



# GUT Test Criteria 2020

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### *Introduction*

Since the establishment of *GUT* e.V. in 1990, test criteria have regularly evolved and been adapted to meet the latest thinking.

The objective of the criteria is to ensure the greatest possible consumer protection, whilst focusing on general environmental and sustainability aspects. Therefore, not only are the finished products tested, but also the raw materials used in the production process. Therefore, the close cooperation between *GUT*, the carpet producers and the suppliers contributes to the continuous improvement of textile floor coverings and the quality of raw materials used. This is complemented by *GUT*'s comprehensive EPD programme (Environmental Product Declarations), which offers an accurate statement on the environmental impacts of each product (e.g. global warming potential, use of primary energy, etc.) either via generic product group EPD's or via individual product specific EPD's.

## 1. GUT Tests for Textile Floor Coverings & Raw Materials

### 1.1. Harmful substances

In order to ensure a high level of product safety, the avoidance of harmful substances during production is essential. This is primarily implemented by banning the use of these substances as a component of the product. It includes those substances which are declared as being carcinogenic, mutagenic or toxic to reproduction (**CMR**-substances), acutely toxic, toxic to specific organic targets and persistent organic pollutants (**POP**-substances). Substances of very high concern (**SVHC**; *candidate list*) listed by the *European Chemicals Agency (ECHA)* are monitored and if relevant these substances shall not be actively added and remain in the product.



### 1.2. Indoor air quality

In order to prevent the product contributing to indoor air pollution, **VOC**-emissions are determined in a test chamber, following the procedures described in **EN 16516**.

To be classified as “*very low emission product*”, the *GUT* value for the sum of all **VOC**’s after 28 days ( $\text{TVOC}_{28} \leq 100 \mu\text{g}/\text{m}^3$ ) as well as the maximum permitted concentrations for individual substances, must not be exceeded. Furthermore the R-value approach (lowest concentration of interest) is applied.

### 1.3. Odour

Another important part of the *GUT* test criteria is the odour test as it relates to indoor air quality; even if limit values for emissions are not exceeded, emissions of odorous substances even at very low concentrations might have an impact on the consumer’s well-being. Therefore, only products that fulfil the *GUT* odour requirements will be accepted .

| Odour test |                                      |   |                  |
|------------|--------------------------------------|---|------------------|
| Intensity  | Average from at least 7 test persons |   | Perception       |
| 1          | no odour                             | Odour test passed<br><br>non-disturbing new odour<br>low intensity | +3               |
| 1,5        | very weak odour                      |   | +2               |
| 2          | weak odour                           |   | pleasant odour   |
| 2,5        | weak odour                           |   | +1               |
| 3          | tolerable odour                      |   | 0                |
| 3,5        | tolerable odour                      | Odour test <b>not</b> passed<br>                                   | -1               |
| 4          | annoying odour                       |   | unpleasant odour |
| 4,5        | annoying odour                       |   | -2               |
| 5          | intolerable odour                    |   | -3               |
| 6          | unbearable odour                     |   |                  |

### 2. The PRODUct Information System - PRODIS

The PRODUct Information System (PRODIS) is an initiative of GUT and ECRA (*European Carpet & Rug Association*) and was introduced in 2004 as the first comprehensive consumer information system that integrates information on environmental aspects, health & safety as well as technical information relating to areas of use and additional characteristics.

#### 2.1. Definition of product groups

For testing and classification purposes product groups are defined. The definition is based on:

- I. the production method and the corresponding product type (see EN 1307),
- II. the fibre composition of the use layer,
- III. the type of backing and the materials used.

The information is transferred into a 6-digit code (e.g. 11B4E1 = Carpet with pile, tufted, PA 6 fibre, heavy backing, bitumen based, tile). This system is kept flexible and allows the integration of new materials at any time. (For more information see Annex)

#### 2.2. Environmental Product Declarations (EPD's)

In addition to the information on technical specifications, chemicals, VOC emissions and Indoor Air Quality (IAQ), PRODIS provides LCA-based (life cycle assessment) information for most of the typical product types available in the EU markets. All EPDs are third party validated by IBU (Institut Bauen und Umwelt, Berlin).

Products registered in the PRODIS system are automatically linked with the corresponding EPD.

Every manufacturer may therefore independently link a specific PRODIS registered product to a producer specific individual EPD. To guarantee uniformity in the calculations methodology and system boundaries, such an EDP is calculated by GUT and then also externally validated by IBU.

### 3. Textile Floorcoverings with Recycled Content

All requirements on harmful substances, VOC emissions and odour, apply unrestrictedly to all products manufactured with recycled content.

If recycled materials are used, this must be indicated when the application is made and it will be added to the product information. From 2020 onwards product information will be independently verified by BQA (Belgian Quality Association).

(For details on the definition of recycled content see Annex)

### 4. Carpet Underlays and Rugs

#### 4.1. Underlays and impact sound insulations

The GUT criteria apply unrestrictedly to rugs, runners and underlays.

### 4.2. Rugs

Rugs are products of certain dimensions which are not intended to be installed wall-to-wall. Therefore, some test conditions have to be adjusted accordingly. Especially in the determination of VOC emissions where product specific adjustments (i.e. loading factors) are necessary. The dimensions of the reference room (see **EN 16516**) as well as the corresponding loading factors can be found in table 6.1 (page 26). It is assumed that one rug is positioned in the reference room.

### 5. Harmful Substances

Harmful substances are classified as:

- I. carcinogenic (carc. 1A or 1B), mutagenic (muta. 1A or 1B), toxic to reproduction (repr. 1A or 1B) (CMR-substances)
- II. acute toxic substances (Acute Tox. 1, 2 or 3)
- III. toxic to specific target organs (STOT SE. 1 or RE 1)
- IV. persistant organic pollutants (POP-substances)

GUT has banned the use of all of these substances.

In addition to these categories, there are also bans or limitations on use for substances listed in Annex XIV & Annex XVII by REACH (*Registration, Evaluation, Authorisation & Restriction of Chemicals*).

Substances which are subject to a ban on use are marked with the following symbol:

 = ban on use

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These lists are not conclusive and changes are possible based on the current stage of scientific evidence.

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#### 5.1. SVHC (Substances of Very High Concern)

The list of *Substances of very high concern* is constantly updated by ECHA. The current list can be found under the following webpage:

<https://www.echa.europa.eu/candidate-list-table>

The list is continuously checked for substances which might have relevance in the production of textile floorcoverings. Depending on the scientific relevance, either a total ban on use or a phase out scenario with defined measures or thresholds can be decided. For current information on this subject, please visit the GUT website:

<https://www.gut-ev.de>

#### 5.2. Dyes, pigments & dyeing mill auxiliaries






























##### 5.2.1. Azo dyes & aromatic amines


Azo dyes are organic pigments bearing a functional diazenyl group (R-N=N-R'). Many of these substances are non-toxic and widely used. However, it has been proven that the human body is able to cleave the functional diazenyl group of certain azo dyes in a reductive reaction. Consequently, the formation of certain carcinogenic aromatic amines is possible. Therefore, the use of all azo dyes that will form carcinogenic amines under reductive conditions is prohibited in consumer goods in Europe. The considered aromatic amines are regulated within the REACH regulation EC/1907/2006, *Annex XVII, Nr. 43, Appendices 8 - 10* (8 = aromatic amines, 9 = azo dyes, 10 = testing methods). A current list can be found on the following webpage:

<https://echa.europa.eu/de/appendix-8-list-of-aromatic-amines>

The use of pigments and dyes which contain one of these substances or are known to form carcinogenic amines under reductive conditions are not allowed within the GUT-system.

**Tab. 5.2.1: Azo dyes & aromatic amines**

| Substance <sup>a)</sup>                            | CAS-No.:            | GUT<br>ban on use   |
|--|---------------------|---|
| 2-Methyl-5-nitroaniline <sup>a)</sup>              | 99-55-8             |    |
| 2-Naphthylamine <sup>a)</sup>                      | 91-59-8             |    |
| 2,4-Diaminoanisol <sup>a)</sup>                    | 615-05-4            |    |
| 2,4-Diaminotoluene <sup>a)</sup>                   | 95-80-7             |    |
| 2,4,5-Trimethylaniline <sup>a)</sup>               | 137-17-7            |    |
| 3,3'-Dichlorobenzidine <sup>a)</sup>               | 91-94-1             |    |
| 3,3'-Dimethoxybenzidine <sup>a)</sup>              | 119-90-4            |    |
| 3,3'-Dimethylbenzidine <sup>a)</sup>               | 119-93-7            |    |
| 4-Aminoazobenzene <sup>a)</sup>                    | 60-09-3             |    |
| 4-Aminobiphenyl <sup>a)</sup>                      | 92-67-1             |    |
| 4-Chloro-2-methylaniline <sup>a)</sup>             | 95-69-2             |    |
| 4-Chloroaniline <sup>a)</sup>                      | 106-47-8            |    |
| 4,4'-Diaminodiphenylmethane <sup>a)</sup>          | 101-77-9            |   |
| 4,4'-Methylene-bis-(2-chloraniline) <sup>a)</sup>  | 101-14-4            |  |
| 4,4'-Oxydianiline <sup>a)</sup>                    | 101-80-4            |  |
| 4,4'-Thiodianiline <sup>a)</sup>                   | 139-65-1            |  |
| 4,4'-Methylene-bis-(2-methylaniline) <sup>a)</sup> | 838-88-0            |  |
| Benzidine <sup>a)</sup>                            | 92-87-5             |  |
| o-Aminoazotoluene <sup>a)</sup>                    | 97-56-3             |  |
| o-Anisidine <sup>a)</sup>                          | 90-04-0             |  |
| o-Toluidine <sup>a)</sup>                          | 95-53-4             |  |
| p-Cresidine <sup>a)</sup>                          | 120-71-8            |  |
| Navy Blue 018112 <sup>b)</sup>                     | (EC-No.: 405-665-4) |  |
| Aniline (cleavable) <sup>c)</sup>                  | 62-53-3             |  |
| 2,4-Xylidine <sup>c)</sup>                         | 95-68-1             |  |
| 2,6-Xylidine <sup>c)</sup>                         | 87-62-7             |  |
| 2-Naphthylammonium Acetate <sup>c)</sup>           | 553-00-4            |  |
| 2,4-Diaminoanisole Sulfate <sup>c)</sup>           | 39156-41-7          |  |
| 2,4,5-Trimethylaniline Hydrochloride <sup>c)</sup> | 21436-97-5          |  |
| 4-Chloro-o-toluidine Hydrochloride <sup>c)</sup>   | 3165-93-3           |  |

**Note:**  
 = ban on use; Ban on use does not apply to listed substances only, but is always based on current state of knowledge.  
a) Aromatic amines according to directive EC/61/2002 & REACH regulation EC/1907/2006 (*Annex XVII, Nr. 43, App. 8*)  
b) Restricted azo dye listed in REACH *Annex XVII, Nr. 43, App. 9*  
c) Other arylamines, cleavable arylamines, amine salts



## 5.2.2. Carcinogenic and allergenic dyes

Dyes or pigments that are known to have a potentially sensitising or allergenic effect or are known or suspected to be carcinogenic are not allowed within the GUT-system.

**Tab. 5.2.2: Dyestuffs and pigments classified as carcinogenic or allergenic**

| Substance  | CAS-No.:   | GUT ban on use |
|--|------------|----------------|
| C.I. Acid Red 26 <sup>c)</sup>                             | 3761-53-3  | ⊘              |
| C.I. Acid Red 114 <sup>c)</sup>                            | 6459-94-5  | ⊘              |
| C.I. Acid Violet 49 <sup>c)</sup>                          | 1694-09-3  | ⊘              |
| C.I. Basic Blue 26 <sup>c)</sup>                           | 2580-56-5  | ⊘              |
| C.I. Basic Green 4 (free) <sup>c)</sup>                    | 10309-95-2 | ⊘              |
| C.I. Basic Green 4 (chloride) <sup>c)</sup>                | 569-64-2   | ⊘              |
| C.I. Basic Green 4 (oxalate) <sup>c)</sup>                 | 2437-29-8  | ⊘              |
| C.I. Basic Red 9 <sup>a)</sup>                             | 569-61-9   | ⊘              |
| C.I. Basic Violet 1 <sup>c)</sup>                          | 8004-87-3  | ⊘              |
| C.I. Basic Violet 3 <sup>c)</sup>                          | 548-62-9   | ⊘              |
| C.I. Basic Violet 3 + ≥0.1% Michler's ketone <sup>a)</sup> | 548-62-9   | ⊘              |
| C.I. Basic Violet 14 <sup>c)</sup>                         | 632-99-5   | ⊘              |
| C.I. Direct Black 38 <sup>a)</sup>                         | 1937-37-7  | ⊘              |
| C.I. Direct Blue 6 <sup>a)</sup>                           | 2602-46-2  | ⊘              |
| C.I. Direct Blue 15 <sup>c)</sup>                          | 2429-74-5  | ⊘              |
| C.I. Direct Blue 218 <sup>c)</sup>                         | 28407-37-6 | ⊘              |
| C.I. Direct Brown 95 <sup>a)</sup>                         | 16071-86-6 | ⊘              |
| C.I. Direct Red 28 <sup>a)</sup>                           | 573-58-0   | ⊘              |
| C.I. Disperse Blue 1 <sup>a) b)</sup>                      | 2475-45-8  | ⊘              |
| C.I. Disperse Blue 3 <sup>b)</sup>                         | 2475-46-9  | ⊘              |
| C.I. Disperse Blue 7 <sup>b)</sup>                         | 3179-90-6  | ⊘              |
| C.I. Disperse Blue 26 <sup>b)</sup>                        | 3860-63-7  | ⊘              |
| C.I. Disperse Blue 35 <sup>b)</sup>                        | 12222-75-2 | ⊘              |
| C.I. Disperse Blue 102 <sup>b)</sup>                       | 12222-97-8 | ⊘              |
| C.I. Disperse Blue 106 <sup>b)</sup>                       | 12223-01-7 | ⊘              |
| C.I. Disperse Blue 124 <sup>b)</sup>                       | 61951-51-7 | ⊘              |
| C.I. Disperse Brown 1 <sup>b)</sup>                        | 23355-64-8 | ⊘              |
| C.I. Disperse Orange 1 <sup>b)</sup>                       | 2581-69-3  | ⊘              |
| C.I. Disperse Orange 3 <sup>b)</sup>                       | 730-40-5   | ⊘              |
| C.I. Disperse Orange 11 <sup>c)</sup>                      | 82-28-0    | ⊘              |
| C.I. Disperse Orange 37 / 59 / 76 <sup>b)</sup>            | 13301-61-6 | ⊘              |
| C.I. Disperse Orange 149 <sup>a)</sup>                     | 85136-74-9 | ⊘              |
| C.I. Disperse Red 1 <sup>b)</sup>                          | 2872-52-8  | ⊘              |
| C.I. Disperse Red 11 <sup>b)</sup>                         | 2872-48-2  | ⊘              |
| C.I. Disperse Red 17 <sup>b)</sup>                         | 3179-89-3  | ⊘              |

| Substance                             | CAS-No.:   | GUT ban on use |
|---------------------------------------|------------|----------------|
| C.I. Disperse Yellow 1 <sup>b)</sup>  | 119-15-3   |                |
| C.I. Disperse Yellow 3 <sup>b)</sup>  | 2832-40-8  |                |
| C.I. Disperse Yellow 9 <sup>b)</sup>  | 6373-73-5  |                |
| C.I. Disperse Yellow 23 <sup>c)</sup> | 6250-23-3  |                |
| C.I. Disperse Yellow 39 <sup>b)</sup> | 12236-29-2 |                |
| C.I. Disperse Yellow 49 <sup>b)</sup> | 54824-37-2 |                |
| C.I. Pigment Red 104 <sup>a)</sup>    | 12656-85-8 |                |
| C.I. Pigment Yellow 34 <sup>a)</sup>  | 1344-37-2  |                |
| C.I. Solvent Yellow 1 <sup>a)</sup>   | 60-09-3    |                |
| C.I. Solvent Yellow 2 <sup>c)</sup>   | 60-11-7    |                |
| C.I. Solvent Yellow 3 <sup>a)</sup>   | 97-56-3    |                |
| C.I. Solvent Yellow 14 <sup>c)</sup>  | 842-07-9   |                |




**Note:**  
 = ban on use; Ban on use does not apply to listed substances only, but is always based on current state of knowledge.  
a) Dyestuffs and pigments classified as carcinogenic  
b) Dyestuffs classified as allergenic  
c) Other dyestuffs with ban on use

### 5.2.3. Dyeing accelerators (Chlorinated benzenes and toluenes)

Carriers are organic solvents which can be used as dyeing auxiliaries in combination with disperse dyes. These substances help the dyes to penetrate the fibres faster. One group of these carriers are halogenated ones, especially chlororganic carriers (COCs) like chlorobenzenes and chlorotoluenes. These substances may be used as carriers during the dyeing process of synthetic fibres, especially polyester and polyester-blends. However, some of these components are known to be harmful for humans and the environment. Therefore, the following chlororganic carriers that are known or suspected to be harmful are not allowed within the GUT-system.

**Tab. 5.2.3: Dyeing accelerators (Chlorinated benzenes and toluenes)**

| Substance           | CAS-No.: | GUT ban on use |
|---------------------|----------|----------------|
| Chlorobenzenes      | -,-      |                |
| Dichlorobenzenes    | -,-      |                |
| Trichlorobenzenes   | -,-      |                |
| Tetrachlorobenzenes | -,-      |                |
| Pentachlorobenzenes | -,-      |                |
| Hexachlorobenzenes  | -,-      |                |
| Chlorotoluenes      | -,-      |                |
| Dichlorotoluenes    | -,-      |                |
| Trichlorotoluenes   | -,-      |                |

| Substance   | CAS-No.: | GUT ban on use  |
|---|----------|---|
| Tetrachlorotoluenes   | -,-      |  |
| Pentachlorotoluenes   | -,-      |  |
| <b>Note:</b><br> = ban on use; Ban on use does not apply to listed substances only, but is always based on current state of knowledge.<br>-,- = more than one CAS-No. / substances group |          |   |

### 5.3. Heavy metals

Heavy metals occur in different natural forms (rocks, ores, etc.) all around the world. Some of them (e.g. iron, chromium, copper, manganese, nickel, vanadium, zinc or tin) are vital to plants, animals and humans in small quantities, and are then called essential heavy metals or micronutrients. However, many heavy metals, even the essential ones, can also be harmful or toxic to an organism even in slight over-concentrations. Therefore, the following thresholds apply within the *GUT*-system.

**Tab. 5.3: Heavy metals**

| Substance  | Abbreviation                | Limit value after digestion<br>[mg/kg] | Limit value after extraction (in the eluate)<br>[mg/kg] |
|--|-----------------------------|--|---|
| Lead   | (Pb)                        | 50                                     | 0,2   |
| Chromium   | (Cr)                        | 50                                     | 1   |
| Chromium   | (Cr VI)                     | -                                      | not identifiable  |
| Cadmium  | (Cd)                        | 40                                     | 0,1   |
| Mercury  | (Hg)                        | 50                                     | not identifiable  |
|  | <b>Sum (Pb, Cr, Cd, Hg)</b> | <b>100</b>                             | <b>-</b>  |
| Antimony   | (Sb) <sup>a)</sup>          | 150 <sup>b)</sup>                      | 30  |
| Arsenic  | (As)                        | -                                      | 0,2   |
| Nickel   | (Ni)                        | -                                      | 1   |
| Copper   | (Cu)                        | -                                      | 50  |
| Cobalt   | (Co)                        | -                                      | 1   |
| <b>Note:</b><br>- = no value available<br>not identifiable = not allowed to be detected<br>a) see also flame retardants<br>b) 150 mg Sb per 1 kg polyester fiber. Antimony is used as a catalyst for polyester synthesis |                             |  |   |

### 5.4. Plasticisers

Plasticisers are additives that influence the characteristics of a polymer by increasing the plasticity or decreasing the viscosity of a material. Substances which are well known for these effects are phthalates. However, the use of this substance group is more and more avoided, especially because some low molecular weight ortho-phthalates have been classified as potential endocrine disruptors.

The following plasticisers that are known or suspected to have a negative impact on humans or the environment are not allowed within the *GUT*-system.

| Tab 5.4: Plasticisers   |              |            |                |
|---|--------------|------------|----------------|
| Substance   | Abbreviation | CAS-No.:   | GUT ban on use |
| Di-(2-ethylhexyl)-phthalate   | DEHP         | 117-81-7   | ⊘              |
| Butylbenzylphthalate  | BBP          | 85-68-7    | ⊘              |
| Di-methylphthalate  | DMP          | 131-11-3   | ⊘              |
| Di-ethylphthalate   | DEP          | 84-66-2    | ⊘              |
| Di-propylphthalate  | DPrP         | 131-16-8   | ⊘              |
| Di-butylphthalates  | DBP, DIBP    | -.-        | ⊘              |
| Di-pentylphthalates   | DPP, DIPP    | -.-        | ⊘              |
| Di-hexylphthalates  | DHP, DIHxP   | -.-        | ⊘              |
| Di-heptylphthalates   | DhepP        | -.-        | ⊘              |
| Di-octylphthalates  | DNOP, DIOP   | -.-        | ⊘              |
| Di-nonylphthalates  | DNP, DINP    | -.-        | ⊘              |
| Di-decylphthalates  | DIDP         | -.-        | ⊘              |
| Di-cyclohexylphthalat   | DCHP         | 84-61-7    | ⊘              |
| Bis(2-methoxyethyl) phthalate   | DMEP         | 117-82-8   | ⊘              |
| 1,2-Benzenedicarboxylic acid, di-C <sub>6-10</sub> -alkyl esters  | -            | 68515-51-5 | ⊘              |
| 1,2-Benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters  | -            | 68648-93-1 | ⊘              |
| 1,2-Benzenedicarboxylic acid, di-C <sub>6-8</sub> -branched alkyl esters, C <sub>7</sub> -rich                          | DIHP         | 71888-89-6 | ⊘              |
| 1,2-Benzenedicarboxylic acid, di-C <sub>7-11</sub> -branched and linear alkyl esters                                    | DHNUP        | 68515-42-4 | ⊘              |
| <b>Note:</b>  |              |            |                |
| ⊘ = ban on use; Ban on use does not apply to listed substances only, but is always based on current state of knowledge. |              |            |                |
| -. = more than one CAS-No. / substances group   |              |            |                |

### 5.5. Biocidal active substances

In European legislation, biocides are defined as chemical substances or microorganisms intended to destroy, deter, render harmless or exert a controlling effect on any harmful organism by chemical or biological means.

<https://eur-lex.europa.eu>

The regulation aims to improve the functioning of the biocidal products market in the EU, while ensuring a high level of protection for humans and the environment.

Within the GUT-system the following principles for the use of biocides apply:

- I. **biocides have to be approved for use in the EU**
  - Product Type 6: Preservatives for products during storage
  - Product Type 11: Preservatives for liquid-cooling and processing systems
  - Product Type 12: Slimicides
- II. **for these approved biocides GUT content and/or elution thresholds for the final carpet apply**
- III. **the active use or addition of biocides to textile floor coverings as finish or top treatment is prohibited**

The exception is in the treatment of wool carpets with permethrin (see Wool treatment - Pyrethroids)

Consequently, an active biocidal, biostatic or fungicidal finish is not permissible. If a manufacturer offers textile floor coverings with and without biocidal finish, the GUT licence is only valid for the product without biocidal treatment.

Biocides that are known or suspected to be carcinogenic, mutagenic or toxic to reproduction are not allowed within the GUT-system, even when approved for use in the EU.

The ban on use does not only apply to the listed substances at the time of publication, but is always based on the current state of knowledge.

The use of biocides especially during production and storage of raw materials can not completely be excluded, as the preservation of raw materials or the maintenance of production equipment is necessary to avoid biological contamination of the final product. This may lead to residues in the carpet. It is the aim to reduce the residual content of these preservatives to a level that does not cause harm to the user. Therefore, only biocides approved and listed in the *Biocidal Product Regulation (BPR, Regulation (EU) 528/2012)* will be accepted in this case.

The definitions of the relevant product types (PT) and the resulting list of approved substances are shown below. More detailed information can be found on the **ECHA** website under the following weblink.

<https://echa.europa.eu/de/information-on-chemicals/biocidal-active-substances>

### **PT6: Preservatives for products during storage**

*Products used for the preservation of manufactured products, other than foodstuffs, feedingstuffs, cosmetics or medicinal products or medical devices by the control of microbial deterioration to ensure their shelf life.*

*Products used as preservatives for the storage or use of rodenticide, insecticide or other baits.*

### **PT11: Preservatives for liquid-cooling and processing systems**

*Products used for the preservation of water or other liquids used in cooling and processing systems by the control of harmful organisms such as microbes, algae and mussels.*

*Products used for the disinfection of drinking water or of water for swimming pools are not included in this product type.*

### **PT12: Slimicides**

*Products used for the prevention or control of slime growth on materials, equipment and structures, used in industrial processes, e.g. on wood and paper pulp, porous sand strata in oil extraction.*

The following table shows the approved substances in PT-6, PT-11 and PT-12. In addition, some substances are listed whose first application for approval is in progress.

Tab. 5.5.1: Approved biocides in PT-6, PT-11 & PT-12

| Substance name                              | Abbreviation  | EC/List no. | CAS no.    | Approved Product Types |       |       | SCL <sup>*)</sup><br>[mg/kg] |
|---|---------------|-------------|------------|------------------------|-------|-------|------------------------------|
|   |               |             |            | PT-6                   | PT-11 | PT-12 |                              |
| 5-Chloro-2-methyl-4-isothiazolin-3-one      | CIT           | 247-500-7   | 26172-55-4 | a)                     |       |       | -                            |
| 1,2-Benzisothiazol-3(2H)-one                | BIT           | 220-120-9   | 2634-33-5  | a)                     | a)    | a)    | 500                          |
| 2-Methyl-1,2-benzisothiazolin-3-one         | MBIT          | 695-989-4   | 2527-66-4  | ✓                      |       |       | -                            |
| 2-Methyl-2H-isothiazol-3-one                | MIT           | 220-239-6   | 2682-20-4  | a)                     | ✓     | ✓     | 15                           |
| CIT & MIT (mixture, 3:1)                    | CIT:MIT (3:1) | 611-341-5   | 55965-84-9 | ✓                      | ✓     | ✓     | 15                           |
| Orthophenylphenol                           | OPP           | 201-993-5   | 90-43-7    | ✓                      |       |       | -                            |
| 2-Bromo-2-nitropropane-1,3-diol             | BNPD          | 200-143-0   | 52-51-7    | a)                     | a)    | a)    | -                            |
| 2,2-Dibromo-2-cyanoacetamide                | DBNPA         | 233-539-7   | 10222-01-2 | a)                     | a)    | a)    | -                            |
| 2-Bromo-2-(bromomethyl)pentanedinitrile     | DBDCB         | 252-681-0   | 35691-65-7 | ✓                      |       |       | -                            |
| 3-Iodo-2-propynylbutylcarbamate             | IPBC          | 259-627-5   | 55406-53-6 | ✓                      |       |       | -                            |
| Dodecylguanidine monohydrochloride          | DGH           | 237-030-0   | 13590-97-1 | a)                     | a)    |       | -                            |
| Acrolein                                    | -             | 203-453-4   | 107-02-8   |                        |       | ✓     | 1000                         |
| Chlorocresol                                | -             | 200-431-6   | 59-50-7    | ✓                      |       |       | -                            |
| Glutaral (Glutaraldehyde)                   | -             | 203-856-5   | 111-30-8   | ✓                      | ✓     | ✓     | 5.000                        |
| Hydrogen peroxide                           | -             | 231-765-0   | 7722-84-1  | ✓                      | a)    | a)    | 50.000                       |
| Peracetic acid                              | -             | 201-186-8   | 79-21-0    | ✓                      | ✓     | ✓     | 10.000                       |
| N-(trichloromethylthio)phthalimide (Folpet) | -             | 205-088-6   | 133-07-3   | ✓                      |       |       | -                            |
| N,N'-methylenbismorpholine (MBM)            | -             | 227-062-3   | 5625-90-1  | ✓                      |       |       | -                            |
| Polyhexamethylene biguanide hydrochloride   | -             | 608-042-7   | 27083-27-8 | b)                     | ✓     |       | -                            |

**Note:**  
<sup>\*)</sup> = SCL: Specific concentration limit  
 ✓ = approved  
 a) = initial application for approval in progress  
 b) = not approved  
 Full list of biocidal active substances: <https://echa.europa.eu/de/information-on-chemicals/biocidal-active-substances>

The following table shows the *GUT* thresholds for biocides in the final carpet. They were set on the basis of standard recipes and specific concentration limits according to CLP regulation and the approval documents by ECHA.

Tab. 5.5.2: GUT thresholds for biocides in carpet

| Substance name                          | Abbreviation | CAS no.    | GUT limit value<br>[mg/kg carpet] |
|---|--------------|------------|-----------------------------------|
| 5-Chloro-2-methyl-4-isothiazolin-3-one  | CIT          | 26172-55-4 | 5                                 |
| 1,2-Benzisothiazol-3(2H)-one            | BIT          | 2634-33-5  | 40                                |
| 2-Methyl-1,2-benzisothiazolin-3-one     | MBIT         | 2527-66-4  | 10                                |
| 2-Methyl-2H-isothiazol-3-one            | MIT          | 2682-20-4  | 10                                |
| Orthophenylphenol                       | OPP          | 90-43-7    | 10                                |
| 2-Bromo-2-nitropropane-1,3-diol         | BNPD         | 52-51-7    | 10                                |
| 2,2-Dibromo-2-cyanoacetamide            | DBNPA        | 10222-01-2 | 10                                |
| 2-Bromo-2-(bromomethyl)pentanedinitrile | DBDCB        | 35691-65-7 | 20                                |
| 3-Iodo-2-propynylbutylcarbamate         | IPBC         | 55406-53-6 | 20                                |

|  |            |            |      |
|--|------------|------------|------|
| <b>Dodecylguanidine monohydrochloride</b>          | <b>DGH</b> | 13590-97-1 | 20   |
| <b>Acrolein</b>                                    | -          | 107-02-8   | n.d. |
| <b>Chlorocresol</b>                                | -          | 59-50-7    | n.d. |
| <b>Glutaral (Glutaraldehyde)</b>                   | -          | 111-30-8   | n.d. |
| <b>Hydrogen peroxide</b>                           | -          | 7722-84-1  | n.d. |
| <b>Peracetic acid</b>                              | -          | 79-21-0    | n.d. |
| <b>N-(trichloromethylthio)phthalimide (Folpet)</b> | -          | 133-07-3   | ⊘    |
| <b>N,N'-methylenebismorpholine (MBM)</b>           | -          | 5625-90-1  | ⊘    |
| <b>Polyhexamethylene biguanide hydrochloride</b>   | -          | 27083-27-8 | ⊘    |

**Note:**  
 ⊘ = ban on use; Ban on use does not apply to listed substances only, but is always based on current state of knowledge.  
 n.d. = not detectable

### 5.6. Tin-organic compounds

The following tin-organic compounds that are known or suspected to have a negative impact on humans or the environment are not allowed within the *GUT*-system.

| Tab. 5.6: Tin-organic compounds            |            |                |
|--|------------|----------------|
| Substance                                  | CAS-No.:   | GUT ban on use |
| <b>Mono-alkyl substituted tin organyl</b>  | -,-        | ⊘              |
| <b>Di-alkyl substituted tin organyl</b>    | -,-        | ⊘              |
| <b>Tri-alkyl substituted tin organyl</b>   | -,-        | ⊘              |
| <b>Tetra-alkyl substituted tin organyl</b> | -,-        | ⊘              |
| <b>Tributyltinchloride</b>                 | 1461-22-9  | ⊘              |
| <b>Triphenyltin</b>                        | 668-34-8   | ⊘              |
| <b>Bis(tributyltin)oxide</b>               | 56-35-9    | ⊘              |
| <b>Tributyltin</b>                         | 688-73-3   | ⊘              |
| <b>Dibutyltin</b>                          | 14488-53-0 | ⊘              |
| <b>Diocetyl tin</b>                        | 15231-44-4 | ⊘              |

**Note:**  
 ⊘ = ban on use; Ban on use does not apply to listed substances only, but is always based on current state of knowledge.  
 -,- = more than one CAS-No. / substances group

### 5.7. Chlorophenols (Mono-, Di-, Tri-, Tetra- & Pentachlorophenols)

The following chlorophenols that are known or suspected to have a negative impact on humans or the environment are not allowed within the *GUT*-system.

| Tab. 5.7: Chlorophenols   |              |          |                         |
|---------------------------|--------------|----------|-------------------------|
| Substance                 | Abbreviation | CAS-No.: | GUT limit value [mg/kg] |
| <b>2-Chlorophenol</b>     | <b>MCP</b>   | 95-57-8  | ⊘                       |
| <b>3-Chlorophenol</b>     | <b>MCP</b>   | 108-43-0 | ⊘                       |
| <b>4-Chlorophenol</b>     | <b>MCP</b>   | 106-48-9 | ⊘                       |
| <b>2,3-Dichlorophenol</b> | <b>DCP</b>   | 576-24-9 | ⊘                       |

| Substance                 | Abbreviation | CAS-No.:   | GUT limit value [mg/kg] |
|---------------------------|--------------|------------|-------------------------|
| 2,4-Dichlorophenol        | DCP          | 120-83-2   |                         |
| 2,5-Dichlorophenol        | DCP          | 583-78-8   |                         |
| 2,6-Dichlorophenol        | DCP          | 87-65-0    |                         |
| 3,4-Dichlorophenol        | DCP          | 95-77-2    |                         |
| 3,5-Dichlorophenol        | DCP          | 591-35-5   |                         |
| 2,3,4-Trichlorophenol     | TrCP         | 15950-66-0 |                         |
| 2,3,5-Trichlorophenol     | TrCP         | 933-78-8   |                         |
| 2,3,6-Trichlorophenol     | TrCP         | 933-75-5   |                         |
| 2,4,5-Trichlorophenol     | TrCP         | 95-95-4    |                         |
| 2,4,6-Trichlorophenol     | TrCP         | 88-06-2    |                         |
| 3,4,5-Trichlorophenol     | TrCP         | 609-19-8   |                         |
| 2,3,4,5-Tetrachlorophenol | TeCP         | 4901-51-3  |                         |
| 2,3,4,6-Tetrachlorophenol | TeCP         | 58-90-2    |                         |
| 2,3,5,6-Tetrachlorophenol | TeCP         | 935-95-5   |                         |
| Pentachlorophenol         | PCP          | 87-86-5    |                         |

**Note:**  
 = ban on use; Ban on use does not apply to listed substances only, but is always based on current state of knowledge.

### 5.8. Pesticides

The following pesticides, especially chloro- and phosphoro-organic compounds that are known or suspected to have a negative impact on humans or the environment are not allowed within the GUT-system.

| Substance       | CAS-No.:                 | GUT ban on use |
|-----------------|--------------------------|----------------|
| 2,4-D           | 94-75-7                  |                |
| 2,4,5-T         | 93-76-5                  |                |
| Acetamiprid     | 135410-20-7, 160430-64-8 |                |
| Aldicarb        | 116-06-3                 |                |
| Aldrine         | 309-00-2                 |                |
| Azinphos ethyl  | 2642-71-9                |                |
| Azinphos methyl | 86-50-0                  |                |
| Bromophos ethyl | 4824-78-6                |                |
| Captafol        | 2425-06-1                |                |
| Carbaryl        | 63-25-2                  |                |
| Chlorbenzilate  | 510-15-6                 |                |
| Chlordane       | 57-74-9                  |                |
| Chlordecone     | 143-50-0                 |                |
| Chlordimeform   | 6164-98-3                |                |
| Chlorfenvinphos | 470-90-6                 |                |



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| Substance                           | CAS-No.:              | GUT<br>ban on use |
|-------------------------------------|-----------------------|-------------------|
| Clothianidin                        | 210880-92-5           | ⊘                 |
| Coumaphos                           | 56-72-4               | ⊘                 |
| Cyfluthrin                          | 68359-37-5            | ⊘                 |
| Cyhalothrin                         | 91465-08-6            | ⊘                 |
| Cypermethrin                        | 52315-07-8            | ⊘                 |
| DDD (o,p) (Mitotane)                | 53-19-0               | ⊘                 |
| DDD (p,p') (TDE)                    | 72-54-8               | ⊘                 |
| DDE (o,p)                           | 3424-82-6             | ⊘                 |
| DDE (p,p')                          | 72-55-9               | ⊘                 |
| DDT (o,p)                           | 789-02-6              | ⊘                 |
| DDT (p,p') (Clofenotane)            | 50-29-3               | ⊘                 |
| DEF (Tribufos)                      | 78-48-8               | ⊘                 |
| Deltamethrin                        | 52918-63-5            | ⊘                 |
| Diazinone                           | 333-41-5              | ⊘                 |
| Dichlorofenthion                    | 97-17-6               | ⊘                 |
| Dichlorophos                        | 62-73-7               | ⊘                 |
| Dichlorprop                         | 120-36-5              | ⊘                 |
| Dicofol                             | 115-32-2              | ⊘                 |
| Dicrotophos                         | 141-66-2              | ⊘                 |
| Dieldrine                           | 60-57-1               | ⊘                 |
| Dimethoate                          | 60-51-5               | ⊘                 |
| Dinoseb, salts & acetate            | 88-85-7               | ⊘                 |
| Dinotefuran                         | 165252-70-0           | ⊘                 |
| Endosulfane (α & β)                 | -,-                   | ⊘                 |
| Endrine                             | 72-20-8               | ⊘                 |
| envalerate                          | 51630-58-1            | ⊘                 |
| Esfenvalerate                       | 66230-04-4            | ⊘                 |
| Heptachlor                          | 76-44-8               | ⊘                 |
| Heptachlor epoxide                  | 1024-57-3, 28044-83-9 | ⊘                 |
| Hexachlor benzene                   | 118-74-1              | ⊘                 |
| Hexachlorobutadiene                 | 87-68-3               | ⊘                 |
| Hexachlorocyclohexane (α, β, δ & ε) | -,-                   | ⊘                 |
| Imidacloprid                        | -,-                   | ⊘                 |
| Isodrin                             | 465-73-6              | ⊘                 |
| Kelevane                            | 4234-79-1             | ⊘                 |
| Lindane                             | 58-89-9               | ⊘                 |
| Malathion                           | 121-75-5              | ⊘                 |
| MCPA                                | 94-74-6               | ⊘                 |
| MCPB                                | 94-81-5               | ⊘                 |
| Mecoprop                            | 7085-19-0, 93-65-2    | ⊘                 |

| Substance   | CAS-No.:                 | GUT ban on use |
|---|--------------------------|----------------|
| Methamidophos   | 10265-92-6               |                |
| Methoxychlor  | 72-43-5                  |                |
| Mirex   | 2385-85-5                |                |
| Monocrotophos   | 6923-22-4                |                |
| Nitenpyram  | 120738-89-8, 150824-47-8 |                |
| Parathion   | 56-38-2                  |                |
| Parathion methyl  | 298-00-0                 |                |
| Perthane  | 72-56-0                  |                |
| Phosdrin/Mevinphos  | 7786-34-7                |                |
| Phosphamidone   | 13171-21-6               |                |
| Polychlorobiphenyls (PCBs)  | 1336-36-3                |                |
| Profenophos   | 41198-08-7               |                |
| Propethamphos   | 31218-83-4               |                |
| Quianalphos   | 13593-03-8               |                |
| Quintozen   | 82-68-8                  |                |
| Strobane  | 8001-50-1                |                |
| Telodrine (isobenzan)   | 297-78-9                 |                |
| Thiacloprid   | 111988-49-9              |                |
| Thiamethoxam  | 153719-23-4              |                |
| Toxaphene   | 8001-35-2                |                |
| Triclosan   | 3380-34-5                |                |
| Trifluraline  | 1582-09-8                |                |
| <b>Note:</b>  |                          |                |
| = ban on use; Ban on use does not apply to listed substances only, but is always based on current state of knowledge.<br>-.- = more than one CAS-No. / substances group |                          |                |

### 5.9. Formaldehyde & Formaldehyde releasing chemicals

The use of formaldehyde or formaldehyde releasing chemicals is not allowed within the GUT-system. See also the emission limit value for *HCHO* in the VOC table.

**Tab. 5.9: Formaldehyde & Formaldehyde releasing chemicals**

| Substance   | CAS-No.: | GUT ban on use |
|---|----------|----------------|
| Formaldehyde  | 50-00-0  |                |
| Formaldehyde releasing chemicals  | -.-      |                |
| <b>Note:</b>  |          |                |
| = ban on use; Ban on use does not apply to listed substances only, but is always based on current state of knowledge.<br>-.- = more than one CAS-No. / substances group |          |                |

### 5.10. Wool treatment (Pyrethroids)

For protection against moth and beetle infestation, wool fibres can be treated with pyrethroids (synthetic insecticides). However, many insecticides have the potential to significantly alter the ecosystem and are toxic to humans or animals.

The only substance allowed for the protection of wool fibres within the *GUT*-system is permethrin:

1. for the protection of wool fibres only a treatment with permethrin is permissible
2. maximum permissible quantity depends on the following protection level

**Protection level I: No protection**

Wool fibres are not treated with permethrin

**Protection level II: Normal protection**

Maximum allowed content is 150 mg permethrin per kg wool

**Protection level III: High protection**

Maximum allowed content is 210 mg permethrin per kg wool

3. for Level II and III the minimum concentration is set to 75 mg/kg of wool
4. the application is only allowed with means that guarantee a high fastness (Spray applications are principally not allowed)
5. carpets that contain wool fibres have to be labelled

If treated wool is used a minimum quantity of 75 mg/kg of wool is recommended, in order to prevent the occurrence of resistances. The maximum allowed concentration is 150 mg/kg of wool (Protection Level II) respectively 210 mg/kg of wool (Protection Level III).

Carpets that contain wool fibres are automatically labeled by the **PRODIS** system as follows:

Textile floor coverings containing wool treated with permethrin:

---

**Biocides:** For protection against vermin (moth and beetle) the wool fibres in this product

have been treated with permethrin as biocidal active substance  
Protection Level ...: ... Protection ( $\leq$ ... mg permethrin per kg wool)

---

Textile floor coverings containing wool not treated with permethrin:

---

**Biocides:** The wool fibres in this product have not been treated with permethrin  
Protection Level I: No Protection

---

A permethrin content  $\leq 1$  mg/kg is considered to be a contamination of the untreated wool.

### 5.11. Flame retardants

Flame retardants are substances which can be added to products and are intended to slow down or prevent the further development of ignitions. Depending on the respective field of application, different types flame retardants can be used. These can roughly be divided into three classes halogenated flame retardants (e.g. *chlorinated or brominated*), phosphorus flame retardants (e.g. *organo-phosphates or inorganic-phosphates*) and metal oxides (e.g. *aluminium hydroxide or antimony trioxide*).

Within the GUT-system the use of the following flame retardants that are known or suspected to have a negative impact on humans or the environment are not allowed to be used.

**Tab. 5.11: Flame retardants**

| Substance                               | Abbreviation                   | CAS-No.:   | GUT ban on use |
|---|--------------------------------|------------|----------------|
| Polybrominated biphenyls                | PBBs <sup>a)</sup>             | -,-        |                |
| Polybrominated biphenyl ethers          | PBDEs <sup>b)</sup>            | -,-        |                |
| Hexabromocyclododecanes                 | HBCDDs <sup>c)</sup>           | -,-        |                |
| Tris-(2,3-dibromopropyl)phosphate       | TRIS                           | 126-72-7   |                |
| Tris-(aziridiny)-phosphin oxide         | TEPA                           | 545-55-1   |                |
| Chlorinated paraffins                   | CPs <sup>d)</sup>              | -,-        |                |
| Antimony trioxide                       | Sb <sub>2</sub> O <sub>3</sub> | 1309-64-4  |                |
| Antimony pentoxide                      | Sb <sub>2</sub> O <sub>5</sub> | 1314-60-9  |                |
| Tris-(2-chloroethyl)phosphate           | TCEP                           | 115-96-8   |                |
| Trixylylphosphate                       | TXP                            | 25155-23-1 |                |
| Tris-(1,3-dichloro-2-propyl)phosphate   | TDCPP                          | 13674-87-8 |                |
| Tris(2-chloro-1-methylethyl) phosphate  | TCPP                           | 13674-84-5 |                |
| Triphenyl phosphate                     | TPP                            | 115-86-6   |                |
| Boric acid                              | -                              | 10043-35-3 |                |
| Diboron trioxide                        | -                              | 1303-86-2  |                |
| Tetraboron disodium heptaoxide, hydrate | -                              | 12267-73-1 |                |
| Disodium tetraborate, anhydrous         | -                              | 1330-43-4  |                |
| Orthoboric acid, sodium salt            | -                              | 13840-56-7 |                |
| Disodium tetraborate decahydrate        | -                              | 1303-96-4  |                |
| Disodium tetraborate Pentahydrate       | -                              | 12179-04-3 |                |
| Disodium octaborate                     | -                              | 12008-41-2 |                |
| 2,2-Bis(bromomethyl)propane-1,3-diol    | BBMP                           | 3296-90-0  |                |
| Bis-(2,3-dibromopropyl)phosphate        | BIS                            | 5412-25-9  |                |
| Tetrabromobisphenol A                   | TBBPA                          | 79-94-7    |                |
| Tri-o-cresylphosphat                    | -                              | 78-30-8    |                |

**Note:**

= ban on use; Ban on use does not apply to listed substances only, but is always based on current state of knowledge.

-,- = more than one CAS-No. / substances group

a) **PBBs** = e.g. (Monobromodiphenyl (**MBB**), Dibromodiphenyl (**diBB**), Tribromodiphenyl (**triBB**), Tetrabromodiphenyl (**tetraBB**), Pentabromodiphenyl (**pentaBB**), Hexabromodiphenyl (**hexaBB**), Heptabromodiphenyl (**heptaBB**), Octabromodiphenyl (**octaBB**), Nonabromodiphenyl (**nonaBB**), Decabromodiphenyl (**decaBB**))

b) **PBDEs** = e.g. Monobromodiphenyl ether (**MBDE**), Dibromodiphenyl ether (**diBDE**), Tribromodiphenyl ether (**triBDE**), Tetrabromodiphenyl ether (**tetraBDE**), Pentabromodiphenyl ether (**pentaBDE**), Hexabromodiphenyl ether (**hexaBDE**), Heptabromodiphenyl ether (**heptaBDE**), Octabromodiphenyl ether (**octaBDE**), Nonabromodiphenyl ether (**nonaBDE**), Decabromodiphenyl ether (**decaBDE**)

c) **HBCDDs** = α-Hexabromocyclododecane (**α-HBCDD**), β-Hexabromocyclododecane (**β-HBCDD**), γ-Hexabromocyclododecane (**γ-HBCDD**), Hexabromocyclododecane (**HBCD**)

d) **CCPs** = Short chain chlorinated paraffins, C<sub>10-13</sub> (**SCCPs**), Short chain chlorinated paraffins, C<sub>12-13</sub> (**SCCPs**), Medium chain chlorinated paraffins, C<sub>14-17</sub> (**MCCPs**)

### 5.12. Polycyclic aromatic hydrocarbons

Polycyclic aromatic hydrocarbons (PAHs) are organic substances which are composed of multiple aromatic rings containing only carbon and hydrogen. Some of these substances are known to be toxic to humans and animals.

The *European Chemicals Agency (ECHA)* added an entry to the list of restricted substances (Annex XVII, entry 72), dealing with clothing, related accessories, and textiles other than clothing with possible skin contact and footwear. This entry defines a maximum concentration limit for specific PAHs of 1 mg/kg<sub>article</sub> each. The PAHs involved are identical to those listed in Annex XVII, entry 50.

The maximum allowed content for these and a series of other PAHs within the GUT criteria is defined as 0.5 mg/kg<sub>carpet</sub> each. Furthermore, the total amount of all PAHs is limited to 5 mg/kg<sub>carpet</sub>.

**Tab. 5.12: Polycyclic aromatic hydrocarbons**

| Substance   | Abbreviation            | CAS-No.: | GUT limit value<br>[mg/kg carpet] |
|---|-------------------------|----------|-----------------------------------|
| Acenaphthylene  | ANY                     | 208-96-8 | 0,5                               |
| Acenaphthene  | ACN                     | 83-32-9  | 0,5                               |
| Fluorene  | FLU                     | 86-73-7  | 0,5                               |
| Phenanthrene  | PHA                     | 85-01-8  | 0,5                               |
| Anthracene  | ANT <sup>c)</sup>       | 120-12-7 | 0,5                               |
| Fluoranthene  | FAT <sup>c)</sup>       | 206-44-0 | 0,5                               |
| Pyrene  | PYR <sup>c)</sup>       | 129-00-0 | 0,5                               |
| Naphthalene   | NAP <sup>c)</sup>       | 91-20-3  | 0,5                               |
| Indeno[1,2,3-cd]pyrene  | IDP                     | 193-39-5 | 0,5                               |
| Benzo[g,h,i]perylene  | BgP <sup>c)</sup>       | 191-24-2 | 0,5                               |
| Benz[a]anthracene   | BaA <sup>a),b),c)</sup> | 56-55-3  | 0,5                               |
| Chrysene  | CHR <sup>a),b),c)</sup> | 218-01-9 | 0,5                               |
| Benzo[b]fluoranthene  | BbF <sup>a),b)</sup>    | 205-99-2 | 0,5                               |
| Benzo[j]fluoranthene  | BjF <sup>a),b),c)</sup> | 205-82-3 | 0,5                               |
| Benzo[k]fluoranthene  | BkF <sup>a),b),c)</sup> | 207-08-9 | 0,5                               |
| Benzo[e]pyrene  | BeP <sup>a),b)</sup>    | 192-97-2 | 0,5                               |
| Benzo[a]pyrene  | BaP <sup>a),b)</sup>    | 50-32-8  | 0,5                               |
| Dibenzo[a,h]anthracene  | DBA <sup>a),b)</sup>    | 53-70-3  | 0,5                               |
| <b>Total (sum)</b>  |                         |          | <b>5</b>                          |
| <b>Note:</b>  |                         |          |                                   |
| a) REACH PAH: Annex XVII, entry 72: <a href="https://echa.europa.eu/documents/10162/3a091bf5-a65d-09c6-26f1-5cacaee1275f">https://echa.europa.eu/documents/10162/3a091bf5-a65d-09c6-26f1-5cacaee1275f</a> |                         |          |                                   |
| b) REACH PAH: Annex XVII, entry 50: <a href="https://echa.europa.eu/documents/10162/176064a8-0896-4124-87e1-75cdf2008d59">https://echa.europa.eu/documents/10162/176064a8-0896-4124-87e1-75cdf2008d59</a> |                         |          |                                   |
| a) listed in SVHC candidate list: <a href="https://www.echa.europa.eu/candidate-list-table">https://www.echa.europa.eu/candidate-list-table</a> ( <b>Aug. 2019</b> )                                      |                         |          |                                   |

### 5.13. Inorganic asbestos fibres

The use of asbestos fibres is subject to a general ban. This applies to both the use in the surface layer (pile) as well in the backing of the textile floor covering.

Tab. 5.13: Inorganic asbestos fibres

| Substance      | CAS-No.:   | GUT ban on use |
|----------------|------------|----------------|
| Actinolite     | 77536-66-4 | ⊘              |
| Amosite        | 12172-73-5 | ⊘              |
| Anthrophyllite | 77536-67-5 | ⊘              |
| Chrysotile     | 12001-29-5 | ⊘              |
| Crocidolite    | 12001-28-4 | ⊘              |
| Tremolite      | 77536-68-6 | ⊘              |

**Note:**  
 ⊘ = ban on use; Ban on use does not apply to listed substances only, but is always based on current state of knowledge.

#### 5.14. Non-soiling & stain repellent finishes - (per-)fluorinated alkylated substances

To obtain non-soiling or stain resistant effects, textile fibres can be (pre-)treated with water repellent compounds like *perfluorinated alkylated substances* (PFAS). These substances are synthetic organofluorine chemicals with multiple fluorine atoms. In addition to their water-repellent properties, these substances are also characterised by a high stability. PFAS are usually more stable and resistant to harsh conditions than hydrocarbons, because of the stability of the C-F bond. This is the reason why the biodegradation of (per-)fluorinated substances is very poor. Especially compounds like *perfluorooctanesulfonic acid* (PFOS), *perfluorooctanoic acid* (PFOA), and *perfluorononanoic acid* (PFNA) have caught the attention of regulatory agencies, because of their persistence, toxicity and widespread occurrence in the blood of general populations. Therefore, several PFAS were listed as *persistent organic pollutants* (POPs).

The following *per- and polyfluorinated alkylated substances* that are known or suspected to have a negative impact on humans or the environment are not allowed within the GUT-system.

Tab. 5.14: (Per-)fluorinated alkylated substances and their salts

| Substance   | Abbreviation | CAS-No.:   | GUT ban on use |
|---|--------------|------------|----------------|
| Perfluorooctanesulfonic acid                                  | PFOS         | 1763-23-1  | ⊘              |
| Perfluorooctanesulfonamide                                    | PFOSA        | 754-91-6   | ⊘              |
| Heptadecafluorooctanesulfonyl fluoride                        | PFOSF/POSF   | 307-35-7   | ⊘              |
| Heptadecafluoro-N-methyloctanesulphonamide                    | N-Me-FOSA    | 31506-32-8 | ⊘              |
| N-Ethylperfluorooctane-1-sulfonamide                          | N-Et-FOSA    | 4151-50-2  | ⊘              |
| Heptadecafluoro-N-(2-hydroxyethyl)-N-methyloctanesulphonamide | N-Me-FOSE    | 24448-09-7 | ⊘              |
| N-Ethyl-N-2-hydroxyethyl perfluorooctanesulfonamide           | N-Et-FOSE    | 1691-99-2  | ⊘              |
| Perfluorooctanoic acid  | PFOA         | 335-67-1   | ⊘              |
| Perfluoroheptanoic acid                                       | PFHpA        | 375-85-9   | ⊘              |
| Perfluorononanoic acid  | PFNA         | 375-95-1   | ⊘              |
| Perfluorodecanoic acid  | PFDA         | 335-76-2   | ⊘              |
| Perfluoroundecanoic acid                                      | PFUdA        | 2058-94-8  | ⊘              |

| Substance   | Abbreviation         | CAS-No.:    | GUT ban on use |
|---|----------------------|-------------|----------------|
| Tricosafuorododecanoic acid   | PFD <sub>o</sub> A   | 307-55-1    | ⊘              |
| Perfluorotridecanoic acid   | PFT <sub>r</sub> DA  | 72629-94-8  | ⊘              |
| Perfluorotetradecanoic acid   | PFT <sub>e</sub> DA  | 376-06-7    | ⊘              |
| Heptafluorobutyric acid   | PFBA                 | 375-22-4    | ⊘              |
| Perfluoropentanoic acid   | PFP <sub>e</sub> A   | 2706-90-3   | ⊘              |
| Undecafluorohexanoic acid   | PFH <sub>x</sub> A   | 307-24-4    | ⊘              |
| Perfluoro-3,7-dimethyloctanoic acid   | PF-3,7-DMOA          | 172155-07-6 | ⊘              |
| Perfluorobutanesulfonic acid  | PFBS                 | 375-73-5    | ⊘              |
| Perfluorohexane-1-sulphonic acid  | PFH <sub>x</sub> S   | 355-46-4    | ⊘              |
| Perfluoroheptane-1-sulphonic acid   | PFH <sub>p</sub> S   | 375-92-8    | ⊘              |
| Henicosafuorodecanesulphonic acid   | PFDS                 | 335-77-3    | ⊘              |
| 7H-Dodecafluoroheptanoic acid   | 7HPFH <sub>p</sub> A | 1546-95-8   | ⊘              |
| 1,1,2,2-Perfluorodecanoic acid  | 4HPFU <sub>n</sub> A | 34598-33-9  | ⊘              |
| 1,1,2,2-Perfluorooctanesulfonic acid  | 1,1,2,2-PFOS         | 27619-97-2  | ⊘              |
| 1,1,2,2-Perfluorohexan-1-ol   | 4:2 FTOH             | 2043-47-2   | ⊘              |
| 1,1,2,2-Perfluorooctan-1-ol   | 6:2 FTOH             | 647-42-7    | ⊘              |
| 1,1,2,2-Perfluorodecan-1-ol   | 8:2 FTOH             | 678-39-7    | ⊘              |
| 1,1,2,2-Perfluordodecan-1-ol  | 10:2 FTOH            | 865-86-1    | ⊘              |
| 1,1,2,2-Perfluorooctyl acrylate   | 6:2 FTA              | 17527-29-6  | ⊘              |
| 1,1,2,2-Heptadecafluorodecyl acrylate   | 8:2 FTA              | 27905-45-9  | ⊘              |
| 1,1,2,2-Tetrahydroperfluorododecyl acrylate   | 10:2 FTA             | 17741-60-5  | ⊘              |
| <b>Note:</b><br>⊘ = ban on use; Ban on use does not apply to listed substances only, but is always based on current state of knowledge. |                      |             |                |

### 5.15. Vulcanisation accelerators (N-Nitrosoamines)

For the manufacture of SBR-based foam coatings, the use of the vulcanisation accelerator *Zinc diethyldithiocarbamate (ZDEC)* is prohibited. In all other cases the following emission thresholds for *N-Nitrosamines* apply.

| Substance                       | CAS-No.:   | GUT limit value (emission)<br>[µg/m³] |                  |
|---------------------------------|------------|---------------------------------------|------------------|
|                                 |            | 3 days                                | 28 days          |
| <i>N-Nitrosodimethylamin</i>    | 62-75-9    | 1                                     | not identifiable |
| <i>N-Nitrosomethylethylamin</i> | 10595-95-6 | 1                                     | not identifiable |
| <i>N-Nitrosodiethylamin</i>     | 55-18-5    | 1                                     | not identifiable |
| <i>N-Nitrosodipropylamin</i>    | 621-64-7   | 1                                     | not identifiable |
| <i>N-Nitrosodiisopropylamin</i> | 601-77-4   | 1                                     | not identifiable |
| <i>N-Nitrosodibutylamin</i>     | 924-16-3   | 1                                     | not identifiable |
| <i>N-Nitrosopiperidin</i>       | 100-75-4   | 1                                     | not identifiable |
| <i>N-Nitrosopyrrolidin</i>      | 930-55-2   | 1                                     | not identifiable |

| Substance   | CAS-No.: | GUT limit value (emission)<br>[µg/m³] |                  |
|---|----------|---------------------------------------|------------------|
|   |          | 3 days                                | 28 days          |
| <b>N-Nitrosomorpholin</b>   | 59-89-2  | 1                                     | not identifiable |
| <b>Note:</b><br>not identifiable = not allowed to be detected. The concentration has to be below the detection limit of 0,1 µg/m³. Method is according to BGI 505-23. |          |                                       |                  |

### 5.16. Other substances

Further substances that do not fit into the above categories but are known or suspected to have a negative impact on humans or the environment shall not be actively added or remain in the product according to the GUT criteria.

**Tab. 5.16: Other substances**

| Substance                                | Abbreviation | CAS-No.:   | GUT ban on use |
|--|--------------|------------|----------------|
| <b>Benzene</b>                           | -            | 71-43-2    |                |
| <b>1-Methyl-2-pyrrolidine</b>            | <b>NMP</b>   | 872-50-4   |                |
| <b>N,N-dimethylacetamide</b>             | <b>DMAc</b>  | 127-19-5   |                |
| <b>N,N-dimethylformamide</b>             | <b>DMF</b>   | 68-12-2    |                |
| <b>Quinoline</b>                         | -            | 91-22-5    |                |
| <b>Bisphenol A</b>                       | <b>BPA</b>   | 80-05-7    |                |
| <b>Diazene-1,2-dicarboxamide</b>         | <b>ADCA</b>  | 123-77-3   |                |
| <b>Phenol</b>                            | -            | 108-95-2   |                |
| <b>Dimethylfumarat</b>                   | <b>DMFu</b>  | 624-49-7   |                |
| <b>Formamid</b>                          | -            | 75-12-7    |                |
| <b>Siloxanes</b>                         |              | -,-        |                |
| <i>Octamethylcyclotetrasiloxan</i>       | <i>D4</i>    | 556-67-2   |                |
| <i>Decamethylcyclopentasiloxan</i>       | <i>D5</i>    | 541-02-6   |                |
| <i>Dodecamethylcyclohexasiloxan</i>      | <i>D6</i>    | 540-97-6   |                |
| <b>2-Ethoxyethylacetate</b>              | -            | 111-15-9   |                |
| <b>1,2,3-Trichloropropane</b>            | -            | 96-18-4    |                |
| <b>Bis(2-methoxyethyl)ether</b>          | -            | 111-96-6   |                |
| <b>2-Ethoxyethanol</b>                   | -            | 110-80-5   |                |
| <b>Ethylene glycol dimethyl ether</b>    | -            | 110-71-4   |                |
| <b>2-Methoxyethanol</b>                  | -            | 109-86-4   |                |
| <b>2-Methoxyethylacetate</b>             | -            | 110-49-6   |                |
| <b>2-Methoxypropylacetate</b>            | -            | 70657-70-4 |                |
| <b>Triethylene glycol dimethyl ether</b> | -            | 112-49-2   |                |
| <b>Ethylbenzene</b>                      | -            | 100-41-4   |                |
| <b>Acetophenone</b>                      | -            | 98-86-2    |                |
| <b>2-Phenyl-2-propanol</b>               | -            | 617-94-7   |                |
| <b>Methylethylketone</b>                 | -            | 78-93-3    |                |
| <b>Xylene</b>                            | -            | 95-47-6    |                |
| <b>Cyclohexanone</b>                     | -            | 108-94-1   |                |
| <b>Cresols</b>                           | -            | -,-        |                |



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| Substance       | Abbreviation | CAS-No.:  | GUT<br>ban on use |
|-----------------|--------------|-----------|-------------------|
| <i>o-Cresol</i> | -            | 95-48-7   | ⊘                 |
| <i>m-Cresol</i> | -            | 108-39-4  | ⊘                 |
| <i>p-Cresol</i> | -            | 106-44-5  | ⊘                 |
| <i>mixture</i>  | -            | 1319-77-3 | ⊘                 |

**Note:**  
⊘ = ban on use; Ban on use does not apply to listed substances only, but is always based on current state of knowledge.

6. Volatile Organic Compounds (VOC's)

| Tab. 6: GUT-Emission limit values for chamber test |  |           |                            |         |
|--|--|-----------|----------------------------|---------|
|  | Substance                                | CAS-No.:  | GUT limit value<br>[µg/m³] |         |
|  |  |           | 3 days                     | 28 days |
| Total emissions                                    | TVOC (C <sub>6</sub> -C <sub>16</sub> )  |           | 250                        | 100     |
|  | SVOC (C <sub>16</sub> -C <sub>23</sub> ) |           | 30                         | 30      |
|  | VOC without LCI                          |           | 100                        | 50      |
|  | R-value                                  |           | <1                         | <1      |
| C.M.R.   | Carc. sub. according EU class 1+2        | -,-       | n.i.                       | n.i.    |
| Aldehydes  | Formaldehyde                             | 50-00-0   | 10                         | 4       |
|  | Acetaldehyde                             | 75-07-0   | 10                         | 4       |
|  | Octanal                                  | 124-13-0  | 11                         | 5       |
|  | Nonanal                                  | 124-19-6  | 20                         | 8       |
|  | other Aldehydes                          | -,-       | 20                         | 8       |
| Substances with a GUT limit value below LCI value  | 4-Phenylcyclohexene*                     | 4994-16-5 | 15                         | 5       |
|  | 4-Vinylcyclohexene*                      | 100-40-3  | n.i.                       | n.i.    |
|  | Styrene                                  | 100-42-5  | 5                          | 2       |
|  | Naphthaline                              | 91-20-3   | 7                          | 3       |
|  | Tetrachlorethylene*                      | 127-18-4  | 26                         | 10      |
|  | 2-Ethylhexylacid                         | 149-57-5  | 38                         | 15      |
|  | Toluene                                  | 108-88-3  | 50                         | 20      |
|  | 1,4-Dichlorbenzene                       | 106-46-7  | 100                        | 40      |
|  | Vinylacetate*                            | 108-05-4  | 100                        | 40      |
|  | Xylol                                    | 1330-20-7 | 100                        | 40      |
| Ethylbenzene                                       | 100-41-4                                 | 100       | 40                         |         |
| Phthalates   | DEP                                      | 84-66-2   | 1                          | 1       |
|  | DOP                                      | 85-69-8   | 1                          | 1       |
|  | DMP                                      | 0131-11-4 | 1                          | 1       |

**Note:**  
 -,- = more than one CAS-No. / group of substances  
 n.i. = not identifiable  
 LCI = lowest concentration of interest ([https://ec.europa.eu/growth/sectors/construction/eu-lci/values\\_en](https://ec.europa.eu/growth/sectors/construction/eu-lci/values_en))  
 \* = not on LCI list (July 2018)

| Tab. 6.1: Reference room for VOC emission test (EN 16516) and loading factors |                 |             |
|---|-----------------|-------------|
|   |                 | Values      |
| Floor   |                 | 12 m²       |
| Height  |                 | 2,5 m       |
| Volume  |                 | 30 m³       |
| Loading factor for wall-to-wall carpets                                       |                 | 0,400 m²/m³ |
|   | 200 cm x 200 cm | 0,133 m²/m³ |
| Loading factors for rugs  | 100 cm x 200 cm | 0,067 m²/m³ |
|   | 80 cm x 120 cm  | 0,032 m²/m³ |

Annex

I. Group code explanation

GROUP CODE

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1 | 2 | A | 3 | B | 4 |
|---|---|---|---|---|---|

CARPET

|   |                  |
|---|------------------|
| 1 | with pile        |
| 2 | without pile     |
| 3 | rug with pile    |
| 4 | rug without pile |

PRODUCTION TYPE

|   |             |
|---|-------------|
| 0 | not defined |
| 1 | tufted      |
| 2 | woven       |
| 3 | flocked     |
| 4 | needled     |

FIBER MATERIAL

|   |                     |
|---|---------------------|
| A | Mix, none >50       |
| B | ≥ 50% PA 6          |
| C | ≥ 50% PA 6.6        |
| D | ≥ 50% PP            |
| E | ≥ 50% wool          |
| F | ≥ 50% PET           |
| G | ≥ 50% PTT           |
| H | ≥ 50% Viscose       |
| I | ≥ 50% cotton        |
| J | ≥ 50% animal hair   |
| K | ≥ 50% natural fiber |
| L | ≥ 50% silk          |

BACKING TYPE

|   |              |
|---|--------------|
| 0 | no backing   |
| 1 | textile back |
| 2 | foam back    |
| 3 | finish       |
| 4 | heavy back   |

BACKING MATERIAL

|   |                   |
|---|-------------------|
| A | no                |
| B | SBR               |
| C | SA                |
| D | EVA or VEA        |
| E | Bitumen           |
| F | PVC               |
| G | PU                |
| H | PP or PP-copolym. |
| I | PE or PE-copolym. |
| J | TPE               |
| K | non woven         |
| L | woven             |

CARPET TYPE

|   |         |
|---|---------|
| 0 | no tile |
| 1 | tile    |

## II. Test methods

The following table gives an overview about the test methods and corresponding test standards.

| <b>Annex II: Test methods</b>                                   |  |
|---|--|
| <b>Category</b>   | <b>Test method</b>                               |
| <b>General</b>  |  |
| Construction data and product classification                    | EN 1307  |
| <b>Harmful Substances</b>                                       |  |
| Aromatic amines from azo dyes                                   | ISO 14362 parts 1-3, DIN 54231                   |
| Dyestuffs and pigments classified as carcinogenic or allergenic | ISO 16373-1&2                                    |
| Dyeing accelerators (Chlorinated benzenes and toluenes)         | DIN 54232  |
| Heavy metals  | EN 71-3, EN 1122                                 |
| Plasticisers (Phthalates)                                       | ISO 14389, EN 14041                              |
| Biocidal active substances                                      | CEN ISO/TS 16179                                 |
| Tin-organic compounds   | ISO 17353, CEN ISO/TS 16179                      |
| Chlorophenols   | EN 14041, LFGB §64, BVL B82.02-8, EN 12673       |
| Pesticides  | EPA (8081A - 8141A - 8151A/8270C GCMS)           |
| Formaldehyde  | ISO 14184-1, EN 717-2, EN 16516                  |
| Wool treatment (Pyrethroids)                                    | MeOH/Aceton supersonic extraction, HPLC analysis |
| Flame retardants  | ISO 18219, EN 62321-1, ISO 17881                 |
| PAH's   | EN 14041, AfPS GS 2014:01 PAK                    |
| Inorganic asbestos fibres                                       |  |
| Non-soiling & stain repellent finishes                          | CEN/TS 15968                                     |
| Vulcanisation accelerators                                      | BGI 505-23                                       |
| <b>Indoor Air Quality - Volatile Organic Compounds (VOC's)</b>  |  |
| Emission (chamber)  | EN 16516   |
| Emission Screening ( $\mu$ -chamber)                            | EN 16516   |
| <b>Odour</b>  |  |
| GUT criteria - Odour  | GUT method, SNV 195651                           |
| <b>Note:</b><br>Text  |  |