Determination according to EN ISO 11890-2 [6] or by calculation using manufacturer specifications in the coating.

Plasticisers listed in the annex to the Consumer Goods Ordinance (“Bedarfsgegenständeverordnung”), Section 3, Annex 1, serial numbers 7 and 8, shall not be used in coatings: http://www.gesetze-im-internet.de/bedggstv/anlage_1.html

ANNEX B (Detection of preservatives)

1. Liquid chromatographic analysis (HPLC / UV detection) for the determination of the content of isothiazolinones

The sample to be analysed is treated with methanol and homogenised on a magnetic stirrer. Subsequently, the suspension is centrifuged and the supernatant is filtered through a syringe filter (pore size: 0.2 µm).

The methanol extract obtained is investigated in a liquid chromatographic analysis (HPLC / UV detection) and any isothiazolinones have to be identified by means of their retention times.

The analytical investigations of the content of isothiazolinones is always carried out by testing each sample in duplicate, the quantification by using the external standard method.

If further preservatives are detected in the analysis, these shall also be mentioned in the test report.

2. Determination of the free formaldehyde

Tests can be carried out using two methods:

a) according to VdL Guideline 03 on the determination of formaldehyde concentration in water-dilutable emulsion paints and related products (“VdL Guideline 03 Formaldehyde Determination”),

b) analogously to a) but determination of the concentration of the free formaldehyde in the product using high-pressure liquid chromatography (HPLC) provided that the test laboratory furnishes evidence of the equivalence to the VdL-RL 03 method.

Tests have to be made in duplicate to provide evidence.

3. Determination of further preservatives

Presently, there are no standardised methods for other biocides (biocides not originating from the group of the isothiazolinones).
If standardised methods are available, other preservatives are to be measured as well.

ANNEX C (Nanomaterial)

Commission Recommendation of 18 October 2011 on the definition of nanomaterial, see:

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:275:0038:0040:de:PDF

Swiss precautionary matrix for synthetic nanomaterials ("Vorsorgeraster"):

The precautionary matrix enables the structured assessment of the "nano-specific need for precautions" when handling synthetic nanomaterials and their applications for employees, consumers and the environment. Potentially risky applications can be identified and precautionary measures initiated to protect people's health and the environment. Particular attention is to be paid to the "Facts and Responses on the precautionary matrix" (see: https://www.bag.admin.ch/bag/de/home/gesund-leben/umwelt-und-gesundheit/chemikalien/nanotechnologie/sicherer-umgang-mit-nanomaterialien/vorsorgeraster-nanomaterialien-downloadversion.html).

Should a nanospecific need for precautions arise in one or more of the fields "employees", "consumers" or "environment", the properties of the nanomaterials and the risk management measures taken when handling them have to be documented exactly; in this context, also consult the following documents:

- "Nanomaterials under REACH" RIVM 2009, in particular pages 59 and 60, see: https://www.rivm.nl/bibliotheek/rapporten/601780003.pdf.
- Website of the labour inspection: Useful information on nanomaterials at work, see: https://www.arbeitsinspektion.gv.at/cms/inspektorat/download.html?channel=CH3603&doc=CMS1449759008347&permalink=leitf_risikomanagement-umgang-nano-am-ap.
- "Sichere Verwendung von Nanomaterialien in der Lack- und Farbenbranche", Hessisches Ministerium für Wirtschaft, Verkehr und Landesentwicklung 2009, see: https://nanotech.law.asu.edu/Documents/2011/06/Betriebsleitfaden_NanoFarbeLacke_Vorab_542_1119.pdf