

# Basic Criteria for Award of the Environmental Label

## Low-Emission Sealants for Interior Use

**RAL-UZ 123**



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## **1 Introduction**

**1.1** In co-operation with the Federal Minister for the Environment, Nature Conservation and Nuclear Safety, the Federal Environmental Agency and considering the results of expert hearings conducted by RAL the Environmental Label Jury has set up these Basic Criteria for Award of the Environmental Label. RAL, reg. assoc., has been entrusted with the award of the Environmental Label.

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

**1.2** Sealants may pose significant environmental problems at every stage of their life cycle. That is why the requirements for award of the eco-label refer not only to the materials and substances used during manufacture but also to the period of actual use and the after-use disposal of sealants.

In addition to this, the pollutant load of sealants must be low to make sure that emissions from these products are kept as low as possible. Here, the eco-label is a good means to distinguish low-emission products.

To allow the evaluation of emissions from sealants these Award Criteria are set up by analogy with the evaluation scheme developed by the Committee for Health-related Evaluation of Building Products (Ausschuss zur gesundheitlichen Bewertung von Bauprodukten) - a federal and länder committee of experts from German environmental and health authorities.

The Environmental Label for low-emission sealants for interior applications may be awarded to products which - beyond the legal provisions –

- distinguish themselves by an environmentally compatible manufacture,
- from the health point of view do not have an adverse impact on the living environment and
- do not contain any hazardous substances that might well impede recycling.

## **2 Scope**

These Award Criteria apply to sprayable and plastically processable sealants in accordance with DIN EN 26 927 (jointing products, sealants): products which are filled into joints to seal the latter by making complete contact to the joint flanks.

These Award Criteria only apply to sealants that are designed for interior use. Included are sealants for surface application.

Accordingly, these Award Criteria apply to<sup>1</sup>:

- water-based, acetate-based silicone joint sealants and neutral curing silicones (except for oxime curing systems),
- acrylate-based joint sealants.

### **3 Requirements**

The Environmental Label shown on page 1 may be used for the marking of products under paragraph 2, provided that they comply with the following requirements:

#### **3.1 Manufacture**

##### **3.1.1 General Substance Requirements**

The materials used in the manufacture of a sealant may not contain or release any substances or preparations<sup>2</sup> as constituent components which:

1. are listed in Annex I to Directive 67/548/EEC<sup>3</sup> and exhibit the properties listed in Section 4, GefStoffV (Ordinance on Hazardous Substances)<sup>4</sup> as well as the following properties set out in more detail in Annex VI to Directive 67/548/EEC:
  - very toxic (T+)
  - toxic (T);
2. are listed in Annex I to Directive 67/548/EEC and exhibit the properties listed in Section 4, GefStoffV (Ordinance on Hazardous Substances) as well as the following properties set out in more detail in Annex VI to Directive 67/548/EEC:
  - carcinogenic (Carc.Cat 1, Carc.Cat. 2)
  - mutagenic (Mut.Cat. 1, Mut.Cat. 2)
  - reprotoxic (Repr.Cat 1, Repr.Cat. 2);
3. are classified in TRGS 905<sup>5</sup> as:
  - carcinogenic (K1, K2)
  - mutagenic (M1, M2)
  - reprotoxic (R<sub>F</sub>1, R<sub>F</sub>2)
  - teratogenic (R<sub>E</sub>1, R<sub>E</sub>2);

<sup>1</sup> On the proposal of the Federal Environmental Agency the Environmental Label Jury may include additional sealants within the scope of the Award Criteria.

<sup>2</sup> Terms within the meaning of Section 3, Nos. 1-4, Publication of the Revised Version of the German Chemicals Act of 20 June 2002, last amended on 13 May 2004 (German Federal Law Gazette I, page 934)

<sup>3</sup> Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances; Official Journal of the European Communities (continuous publication) and published in: Series of documents of the Federal Institute for Occupational Safety and Health - Regulations RW 23, „List of Hazardous Substances and Preparations under Annex 1 to Directive 67/548/EEC“ as well as Regulations Rw 28: „Classification and Labelling Collection“ ([www.baua.de](http://www.baua.de)), each as amended

<sup>4</sup> Gefahrstoffverordnung (Ordinance on Hazardous Substances) of 23 December 2004 (Federal Law Gazette I, page 3758), last amended by Ordinance of 23 December 2004 (Federal Law Gazette I, page 3855)

4. are classified in the MAK Value List<sup>6</sup> as:
- carcinogenic working materials of category 1 or category 2
  - germ-cell mutagenic working materials of category 1 or category 2.

**Compliance Verification:**

*The applicant shall establish compliance with the requirements under para. 3.1.1 by submitting a declaration from the suppliers (Annex 2 to the Contract pursuant to RAL-UZ 123). In addition to this, the applicant shall submit a paper (Annex 3 to the Contract pursuant to RAL-UZ 123) listing trade names and suppliers of all individual products (raw materials) and present the suppliers' Safety Data Sheets in German and English.*

**3.1.2 Preservation**

The sealants under paragraph 2 may not contain any biocides except for the microbicides listed in Annex 1 to Award Criteria RAL-UZ 123 used as in-can preservatives or to protect sanitary silicones against attack by mould in the contents listed therein.

**Compliance Verification:**

*The applicant shall declare compliance with the requirement in Annex 1 to the Contract pursuant to RAL-UZ 123.*

**3.1.3 Pigments**

Pigments containing lead, cadmium or chromium VI compounds as constituent elements shall not be added to the sealant.

Process-related, technically unavoidable (natural or production-related) impurities may be contained in the raw material up to 100 ppm, or, with regard to lead, up to 200 ppm.

**Compliance Verification:**

*The applicant shall submit a declaration from its pre-suppliers (Annex 4 to the Contract pursuant to RAL-UZ 123).*

**3.1.4 Plasticizers**

No plasticizing substances from the class of phthalates may be used in the manufacture of sealants.

**Compliance Verification:**

*The applicant shall declare compliance with the requirement in Annex 1 to the Contract pursuant to RAL-UZ 123. In the event of detection, the content of phthalates is to be determined by extraction of a sample in a Soxhlet apparatus and subsequent analysis by use of GC/MS. The quantitative determination of the target substances is achieved by*

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<sup>5</sup> TRGS 905, List of carcinogenic, mutagenic or reprotoxic substances, as amended.

<sup>6</sup> MAK and BAT Value List, Senate Commission for the Testing of Health-Endangering Working Materials, current Communication No. 41 (2005).

using an internal standard and a reference compound. The cured sealant shall not contain more than 0.1 percent by mass of phthalates as impurities.

### 3.1.5 Organotin Compounds

If organotin compounds are used as catalysts in the curing reaction the following requirements must be met:

- The product may contain only those organotin compounds that are listed in “Bedarfgegenständeverordnung” (Ordinance on Food and Other Commodities)<sup>7</sup>, except for dibutyl tin compounds.

**Compliance Verification:**

*The applicant shall declare compliance with the requirement in Annex 1 to the Contract pursuant to RAL-UZ 123.*

- Impurities of tributyl and dibutyl tin compounds (TBT/DBT) in the catalyst must not exceed 0.1 percent.

**Compliance Verification:**

*The applicant shall submit a corresponding declaration from its pre-suppliers (Annex 5 to the Contract pursuant to RAL-UZ 123).*

*In the event of detection, the content of TBT/DBT is to be determined by extraction of a sample with n-hexane, alkylation with pentyl magnesium bromide or sodium tetraethyl borate and subsequent analysis by use of GC-FPD, GC-AED, GC-MS or LC-MS. The quantitative determination of the target substances shall be done by using an internal standard and a reference compound.*

### 3.1.6 Additional Requirements for Sealants that may come into contact with Food and Drinking Water

Sealants that may come into contact with food (e.g. kitchen silicone) and/or drinking water and which are identified as such on the container or in the Technical Data Sheet must be accompanied by a current test certificate from a certified testing laboratory.

**Compliance Verification:**

*For sealants that may come into contact with food (commodities within the meaning of the “Food and Other Commodities Act”) the applicant shall submit a current test certificate in accordance with the corresponding plastics recommendation of the „Bundesinstitut für Risikobewertung“ (Federal Institute for Risk Assessment). For sealants that may come into contact with drinking water the applicant shall submit a current test certificate according to KTW-Empfehlung (Plastics and Drinking Water Recommendation) and DVGW-Working Sheet W 270 (DVGW - German Association for the Gas and Water Sector).*

## 3.2 Use

### 3.2.1 Indoor Air Quality

The products under para. 2 must not exceed the following emission values in the test chamber by analogy with the „health risk assessment process for emissions of volatile organic compounds (VOC) from building products” developed by the Committee for Health-Related Evaluation of Building Products<sup>8</sup>.

**Table 1: Emission Values**

Substance	Requirements	
	3rd day	Final Value <sup>9</sup> (28th day)
Total organic compounds within the retention range C <sub>6</sub> – C <sub>16</sub> (TVOC) <sup>10</sup>	≤ 2000 µg/m <sup>3</sup>	≤ 300 µg/m <sup>3</sup>
Total organic compounds within the retention range > C <sub>16</sub> – C <sub>22</sub> (TSVOC)	-	≤ 30 µg/m <sup>3</sup>
C-Substances <sup>11</sup>	≤ 10 µg/m <sup>3</sup> Total	≤ 1 µg/m <sup>3</sup> per single value
Total VOC without LCI <sup>12 13</sup>	-	≤ 100 µg/m <sup>3</sup> <sup>14</sup>
R-Value <sup>13</sup>	-	< 1 <sup>14</sup>
Formaldehyde	-	≤ 0.05 ppm
Other aldehydes <sup>15</sup>	-	≤ 0.05 ppm

The test may be stopped prematurely (but not before the 7th day after charging) if on each of four consecutive measurement days the admissible emission values are not

<sup>7</sup> BGBl (Federal Law Gazette) I 1992, 866; revised by publication of 23 December 1997; 1998 I 5; last amended by Article 1 V of 13 July 2005 I 2159

<sup>8</sup> The requirements for VOC emissions are aimed at limiting the contribution of joint sealants to the VOC content of the indoor air to 300 µg/m<sup>3</sup> after 28 days in an average-sized living room with an air change of 0.5/h.

<sup>9</sup> Testing shall be done in test chambers with a volume of 20 l to 1 m<sup>3</sup> and an area-specific flow rate of 44 m<sup>3</sup>/m<sup>2</sup> h. The sealant mass is inserted into inert glass or stainless steel sections (section width = 10 mm, thickness of the sealant layer = 3 mm).

<sup>10</sup> When measuring the emissions of methanol-releasing silicone sealants an additional measurement shall be made to determine the methanol emission by means of GC/MS by use of a proper adsorbent and included into the calculation of the TVOC value.

<sup>11</sup> C-Substances = cancerogenic substances classified according to Directive 67/548/EEC or TRGS 905, each as amended, pursuant to Cat. K1 and K2.

<sup>12</sup> including the non-identifiable substances.

<sup>13</sup> LCI - Lowest Concentration of Interest cf. "Health risk assessment process for emissions of volatile organic compounds (VOC) from building products", Homepage of the Umweltbundesamt (Federal Environmental Agency): <http://www.umweltbundesamt.de>, <http://www.umweltdaten.de/daten/bauprodukte/agbb.pdf>

<sup>14</sup> During the first term of the Basic Criteria the total VOC without LCI is determined by the testing laboratories and indicated in the test report but even if the limits are exceeded this will not result in a refusal. The hearing on the revision of these Basic Criteria will decide on the adoption of these data taking the results into consideration.

<sup>15</sup> Other aldehydes which may be determined by using a BAM test method (Method for the measurement of emissions of formaldehyde and other volatile compounds). Aldehydes can also be determined by use of the DNPH method (DIN ISO 16000-3) .

exceeded and if during this period none of the substances to be detected shows a rise in concentration.

**Compliance Verification:**

*The applicant shall submit a test report pursuant to the BAM Test Method<sup>16</sup> (Method for the detection of emissions of volatile compounds for award of the eco-label according to RAL-ZU 113) based on the two Standards ENV 13419-1 and ENV 13419-2<sup>17</sup> issued by a testing laboratory recognized for this test by BAM Bundesanstalt für Materialforschung und Prüfung (Federal Institution for Material Research and Testing) (Annex 2 to the Award Criteria pursuant to RAL-UZ 123) which confirms compliance with this requirement.*

### 3.2.2 Serviceability

The sealants must meet the usual quality standards for serviceability taking into account the standards DIN 53 504 (Determination of tensile strength at break, tensile stress at yield, elongation at break and stress values in a tensile test) and DIN 53 505 (Hardness test) as well as the usual requirements for processability, e.g. considering DIN ISO 2137 (Lubricating grease and petrolatum - Determination of cone penetration).

In addition, the admissible total deformation shall be determined and indicated on the container.

**Compliance Verification:**

*The applicant shall declare compliance with the requirements in Annex 1 to the Contract pursuant to RAL-UZ 123 and submit a test report including a tensile stress diagram according to IVD Magazine No. 2 of March 1999.*

### 3.3 Recycling and Disposal

With regard to recycling and disposal neither material protection agents (fungicides, insecticides, flame-retardants) nor halogenated organic compounds may be added to sealants. Exempted are fungicides according to para. 3.1.2 which are exclusively used for in-can preservation and to protect sanitary silicones against attack by mould as well as flame retardants using inorganic ammonium phosphates (diammonium phosphate, ammonium polyphosphate etc.), other water-releasing minerals (aluminium trihydrate or the like) or expandable graphite for flame retarding purposes.

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<sup>16</sup> Official Journal of BAM - Bundesanstalt für Materialforschung und -prüfung (Federal Institution for Material Research and Testing), vol. 33 (2/2003), page 160 ff.

<sup>17</sup> ENV 13419 - Determination of the emission of volatile organic compounds (VOC); Part 1: Emission Test Chamber Method and Part 2: Emission Test Cell Method



**Compliance Verification:**

*The applicant shall declare compliance with the requirement in Annex 1 to the Contract pursuant to RAL-UZ 123.*

**3.4 Declaration and Consumer Information**

Container text shall indicate the type of sealant in connection with the production designation. The Technical Data Sheets shall additionally indicate the curing system.

Container text and Technical Data Sheet shall include the following easy-to-read instructions (similar wording shall be permissible):

- „Keep out of the reach of children“
- „Ensure proper ventilation during and after application“
- „When using the sealant do not eat, drink or smoke“
- „In case of contact with eyes or skin, rinse immediately with plenty of water“
- „Sealant contains:..... (indication of the name(s) of the preservative agent(s) according to Annex 1, No. 1) and should not come into contact with food or drinking water; Information for allergic persons, please call at .....“

Also, the container text shall distinctly refer to the Technical Data Sheet, contain information where the latter can be obtained and give the manufacturer's telephone number where consumers may obtain additional information.

**Compliance Verification:**

*The applicant shall declare compliance with the requirements in Annex 1 to the Contract pursuant to RAL-UZ 123 and submit the corresponding Technical Data Sheet as well as the container text.*

**3.5 Advertising Messages**

Advertising messages shall not include any statements which within the meaning of Article 23, para. 4, Directive 67/548/EEC would play down the risks, such as, for example, "non toxic", "not harmful to health" or the like.

**Compliance Verification:**

*The applicant shall confirm compliance with the requirement in Annex 1 to the Contract pursuant to RAL-UZ 123.*

#### **4 Applicants and Parties Involved**

**4.1** Distributors of products according to paragraph 2 shall be eligible for application.

#### **4.2 Parties Involved in the Award Process**

- RAL to award the Blue Angel eco-label,
- the federal state where applicant's production site is located,
- Umweltbundesamt (Federal Environmental Agency) which, after signing of the contract, receives all data and documents submitted in application for the Blue Angel in order to be able to proceed with the development of the Basic Award Criteria.

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

**5.1** The terms governing the use of the Environmental Label by the applicant are stipulated by a Contract on the Use of the Environmental Label to be concluded with RAL.

**5.2** Within the scope of such contract the applicant undertakes to comply with the requirements under paragraph 3 as long as applicant makes use of the Environmental Label.

**5.3** Contracts on the Use of the Environmental Label are concluded to fix the terms for the labelling of products under paragraph 2. Such contracts shall run until December 31, 2013. They shall be extended by periods of one year each, unless terminated in writing by March 31, 2013 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.

**5.4** The Contract on the Use of the Environmental Label shall give the following particulars:

**5.4.1** Applicant (Distributor)

**5.4.2** Brand/trade name

## Appendix 1 to the Award Criteria RAL-UZ 123

### Preservation

1. The following substances or substance combinations may be used *alternatively* for the purpose of in-can preservation as well as to protect sanitary silicones against attack by mould. However, the sealant manufacturer shall add no more than the quantity specified below:

<b>Active substance</b>	<b>Content in the sealant</b>
- Thiabendazole	400 ppm

### 2. Admission Process for Additional Substances

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

The applicant shall give the reasons for using preservatives and details of how the minimum required quantity of preservative preparation has been determined. This value shall not be exceeded in the sealant.

To facilitate application for admission of a new active substance the Umweltbundesamt (Federal Environmental Agency) has prepared a Check List which may help the applicant in selecting and compiling the data.

# C O N T R A C T

No.

on the Award of the Environmental Label

RAL gGmbH, as label awarding agency, and the firm of  
**(Distributor)**  
as applicant, conclude the following Contract

on the Use of the Environmental Label:

## S P E C I M E N

1. Under the following conditions the applicant shall be entitled to use the Environmental Label for the labelling of the product / product group / project:

**Low-emission Sealants for Interior Use for "Brand/Trade Name".**

This shall not include the right to use the Environmental Label as part of a brand.

Unless otherwise agreed, the Environmental Label shall only be used in the above given shape and colour. The entire inner surrounding text shall always be identical as regards size, form, thickness and colour of the letters and it shall be easy to read.

2. The Environmental Label according to para. 1 shall only be used for the above-mentioned product / product group / project.

3. If the Environmental Label is used for advertising purposes the applicant shall make sure that it is exclusively used in connection with the above-named product / product group / project for which the use of the Environmental Label has been granted and settled under this contract. The applicant shall be solely responsible for the way the label is used, above all, in advertising.

4. During the entire period of label use the product / product group / project to be labelled shall comply with all requirements and conditions for the use of the label as specified in the "Grundlage für Umweltzeichen-Vergabe **RAL-UZ 123**" (Basic Criteria for Award of the Environmental Label **RAL-UZ 123**), as amended. This shall also apply to the reproduction of the Environmental Label (including the surrounding text). Claims for damages against RAL, especially on the grounds of third party objections to the applicant's use of the label and the accompanying advertising shall be ruled out.

5. If the "Basic Criteria for Award of the Environmental Label" provide for checks by third parties the applicant shall bear the costs accruing in connection therewith.

6. Should the applicant himself or third parties find out that the applicant does not comply with the conditions as stipulated in paras. 2-5 he shall be liable to inform RAL gGmbH and stop the use of the Environmental Label until the conditions are complied with again. Should the applicant be incapable of restoring the state required for the use of the label immediately or should the applicant seriously offend against this contract RAL may, if necessary, withdraw the Environmental Label and prohibit the applicant from using the label any longer. Claims for damages against RAL gGmbH because of the withdrawal of the label shall be ruled out.

7. The Contract on the Use of the Environmental Label may be terminated for good reason.

Examples of good reasons are:

- unpaid contributions

- substantiated risk of injury and death.

In such case, applicant's continued use of the Environmental Label shall be prohibited. The applicant shall not be entitled to bring a claim for damages against RAL gGmbH (see above: paragraph 6, sentence 3).

8. According to the Basic Criteria for Award of the Environmental Label **RAL-UZ 123** this contract will run until **December 31, 2013**. It shall be extended by periods of one year each, unless terminated in writing by **March 31, 2013** or by 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 the products being still in the market.

9. Products / projects marked with the Environmental Label and the advertising for these products/ projects may reach the consumer only when naming the company of the

**Applicant / Distributor.**

Sankt Augustin, this ... day of

20.

Place, Date

RAL gGmbH  
Management

(Signature of authorized representative and  
company seal)

