

# **BLUE ANGEL**

**The German Ecolabel**



## **Low-Emission Interior Wall Paints**

**DE-UZ 102**

**Basic Award Criteria**

**Edition January 2015**

**Version 1**

**The Environmental Label is supported by the following four institutions:**



The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety is the owner of the label. It regularly provides information on the decisions taken by the Environmental Label Jury.



The German Environmental Agency with its specialist department for "Ecodesign, Eco-Labeling and Environmentally friendly Procurement" acts as office of the Environmental Label Jury and develops the technical criteria of the Basic Criteria for Award of the Blue Angel.



The Environmental Label Jury is the independent, decision-making body for the Blue Angel and includes representatives from environmental and consumer associations, trade unions, industry, the trade, crafts, local authorities, academia, the media, churches, young people and the German federal states.



The RAL gGmbH is the awarding body for the Environmental Label. It organises the process for developing the relevant award criteria in independent expert hearings – which involve all relevant interest groups.

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Version 1 (01/2015): First Edition, Expiry date: December 31, 2019

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**This document is a translation of a German original. In case of dispute, the original document should be taken as authoritative.**

# 1 Introduction

## 1.1 Preface

In cooperation with the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, the German Environmental Agency and considering the results of the expert hearings conducted by RAL gGmbH, the Environmental Label Jury has set up these Basic Criteria for the Award of the Environmental Label. RAL gGmbH has been tasked with awarding the Environmental Label.

Upon application to RAL gGmbH and on the basis of a Contract on the Use of the Environmental Label to be concluded with RAL gGmbH, the permission to use the Environmental Label may be granted to all products, provided that they comply with the requirements as specified hereinafter.

The product must comply with all the legal requirements in the country in which it is to be marketed. The applicant shall declare that the product meets this requirement.

## 1.2 Background

Emulsion paints are used as large-surface coating materials for interior ceilings and walls. According to production statistics about 583,000 tons of emulsion paints were produced in Germany in 2013, 438,000 tons of which (valued at 522 million Euros) were used in Germany for interior painting.

Even though emulsion paints are generally considered as a rather unproblematic product group there are still great differences as regards their adverse impact on the living environment. A comparison of the impact of volatile organic compounds (VOCs) on the indoor air quality caused by different types of paintwork shows that due to the great consumption quantities required for the painting of larger surfaces the use of conventional emulsion paints may have greater negative impact than the use of low-pollutant varnishes.

When using the so-called „emission-minimised“ emulsion paints which have been available for some time now the VOC emissions can be ignored – a fact that also helps to reduce the release of organic solvents into the atmosphere.

It is, however, difficult for the consumer to identify the differences between the various emulsion paints. Negative declarations, such as, for example, the often-used term „solvent-free“ leads to a downplaying of the hazard potentials of the paint.

Another reason for consumer confusion are self-created labels the purpose of which is to bring attention to the environmentally friendly features of the products.

Other wall paints available on the market today which feature properties similar to those of low-emission emulsion paints and thus also fall within the scope of these Basic Criteria are powdered emulsion paints as well as silicate emulsion paints and silicate paints.

## 2 Scope

These Basic Criteria apply to wall paints according to DIN EN 13300

- emulsion paints according to DIN EN ISO 4618, including powdered emulsion paints
- silicate paints according to DIN ISO 18363
- silicate emulsion paints according to DIN ISO 18363

that are intended for use as interior wall and ceiling paint and meet at least the requirements for class 3 wet scrub resistance in accordance with DIN EN 13300 and produce a coating thickness of  $< 400 \mu\text{m}^1$  according to DIN EN 1062-1.

The paints falling within the scope of these Basic Criteria are hereinafter called „wall paints“.

Excluded from the scope are:

- wall paints within the meaning of these Basic Criteria that require labelling according to the German GefStoffV (Ordinance on Hazardous Substances),\*
- wall paints within the meaning of these Basic Criteria that contain biocides for protection of the paint film (film preserving agent) as well as biocides for wood protection (see also para. 3.1.3),
- architectural paints according to VDL-RL 01 intended for exterior use (exterior paints),
- varnishes
- emulsion varnishes,
- other coating materials with paint properties,
- pickling solutions,
- fillers,
- waxes,
- printing inks
- wall paints that offer a function, such as, for example, thermal insulating paints, anti-graffiti paints, anti-mould paints, etc.
- pigment pastes.

## 3 Requirements

### 3.1 Substance Requirements

#### 3.1.1 Volatile Organic Compounds

The VOC content (VOC - Volatile Organic Compounds) of the wall paint (this also applies, for example, to paint mixing systems) under para. 2 in the ready-to-use form must not exceed 700 ppm. The term VOC means all organic substances (e.g. residual monomers, solvents, film-forming aids, preservatives and other production-related accompanying substances) which following total evaporation and subsequent gas chromatographic analysis are eluted at retention times lower than that of tetradecane (boiling point: 252.6°C) on a non-polar separation column.

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<sup>1</sup> The spreading rate of the wall paint shall be at least 2 m<sup>2</sup> / l and specified on the labelling.

\* Excluded are wall paints that contain biocides in accordance with Appendix A and require a H315, H319, H317 hazard classification and labelling.

## **Compliance Verification**

*The applicant shall declare compliance with the requirement in Annex 1 and present the test protocol<sup>2</sup> in accordance with the test method under DIN EN ISO 17895 (Paints and varnishes. Determination of the volatile organic compound content of low-VOC emulsion paints (in-can VOC)) or pursuant to DIN EN ISO 11890-2 (Paints and Varnishes – Determination of the volatile organic compound (VOC) content – Gas chromatographic method) by a testing laboratory accredited under DIN EN ISO/IEC 17025 for the respective test method (Annex 2). In conjunction therewith, the applicant shall present the certification document or accreditation certificate of Deutscher Akkreditierungsrat (DAR) (German Accreditation Council) or another accreditation system listed in the multinational agreement (MLA) (Annex 3). If testing is conducted in accordance with DIN EN ISO 11890-2 the testing laboratory shall establish a detection limit of 100 ppm.*

### **3.1.2 Exclusion of Substances**

Award of the Blue Angel requires compliance with European and German chemical laws as well as with industry-specific guidelines (REACH Regulation, Annex XVII, Persistent Organic Pollutant (POP) Regulation, Annex I, ChemVerbV (Ordinance on Banned Chemicals), Directives on CFCs and Fluorinated greenhouse gases, Restriction of Certain Hazardous Substances (RoHS) Directive, GefStoffV (Ordinance on Hazardous Substances), VDL-RL 01, Directive 92/112/EEC, 25<sup>th</sup> BImSchV (25<sup>th</sup> Federal Immission Protection Ordinance), Biocidal Products Regulation (BPR), ChemVOCFarbV (Organic Solvent Paint and Varnishes Ordinance) etc.).<sup>3</sup>

The ready-to-use products (wall paints) shall not contain substances with the following properties as constituents<sup>4</sup>:

**[1]** Substances that are identified as substances of very high concern in accordance with the European Chemicals Regulation REACH (EC/1906/2006) and have been included on the list (so-called "Candidate List") established in accordance with Article 59(1) of the REACH Regulation. The Candidate List, as amended at the time of filing the application shall be applicable.<sup>5</sup>

**[2]** Substances classified under Regulation (EC) No 1272/2008<sup>6</sup> in the following hazard classes or substances that meet the criteria for such classification<sup>7</sup>:

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<sup>2</sup> Test protocols shall not be older than 2 years at the time of filing the application.

<sup>3</sup> Provided that the specific product is subject to additional substance restrictions resulting from other rules such rules shall also be complied with.

<sup>4</sup> Constituent components are substances which are added to the wall paint as such or as an ingredient of mixtures in order to achieve or influence certain product properties as well as those which are required as chemical decomposition products to achieve the product properties. They do not include, for example, minimized residual monomers.

<sup>5</sup> The latest version of the Candidate List can be found at: [REACH-Kandidatenliste](#).

<sup>6</sup> Regulation (EC) No 1272/2008 – short: CLP Regulation (Classification, Labelling and Packaging) which entered into force on 20 January 2009 replaces the previous Directives 67/548/EEC (Dangerous Substances Directive) and 1999/45/EC (Dangerous Preparations Directive). Hence, substances were classified, labelled and packed until December 1, 2010 according to Directive 67/548/EEC while mixtures (formerly preparations) were (and still are until June 1, 2015) classified, labelled and packed according to Directive 1999/45/EC. After these dates the GHS Regulation shall be applied to both

- ◆ acutely toxic of category Acute Tox. 1, Acute Tox. 2 or Acute Tox. 3
- ◆ toxic to specific target organs of category STOT SE 1, STOT SE 2 or STOT RE 1, STOT RE 2
- ◆ carcinogenic of category Carc. 1A, Carc. 1B or Carc. 2
- ◆ mutagenic of category Muta. 1A, Muta. 1B or Muta. 2
- ◆ reprotoxic (toxic to reproduction) of category Repr. 1A, Repr. 1B or Repr. 2
- ◆ hazardous to the aquatic environment of category Aquatic Acute 1, Aquatic Chronic 1 or Aquatic Chronic 2
- ◆ hazardous to the ozone layer of category Ozone 1

The H-Statements (R-Phrases) corresponding to the hazard classes and categories can be seen from Appendix B to the DE-UZ 102 Basic Criteria.

**[3]** Substances classified in TRGS 905<sup>8</sup> as:

- ◆ carcinogenic (K1, K2, K3),
- ◆ mutagenic (M1, M2, M3)
- ◆ reprotoxic (R<sub>F</sub>1, R<sub>F</sub>2, R<sub>F</sub>3, R<sub>E</sub>1, R<sub>E</sub>2, R<sub>E</sub>3)

### 3.1.2.1 Special Substance Requirements

**[1]** No products containing lead compounds as constituents may be added to the wall paint. No more than 200 ppm of lead may be contained as process-related, technically unavoidable (natural or production-related) impurities in the raw material<sup>9</sup>.

**[2]** No products containing alkylphenol ethoxylates and/or their derivatives may be added to the wall paint.

**[3]** No products containing plasticising substances from the group of phthalates or the group of organophosphates or other comparable high-boiling substances may be added to the low-emission wall paint. (Products containing plasticisers within the meaning of VdL-Richtlinie 01 (VdL Guideline)<sup>10</sup> may be added to the wall paint in amounts not exceeding a plasticiser content of 1g/l of the ready-to-use wall paint.)

substances and mixtures. Until June 1, 2015, substances shall be classified and labelled according to both the existing and the new legislation.

<sup>7</sup> The list of harmonised classification and labelling of hazardous substances is included in Part 3 of Annex VI to the CLP Regulation. Moreover, a comprehensive classification and labelling inventory is publicly accessible via the website of the European Chemicals Agency ECHA which also includes all manufacturer-provided self-classifications of hazardous substances: [ECHA Classification and Labelling Inventory](#) and other substance lists, such as SIN; ETUC, EDCs, etc.

<sup>8</sup> TRGS 905 (Technical Rules for Hazardous Substances 905) – List of carcinogenic, mutagenic or reprotoxic substances of the Committee on Hazardous Substances (AGS): TRGS 905. The TRGS 905 list, as amended at the time of application, shall be applicable (last amended in May 2008 – as of January 2014). The TRGS lists those CMR substances where no harmonised classification exists so far or where the Committee on Hazardous Substances arrives at a different classification. The total CMR list of the statutory accident insurance may also be used as a tool: CMR-Gesamtliste (Combined list of CMR substances according to CLP Regulation and TRGS 905).

<sup>9</sup> Pigments and extenders are to be determined in accordance with DIN 53770.

<sup>10</sup> Richtlinie zur Deklaration von Inhaltsstoffen in Bautenlacken, Bautenfarben und verwandten Produkten (Guideline on the declaration of ingredients in architectural paints and coatings and related products); VdL-RL 01/4, revised version of November 2013, [www.lackindustrie.de](http://www.lackindustrie.de); issued by: Verband der Lackindustrie e.V. (Association of the German Paint Industry), Frankfurt/M., 2013

### **Compliance Verification**

*The applicant shall declare compliance with the requirement in Annex 1. Also, the applicant shall give the trade names and the names of the suppliers of all individual intermediates (raw materials) as well as their percentage and function in the wall paint product (Annex 4). To verify compliance the applicant shall additionally present declarations from the manufacturers or distributors of the intermediates used (Annex 5) as well as the appropriate Material Safety Data Sheets.*

#### **3.1.3 Preservation**

- a) **of the Base Wall Paint and / or White Wall Paint** (contrary to para. 3.1.2, Nos 1, 2 and 3).

Preservation of the wall paint shall only be permitted during storage and transportation.

Wall paints pursuant to para. 2 shall not contain any biocides, except for the microbiocides listed in Appendix A to the DE-UZ 102 Basic Criteria which may be used as in-can preservatives in the amounts specified therein. However, only those substances (active substances or biocidal products) may be used as preservatives in compliance with para. 3.1.3 of the Basic Criteria for which an active substance dossier on the assessment as in-can preservatives (product type 6) has been submitted within the scope of the Biocidal Products Regulation ((EU) No 528/2012). If following the assessment an inclusion of the active substance in the Union List of approved active substances for product type 6 is denied the use of these substances shall no longer be permitted. This also applies to formaldehyde-releasing agents in compliance with para. 3.1.4 of the Basic Criteria.

The intermediates shall be dimensioned so as to ensure a preservation of the wall paint in line with the requirements of Appendix A to the DE-UZ 102 Basic Criteria.

- b) **Preservation of Paste Systems** (contrary to para. 3.1.2, Nos 1, 2 and 3).

Pigment pastes forming part of paste systems shall not contain any biocides except for the microbiocides listed in Appendix A to the DE-UZ 102 Basic Criteria which may be used as in-can preservatives in the amounts specified therein in relation to the ready-to-use wall paint. However, only those substances (active substances or biocidal products) may be used as preservatives in compliance with para. 3.1.3 of the Basic Criteria for which an active substance dossier on the assessment as in-can preservatives (product type 6) has been submitted within the scope of the Biocidal Products Regulation ((EU) No 528/2012). If following the assessment an inclusion of the active substance in the Union List of approved active substances for product type 6 is denied the use of these substances shall no longer be permitted. This also applies to formaldehyde-releasing agents in compliance with para. 3.1.4 of the Basic Criteria.

### **Compliance Verification**

*The applicant shall declare compliance with the requirement in Annex 1. Also, the applicant shall give the trade names and the names of the suppliers of all individual intermediates (raw materials) as well as their percentage and function in the manufactured wall paint (Annex 4). To verify compliance the applicant shall additionally present declarations from the manufacturers or distributors of the intermediates used (Annex 5) as well as the appropriate Material Safety Data Sheets.*

### 3.1.4 Formaldehyde

(contrary to para. 3.1.2, Nos 1, 2 and 3).

The ready-to-use paint shall be tested for its free formaldehyde content (made up of formaldehyde-releasing agents approved in accordance with para. 3.1.3). The free-formaldehyde content shall not exceed 100 ppm (100 mg/kg) in the product.

Test method for wall paints:

**[1]** under VdL-RL 03 (VdL Guideline 03) Richtlinie zur Bestimmung der Formaldehydkonzentration in wasserverdünnbaren Dispersionsfarben und verwandte Produkte (Guideline on the determination of the formaldehyde concentration in water-dilutable emulsion paints and related products (VdL-Richtlinie Formaldehydbestimmung - Determination of Formaldehyde -, May 1997 edition), para. 4.1 Bestimmung der freien Formaldehydkonzentration im Produkt mit der Acetylaceton-Methode (Determination of the free formaldehyde concentration in the product using the acetylacetone method).

**[2]** as above (No 1), but determination of the free formaldehyde concentration in the product by means of high pressure liquid chromatography (HPLC) if the testing laboratory can establish the comparability with VdL-RL 03.

Alternative test method for formaldehyde in the test chamber and derived method for wall paints containing less than 100 ppm of free formaldehyde:

Test chamber method pursuant to DIN EN 16402:2014. Notwithstanding DIN EN 16402 the air change is to be converted from 0.5/h to 1/h.

- 1 hour after application and insertion into the test chamber the formaldehyde concentration in the test chamber air shall not exceed 0.3 mg/m<sup>3</sup>

**and**

- 24 hours after the beginning of the application at the latest the formaldehyde concentration in the test chamber air shall be less than 0.06 mg/m<sup>3</sup>.

The emission test shall be done no sooner than 4 weeks after production of the wall paint.

#### **Compliance Verification**

*The applicant shall declare compliance with the requirement and attach the relevant test reports (Annex 7) to the application. Paint mixing systems require the testing of each base paint and, in addition, that of the colour with the highest expected free formaldehyde content. The test reports shall not be older than 2 years at the time of filing the application.*

### 3.1.5 Titanium Dioxide Pigment

Emissions and wastes resulting from the production of titanium dioxide pigments shall not exceed the following values<sup>11</sup>:

For the sulphate process:

- SO<sub>x</sub> calculated as SO<sub>2</sub>: 7.0 kg per ton of TiO<sub>2</sub> pigment

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<sup>11</sup> Derived from the Reference Document on Best Available Techniques for the Production of Basic Inorganic Chemicals (BREF) (August 2007).

- Sulphate waste: 500 kg per ton of TiO<sub>2</sub> pigment

For the chloride process:

- If natural rutile ore is used, 103 kg chloride waste per ton of TiO<sub>2</sub> pigment
- If synthetic rutile ore is used: 179 kg chloride waste per ton of TiO<sub>2</sub> pigment
- If slag ore is used: 329 kg chloride waste per ton of TiO<sub>2</sub> pigment

If more than one type of ore is used, the values shall apply in proportion to the quantities of the individual ore types used.

**Note:** SO<sub>x</sub> emissions only apply to the sulphate process.

The definition of waste can be seen from Article 3 of the Waste Framework Directive 2008/98/EC of the European Parliament and of the Council<sup>12</sup>. If the TiO<sub>2</sub> producer can satisfy Article 5 (by-product production) of the Waste Framework Directive for solid wastes these wastes shall be exempt.

#### **Compliance Verification:**

*The applicant shall declare compliance with the requirement in Annex 1. Also, the applicant shall give the trade names and the names of the suppliers of all titanium dioxide pigments (raw materials) as well as their percentage and function in the manufactured wall paint (Annex 4).*

*To verify compliance the applicant shall additionally present declarations from the manufacturers or distributors of the titanium dioxide pigments (Annex 6).*

### **3.1.6 Perfluorinated and Polyfluorinated Chemicals**

Neither perfluorinated nor polyfluorinated chemicals (PFCs), as for example, fluorocarbon resins and fluorocarbon emulsions, perfluorinated sulfonic and carboxylic acids as well as substances that may possibly be broken down into these chemicals may be used.

#### **Compliance Verification**

*To verify compliance with the requirement the applicant shall present the declarations from the manufacturers or distributors of the intermediates used (Annex 5).*

## **3.2 Special Requirements**

### **3.2.1 Fitness for Use**

The wall paint under para. 2 shall meet the usual quality requirements for fitness for use of the respective product group (e.g. adhesion, hardness, drying properties, light fastness, elasticity, and, where applicable, surface resistance to household chemicals and wet scrub resistance according to existing DIN standards).

The spreading rate specified on the labelling shall conform to the spreading rate used for determination and declaration of the hiding power.

If, in addition to this, wet scrub resistance class, hiding power and spreading rate of the wall paint are specified on the labelling they too must meet the requirements of the appropriate DIN standard.

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<sup>12</sup> Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (OJ L 312 of 22 November 2008, p. 3).

### **Compliance Verification**

*The applicant shall declare compliance with the requirement in Annex 1 and present the appropriate technical data sheet and the container text.*

#### **3.2.2 Advertising Statements**

- The type of paint pursuant to para. 2 shall be given on the container together with the product designation. The technical data sheets shall additionally specify the binder base.
- Advertising statements which are likely to cause the consumer to confuse the emulsion paint with other coating systems as well as product designations including name components or designations, such as „Bio“, „Öko“, „Natur“, „Holzschutz“, „Fassaden“, „Fung“, „Insekt“ or „Nano“ and the like shall not be permitted.
- Advertising statements shall not include any indications that would downplay possible risks within the meaning of Article 23 (4) of Directive 92/32/EEC, such as "non-toxic", "non-harmful" and the like, except for „does not contain any preservatives“<sup>13</sup>.

### **Compliance Verification**

*The applicant shall declare compliance with the requirement in Annex 1 and present the appropriate technical data sheet and the container text.*

#### **3.2.3 Precautionary Statements**

In all countries where the wall paint is marketed with reference to the Blue Angel eco-label the container text **and** the technical data sheet shall include the following precautionary statements in an easy to read form (other similar wording may be used):

- „Keep out of the reach of children.“
- „When spraying use combined filter A2/P2.“
- „Ensure good ventilation during application and drying.“
- „Do not eat, drink or smoke when handling the paint.“
- „In case of contact with skin or eyes, rinse immediately with plenty of water.“
- „Do not allow to enter drains, water bodies, ground or soil.“
- „Clean tools with plenty of water and soap immediately after use.“
- „Give only empty containers to recycling. Dried product residues can be disposed of as domestic waste.“
- The product contains .....(name(s) of the active substance(s) of the preservative pursuant to Appendix A, para. 1, of DE-UZ 102); For more information for people suffering from allergies, please call us at: .....<sup>14</sup>.
- Also, the container text shall include a clear reference to the technical data sheet and an indication as to where it can be found (www.....de) as well as a phone number of the manufacturer/distributor<sup>14</sup> where consumers can get more information.

The ingredients of the wall paints under para. 2 shall be specified on the technical data sheets in accordance with „Richtlinie zur Deklaration von Inhaltsstoffen in Bautenlacken, Bautenfarben und verwandten Produkten“ (Guideline on the declaration of ingredients in architectural paints

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<sup>13</sup> All preservatives in relation to the individual substance, including formaldehyde < 2 ppm, except for CIT < 0.5 ppm.

<sup>14</sup> The hotline provided shall not fee-based

and coatings and related products). The specifications shall at least meet the requirements of VdL-Richtlinie Bautenanstrichstoffe VdL-RL 01<sup>10</sup>.

### **Compliance Verification**

*The applicant shall declare compliance with the requirement in Annex 1 and present the appropriate technical data sheet and the container text.*

## **4 Applicants and Parties Involved**

Manufacturers of final products according to Paragraph 2 shall be eligible for application.

Parties involved in the award process are:

- RAL gGmbH to award the Blue Angel Environmental Label,
- the federal state being home to the applicant's production site,
- Umweltbundesamt (German Environmental Agency) which after the signing of the contract receives all data and documents submitted in applications for the Blue Angel in order to be able to further develop the Basic Award Criteria.

## **5 Use of the Environmental Label**

The use of the Environmental Label by the applicant is governed by a contract on the use of the Environmental Label concluded with RAL gGmbH.

Within the scope of such contract, the applicant undertakes to comply with the requirements under Paragraph 3 while using the Environmental Label.

Contracts on the Use of the Environmental Label are concluded to fix the terms for the certification of products under Paragraph 2. Such contracts shall run until December 31, 2019. They shall be extended by periods of one year each, unless terminated in writing by March 31, 2019 or March 31 of the respective year of extension.

After the expiry of the contract, the Environmental Label may neither be used for labelling nor for advertising purposes. This regulation shall not affect products being still in the market.

The applicant (manufacturer) shall be entitled to apply to RAL gGmbH for an extension of the right to use the ecolabel on the product entitled to the label if it is to be marketed under another brand/trade name and/or other marketing organisations.

The Contract on the Use of the Environmental Label shall specify:

- Applicant (manufacturer)
- Brand/trade name, product description
- Distributor (label user), i.e. the above-mentioned marketing organisations.

## Appendix A In-Can Preservation (former appendix 1 as of March 2018)

[1] Alternatively, the following active substances or active substance combinations may be used for in-can preservation:

Active Substance / Active Substance Combination	Content
a) Titanium dioxide/silver chloride	≤ 100 ppm in relation to silver chloride
b) 2-methyl-2H- isothiazol-3-one (MIT) / 1,2-benzisothiazol-3(2H)-one (BIT) in a ratio of 1: 1	≤ 200 ppm
c) 5-chloro-2-methyl-4-isothiazolin-3-one (CIT) / 2-methyl-4-isothiazolin-3-one (MIT) in a ratio of 3: 1	≤ 15 ppm
d) 3-iodo-2-propynyl butylcarbamate (IPBC)	≤ 80 ppm
e) 1,2- benzisothiazol-3(2H)-one (BIT)	≤ 200 ppm
f) 2-bromo-2-nitropropane-1,3-diol (BNPD)	≤ 200 ppm
g) BNPD <sup>1</sup> + CIT/MIT (3:1) <sup>3</sup>	≤ 130 ppm + ≤ 15 ppm
h) BNPD <sup>1</sup> + CIT/MIT (3:1) <sup>3</sup>	≤ 150 ppm + ≤ 10 ppm
i) BNPD <sup>1</sup> + CIT/MIT (3:1) <sup>3</sup>	≤ 170 ppm + ≤ 5 ppm
j) MIT/BIT <sup>2</sup> (1:1) + CIT/MIT (3:1) <sup>3</sup>	≤ 150 ppm + ≤ 12.5 ppm
k) MIT/BIT <sup>2</sup> (1:1) + CIT/MIT (3:1) <sup>3</sup>	≤ 125 ppm + ≤ 15 ppm
l) 1,2-dibromo-2,4-dicyanobutane (DBDCB)	≤ 500 ppm
m) BIT <sup>4</sup> + CIT/MIT (3:1) <sup>3</sup>	≤ 150 ppm + ≤ 12.5 ppm
n) BNPD <sup>1</sup> + MIT/BIT <sup>2</sup> (1:1)	≤ 120 ppm + ≤ 75 ppm
o) Zinc pyrithione (ZNP) + BIT <sup>4,5</sup>	≤ 100 ppm + ≤ 100 ppm
p) Zinc pyrithione (ZNP) + MIT/BIT <sup>2</sup> (1:2 to 2:1)	≤ 50 ppm + ≤ 150 ppm
q) BNPD <sup>1</sup> + BIT <sup>2</sup>	≤ 100 ppm + ≤ 100 ppm
r) Sodium pyrithione (NaP) + BIT <sup>4</sup>	≤ 50 ppm + ≤ 150 ppm
s) N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine (CAS 2372-82-9) + MIT/BIT <sup>2</sup> (1:1)	≤ 81 ppm + ≤ 150 ppm
t) MIT/BIT <sup>2</sup> (1:1) + silver chloride	≤ 185 ppm + ≤ 15 ppm

<sup>1</sup> BNPD = see f)

<sup>2</sup> MIT/BIT = see b)

<sup>3</sup> CIT/MIT (3:1) = see c)

<sup>4</sup> BIT = see e)

<sup>5</sup> Zinc oxide up to maximal 500 ppm is additional permitted as technical adjuvant

[2] Only those substances (active substances or biocidal products) may be used as preservatives for which an active substance dossier on the assessment as in-can preservatives (product type 6) has been submitted within the scope of the Biocidal Products Regulation ((EU) No 528/2012). If following the assessment an inclusion of the active substance in the Union List of approved active substances for product type 6 is denied the use of these substances shall no longer be permitted. This also applies to formaldehyde-releasing agents.

**[3]** Inclusion of further substances

Additional preservatives may be used if a MAK value is available and/or sufficient data regarding inhalation toxicology, analytics of the pure active substance and, if applicable, data on relevant degradation products, isomers and impurities as well as other by-products of the active substance and /or sufficient examinations relating to the inhalative exposition are presented to the Federal Environmental Agency for evaluation and fixing of a maximum content.

## Appendix B Assignment of Hazard Categories and Hazard Statements

The following table assigns the respective hazard statements (H statements) referred to in these Basic Criteria to the hazard categories of the substances which are generally excluded under para. 3.1.2.

CLP Regulation (EC) No 1272/2008		
Hazard category	Hazard Statements	
	H Statement Codes	Wording
<b>Carcinogenic Substances</b>		
Carc. 1A	H350	May cause cancer.
Carc. 1B	H350	May cause cancer.
Carc. 1A, 1B	H350i	May cause cancer by inhalation.
Carc. 2	H351	Suspected of causing cancer.
<b>Substances classified for Germ Cell Mutagenicity</b>		
Muta. 1A	H340	May cause genetic defects.
Muta. 1B	H340	May cause genetic defects.
Muta. 2	H341	Suspected of causing genetic defects.
<b>Reprotoxic Substances</b>		
Repr. 1A, 1B	H360D	May damage the unborn child.
Repr. 1A, 1B	H360F	May damage fertility.
Repr. 1A, 1B	H360FD	May damage fertility. May damage the unborn child.
Repr. 1A, 1B	H360Df	May damage the unborn child. Suspected of damaging fertility.
Repr. 1A, 1B	H360Fd	May damage fertility. Suspected of damaging the unborn child.
Repr. 2	H361	Suspected of damaging fertility. Suspected of damaging the unborn child.
Repr. 2	H361d	Suspected of damaging the unborn child.
Repr. 2	H361f	Suspected of damaging fertility.
Repr. 2	H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
<b>Acutely toxic substances</b>		
Acute Tox. 1 Acute Tox. 2	H300	Fatal if swallowed.
Acute Tox. 3	H301	Toxic if swallowed.
Acute Tox. 1 Acute Tox. 2	H310	Fatal in contact with skin.
Acute Tox. 3	H311	Toxic in contact with skin.
Acute Tox. 1 Acute Tox. 2	H330	Fatal if inhaled.
Acute Tox. 3	H331	Toxic if inhaled.
<b>Substances classified for Specific Target Organ Toxicity</b>		
STOT SE 1	H370	Causes damage to organs.
STOT SE 2	H371	May cause damage to organs.
STOT RE 1*	H372	Causes damage to organs through prolonged or repeated exposure.

<b>CLP Regulation (EC) No 1272/2008</b>		
STOT RE 2*	H373	May cause damage to organs through prolonged or repeated exposure.
<b>Substances classified for Environmental Hazards</b>		
Aquatic Acute 1	H400	Very toxic to aquatic life.
Aquatic Chronic. 1	H410	Very toxic to aquatic life with long lasting effects.
Aquatic Chronic. 2	H411	Toxic to aquatic life with long lasting effects.
Ozone 1	H420	Hazardous to the ozone layer. New: Harms public health and the environment by destroying ozone in the upper atmosphere

\* If the classification and toxicological evaluation of the substance is based on the classification of the respirable fraction of the substance (dusts) and does not relate to the substance in general the classification as STOT RE 1 and STOT RE 2 does not represent a criterion for exclusion pursuant to para. 3.2.1 „Exclusion of Substances“ of the Basic Criteria.