

Guide to
green public procurement of

interior-floor coverings, panels, and doors made of wood and timber products

This guide is based on the January 2013 edition of the Blue Angel eco-label criteria for low emission interior floor coverings, panels and doors made of wood and timber products (RAL-UZ 176).

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1 Introduction

Floor coverings, panels and interior doors made of wood and timber products are often made of numerous materials that are virtually always processed, glued together, painted or coated. This can lead to environmental problems and health issues during the lifetime of such products.

Hence when it comes to the procurement of products of this nature, it is essential to take their emissions and material composition into account. Not only the usage phase of such products, but also end-of-life disposal of them plays a key role when it comes to minimizing environmental pollution.

This guide discusses environmental criteria for the procurement of floor coverings, panels and interior doors. These criteria, which are more exacting than the corresponding statutory regulations, are as follows:

- ecologically sustainable manufacturing processes are to be used (mainly applies to coatings);
- the products are to entail no health hazard for use in interiors; and
- the use of substances that pose a major obstacle to recycling is to be avoided.

2 How to use this guide

This guide contains key information and recommendations for contracting authorities concerning the incorporation of environmental aspects into calls for tender and the related contractual documents. The tenderer questionnaire concerning green procurement of floor coverings, panels and doors (annexed hereto and available as a Microsoft Word document from www.beschaffung-info.de) is intended for use as an annex to the contractual deliverables. To this end, in terms of the environmental requirements for the con-

tractual deliverables in question, you need only include a reference in the contractual deliverables in order to meet the legal requirement that the contractual deliverables be described clearly and completely.¹ Proof of compliance is also to be submitted with the tenderer questionnaire. The wording in this regard in the call for tenders could go as follows:

In order to be factored into the tender evaluation process, the [insert product name] must meet the minimum criteria pursuant

¹ See Article 7(1) VOL/A and Article 8(1) VOL/A-EG: “The contractual performance must be described clearly and exhaustively, so that all candidates understand the description in the same way and comparable tenders can be expected (contractual specifications).” It thus follows from Article 8(5) VOL/A-EG that it is admissible to apply eco-label specifications under certain circumstances. Hence, merely referring to these criteria – at least when it comes to the upper threshold domain – is inadmissible. This is in keeping with a European Court of Justice ruling, based on Article 23(6) Directive 2004/18/EC. See the ruling of 10 May 2012 in Rs. C-368/10 – Commission v. The Netherlands (see para. 112, op. cit.).

to the attached tenderer questionnaire on green public procurement of floor coverings, panels and doors. By way of proof, you are

to submit a completed questionnaire for each tendered product along with the mandated elements of proof.

3 Scope

This guide applies to (a) interior floor coverings that have been granted building authority approval; and (b) interior panels and doors. The products are to be composed predominantly (i.e. more than 60 volume per cent) of wood or timber products such as particle board, block board, fibre board, or veneer board.

This guide applies to the following in particular:

- Parquet floor coverings (multi-layer parquet, veneer parquet, or floor coverings with painted or varnished surfaces).
- Laminates
- Linoleum, cork and other materials that are laid on timber-product substrates

Floor coverings made of plastic, rubber, linoleum and cork fall within the scope of the Guide to Green Procurement of Resilient Floor Coverings (UBA 2012).

4 Definitions

- “Biocides” are substances that are used to fight pests and fungus (e.g. mildew).
- “Monomers” are low molecular weight, reactive compounds that can combine into molecular chains or networks.
- “LCI” (lowest concentration of interest) is a criterion for the evaluation of health related substances. It is published in the evaluation schema of Ausschuss zur gesundheitlichen Bewertung von Bauprodukten (AgBB)².
- “Organic compounds” are organic substances that form gases and vapours, e.g. hydrocarbons, alcohol, aldehyde and organic acids.
- “Polymers” are chemical compounds that are composed of molecular chains or branched molecules. They include substances such as polyamide (PA), polypropylene (PP) and polyvinylchloride (PVC).
- “Primary raw materials” are substances that are derived from natural resources,

² Available at: <http://www.umweltbundesamt.de/themen/gesundheit/kommissionen-arbeitsgruppen/ausschuss-zur-gesundheitlichen-bewertung-von>. The currently valid version applies.

rather than from secondary resources that are generated via waste recycling.

- “TVOC” (total volatile organic compounds) is the sum total of the concentrations of all VOCs (volatile organic compounds).
- “TSVOC” (total volatile organic compounds) is the sum total of the concentrations of all semi-volatile organic compounds.
- “VOC” stands for volatile organic compounds.

5 Environmental requirements

5.1 Wood related requirements

5.1.1 Wood origin

Criterion: minimum

Proof of compliance: FSC or PEFC certificate or equivalent, or proof of the legality of wood sources pursuant to Regulation No (EC) 995/2010³ and the tenets of sustainable forestry. Such proof or equivalent certification is acceptable insofar as the tenderer proves that the country of origin of the wood in question meets the applicable FSC or PEFC criteria.

All processed wood is to originate from legal sources.

In addition, all wood and primary raw materials used for timber products must originate from forests that are demonstrably managed in accordance with the principles of sustainable forestry.

5.1.2 Formaldehyde in timber products

Criterion: minimum

Proof of compliance: Certification of the timber products in question via the Blue Angel eco-label (RAL-UZ 76). For timber products that do not have this label, a verification opinion in accordance with the timber products test procedure⁴ is to be submitted. Alternatively, a test certificate confirming classification in emissions class E1 can be submitted.

The timber products used to manufacture the products in question either (a) have the Blue Angel eco-label; or (b) are to be low emission products whose test-chamber formaldehyde emissions in a raw state are less than 0.1 ppm.

³ Abl. L 295 of 12 November 2010

⁴ Prüfverfahren für Holzwerkstoffe, Bundesgesundheitsblatt 10/91 pp.488–489.

5.2 Coating system requirements

5.2.1 General substance requirements

Criterion: minimum

Proof of compliance: Manufacturer declaration, relevant technical data sheets, safety data sheets

For coatings that are constitutive components, no substances are to be used that are classified as follows:

- category 1 or 2 carcinogen in accordance with Table 3.2 and categories 1A and 1B pursuant to Table 3.1 in Annex VI of Regulation (EC) No 1272/2008⁵
- category 1 or 2 mutagen in accordance with Table 3.2 and categories 1A and 1B pursuant to Table 3.1 in Annex VI of Regulation (EC) No 1272/2008
- category 1 or 2 reprotoxic in accordance with Table 3.2 and categories 1A and 1B pursuant to Table 3.1 in Annex VI of Regulation (EC) No 1272/2008
- substance of particular concern on any other grounds pursuant to REACH

Annex XIII criteria, insofar as such substance is listed in the candidate list in REACH Article 59(1)⁶

The following elements are exempt from this rule:

- process related and technically unavoidable impurities
- monomers or additives that react to polymers during the manufacturing process or that are chemically (covalently) bound in plastics

5.2.2 Coating system emissions

Criterion: minimum

Proof of compliance: manufacturer's declaration

VOC emissions stemming from the operation of wood furniture coating installations are to be limited by the operator of the relevant installation, pursuant to 31. BImSchV⁷ (Solvent or VOC regulation) or the EU's VOC Directive, through the use of either low emissions coating systems or waste gas scrubbing equipment.

5 Article 7(1) VOL/A and Article 8(1) VOL/A-EG state as follows: "The contractual performance must be described clearly and exhaustively, so that all candidates understand the description in the same way and comparable tenders can be expected (contractual specifications)." It thus follows from Article 8(5) VOL/A-EG that it is admissible to apply eco-label specifications under certain circumstances. Hence, merely referring to these criteria – at least when it comes to the upper threshold domain – is inadmissible. This is in keeping with a European Court of Justice ruling, based on Article 23(6) Directive 2004/18/EC. See the ruling of 10 May 2012 in Rs. C-368/10 – Commission v. The Netherlands (see para. 112, op. cit.).

6 The candidate list as at the time a new request is submitted applies. The REACH candidate list is available at <http://echa.europa.eu/web/guest/candidate-list-table> (Accessed on 15 March 2015).

7 31. Verordnung zur Durchführung des Bundes-Immissionsschutzgesetzes (Verordnung zur Begrenzung der Emissionen flüchtiger organischer Verbindungen bei der Verwendung organischer Lösemittel in bestimmten Anlagen) vom 21.08.2001 (BGBl. I, p. 2180) as last amended by Article 2 of Verordnung vom 20. Dezember 2010 (BGBl. I p. 2194). The currently valid version applies.

5.3 Product use

5.3.1 Ambient-air quality

Criterion: minimum

Proof of compliance: Test protocol from an independent test laboratory in accordance with Part II of *Grundsätze des DIBt zur gesundheitlichen Bewertung von Bauprodukten in Innenräumen*,⁸ based on DIN EN ISO 16000-9⁹

The products are not to exceed the emission limits set forth in table 1.

Table 1: Emission limits

Compound or substance	Day 3	Final reading (day 28)
Sum total of organic compounds in retention range $C_6 - C_{16}$ (TVOC)	3 mg per cubic meter or less	0.3 mg per cubic meter or less
Sum total of organic compounds in retention range $C_{16} - C_{22}$ (TSVOC)	–	0.1 mg per cubic meter or less
Carcinogenic substances ¹⁰	Total of 10 µg/ cubic meter or less	≤ 1 µg/m ³ per individual value
Sum total of all VOCs, excluding LCI ¹¹	–	0.1 mg per cubic meter or less
Formaldehyde	–	0.05 ppm or less
Ammonia ¹²	–	0.1 mg/m ³

8 DIBt (Deutsches Institut für Bautechnik), Grundsätze zur gesundheitlichen Bewertung von Bauprodukten in Innenräumen, Part II: Bewertungskonzepte für Spezielle Bauprodukte; last updated October 2010; available at: https://www.dibt.de/de/Fachbereiche/data/Aktuelles_Ref_II_4_6.pdf (Accessed on 15 March 2015). The currently valid version applies.

9 DIN EN ISO 16000, Part 9. The currently valid version applies.

10 Substances classified in accordance with section 2 (general substance requirements for coating systems).

11 See section 4.

12 A measurement for ammonia is required solely for wood that is treated with ammonia. The required end value for ammonia is the odor emission limit.

5.3.2 Usability

Criterion: minimum

Proof of compliance: Manufacturer declaration; for interior-door elements, proof of compliance with RAL-GZ 426.

The products are to meet the customary quality requirements for usability, i.e. they are to comply with the requirements of the applicable product standards and regulations.

Interior-door elements are to comply with RAL-GZ 426.

5.3.3 Building authority approval

Criterion: minimum

Proof of compliance: submission of an official ruling concerning building authority approval for floor coverings

Floor coverings are to have been granted building authority approval.

5.3.4 Packaging

Criterion: minimum

Proof of compliance: Tenderer declaration

The products are to be packaged in such a way that VOCs can escape upon completion of the manufacturing process.

5.4 Recycling and disposal

In the interest of facilitating end-of-life recycling, substances that interfere with recycling should not be used.

5.4.1 Halogenated organic compounds

Criterion: minimum

Proof of compliance: manufacturer's declaration

No halogenated organic compounds are to be used to manufacture products or the materials used in them (e.g. timber products, adhesives, coatings) for purposes such as binders or flame retardants.

5.4.2 Flame retardants

Criterion: minimum

Proof of compliance: manufacturer's declaration

The use of flame retardants is prohibited, except for the following:

- inorganic ammonium phosphate (diammonium phosphate, ammonium polyphosphate and so on)
- other water releasing minerals such as aluminium hydroxide
- expanded graphite

5.4.3 Biocides

Criterion: minimum

Proof of compliance: manufacturer's declaration

The use of biocides is prohibited, except for (a) those that are used solely for in-can preservation in aqueous coatings and adhesives; and (b) flame retardants in accordance with section 5.4.2.

6 Evaluating tenders

The tender evaluation process is to factor in contractual-product related criteria such as environmental characteristics and life cycle costs.¹³

¹³ See Article 16(8) VOL/A, Article 19(9) VOL/A-EG and § 16(7) VOB/A

Annex: Tenderer questionnaire regarding green public procurement of floor coverings, panels and doors made of wood and timber products

(Last updated: 23 March 2015)

Product name	
Manufacturer	
Tenderer	
Tenderer's contact details	

Does the product have an eco-label?

If the product in question has Blue Angel eco-label certification for low emission floor coverings, panels and doors made of wood or timber products (RAL-UZ 176, January 2013 edition), then the criteria below are deemed to have been met. In such a case, the questionnaire for criterion 1 is to be completed and proof is to be submitted that the wood-origin requirement has been met. The remainder of the questionnaire can then be skipped.

☐

No.	Criterion	Comment	Criterion met, proof of compliance submitted ¹⁴ (to be completed by the tenderer)
1	Wood related requirements Wood origin: <ul style="list-style-type: none"> All processed wood is to originate from legal sources. 	Minimum criterion	<input type="checkbox"/>

¹⁴ Proof is to be submitted in the guise of the completed questionnaires in the documents listed in the Comments column.

No.	Criterion	Comment	Criterion met, proof of compliance submitted ¹⁴ (to be completed by the tenderer)
	<ul style="list-style-type: none"> In addition, all wood and primary raw materials used for timber products must originate from forests that are demonstrably managed in accordance with the principles of sustainable forestry. 	<p>Proof of compliance via FSC or PEFC certificate or equivalent, or proof of the legality of wood sources pursuant to Regulation No (EC) 995/2010¹⁵ and the tenets of sustainable forestry. Such proof or equivalent certificates are acceptable insofar as the tenderer proves that the country of origin of the wood in question meets the applicable FSC or PEFC criteria.</p>	

¹⁵ Abl. L 295 of 12 November 2010

No.	Criterion	Comment	Criterion met, proof of compliance submitted ¹⁴ (to be completed by the tenderer)
	<p>Formaldehyde in timber products:</p> <p>The timber products used to manufacture the products in question either (a) have the Blue Angel eco-label; or (b) are to be low emission products whose test-chamber formaldehyde emissions in a raw state are less than 0.1 ppm</p>	<p>Minimum criterion</p> <p>Certification of the timber products in question via the Blue Angel eco-label (RAL-UZ 76). For timber products that do not have this label, a verification opinion in accordance with the timber products test procedure is to be submitted. Alternatively, a test certificate confirming classification in emissions class E1 can be submitted.</p>	<p><input type="checkbox"/></p>

No.	Criterion	Comment	Criterion met, proof of compliance submitted ¹⁴ (to be completed by the tenderer)
2	<p>Coating requirements</p> <p>General requirements</p> <p>For coatings that are constitutive components, no substances are to be used that are classified as follows:</p> <ul style="list-style-type: none"> • category 1 or 2 carcinogen in accordance with Table 3.2 and categories 1A and 1B pursuant to Table 3.1 in Annex VI of Regulation (EC) No 1272/2008 • category 1 or 2 mutagen in accordance with Table 3.2 and categories 1A and 1B pursuant to Table 3.1 in Annex VI of Regulation (EC) No 1272/2008 • category 1 or 2 reprotoxic in accordance with Table 3.2 and categories 1A and 1B pursuant to Table 3.1 in Annex VI of Regulation (EC) No 1272/2008 • Substance of particular concern on any other ground pursuant to REACH Annex XIII criteria, insofar as such substance is listed in the candidate list in REACH Article 59(1). <p>The following elements are exempt from this rule:</p> <ul style="list-style-type: none"> • process related and technically unavoidable impurities • monomers or additives that react to polymers during the manufacturing process or that are chemically (covalently) bound in plastics 	<p>Minimum criterion</p> <p>Proof of compliance via manufacturer's declaration, technical data sheets, safety data sheets</p>	<p>□</p>

No.	Criterion	Comment	Criterion met, proof of compliance submitted ¹⁴ (to be completed by the tenderer)																					
	Coating system emissions: VOC emissions stemming from the operation of wood furniture coating installations are to be limited by the operator of the relevant installation, pursuant to 31. BimSchV (Solvent or VOC regulation) or the EU VOC directive, through the use of either low emissions coating systems or waste gas scrubbing equipment.	Minimum criterion Proof of compliance via manufacturer's declaration	<input type="checkbox"/>																					
3	Product use Ambient-air quality: The products are not to exceed the emission limits set forth in the table	Minimum criterion Proof of compliance via test protocol from an independent test laboratory in accordance with Part II of <i>Grundsätze des DIBt zur gesundheitlichen Bewertung von Bauprodukten in Innenräumen</i> , based on DIN EN ISO 16000-918.	<input type="checkbox"/>																					
	<table><tr><th>Compound or substance</th><th>Day 3</th><th>Final reading (day 28)</th></tr><tr><td>Sum total of organic compounds in retention range C₆ – C₁₆ (TVOC)</td><td>≤ 3 mg/m³</td><td>≤ 0.3 mg/m³</td></tr><tr><td>Sum total of organic compounds in retention range C₁₆ – C₂₂ (TSVOC)</td><td>–</td><td>≤ 0.1 mg/m³</td></tr><tr><td>Carcinogenic substances¹⁶</td><td>≤ 10 µg/m³ Sum total</td><td>≤ 1 µg/m³ per individual value</td></tr><tr><td>Sum total of all VOCs, excluding LCI</td><td>–</td><td>≤ 0.1 mg/m³</td></tr><tr><td>Formaldehyde</td><td>–</td><td>≤ 0.05 ppm</td></tr><tr><td>Ammonia¹⁷</td><td>–</td><td>0.1 mg/m³</td></tr></table>	Compound or substance	Day 3	Final reading (day 28)	Sum total of organic compounds in retention range C ₆ – C ₁₆ (TVOC)	≤ 3 mg/m ³	≤ 0.3 mg/m ³	Sum total of organic compounds in retention range C ₁₆ – C ₂₂ (TSVOC)	–	≤ 0.1 mg/m ³	Carcinogenic substances ¹⁶	≤ 10 µg/m ³ Sum total	≤ 1 µg/m ³ per individual value	Sum total of all VOCs, excluding LCI	–	≤ 0.1 mg/m ³	Formaldehyde	–	≤ 0.05 ppm	Ammonia ¹⁷	–	0.1 mg/m ³		
Compound or substance	Day 3	Final reading (day 28)																						
Sum total of organic compounds in retention range C ₆ – C ₁₆ (TVOC)	≤ 3 mg/m ³	≤ 0.3 mg/m ³																						
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Carcinogenic substances ¹⁶	≤ 10 µg/m ³ Sum total	≤ 1 µg/m ³ per individual value																						
Sum total of all VOCs, excluding LCI	–	≤ 0.1 mg/m ³																						
Formaldehyde	–	≤ 0.05 ppm																						
Ammonia ¹⁷	–	0.1 mg/m ³																						

¹⁶ Substances classified in accordance with section 2 (general substance requirements for coating systems).

¹⁷ A measurement for ammonia is required solely for wood that is treated with ammonia. The required end value for ammonia is the odor emission limit.

No.	Criterion	Comment	Criterion met, proof of compliance submitted ¹⁴ (to be completed by the tenderer)
	<p>Usability:</p> <p>The products are to meet the customary quality requirements for usability, i.e. they are to comply with the requirements of the applicable product standards and regulations.</p> <p>Interior-door elements are to comply with RAL-GZ 426.</p>	<p>Minimum criterion</p> <p>Proof of compliance via manufacturer's declaration; for interior-door elements, proof of compliance with RAL-GZ 426.</p>	<input type="checkbox"/>
	<p>Applies to floor coverings only</p> <p>Building authority approval:</p> <p>Floor coverings are to have been granted building authority approval.</p>	<p>Minimum criterion</p> <p>Submission of an official ruling concerning building authority approval</p>	<input type="checkbox"/>
	<p>Packaging:</p> <p>The products are to be packaged in such a way that VOCs can escape upon completion of the manufacturing process.</p>	<p>Minimum criterion</p> <p>Proof of compliance via manufacturer's declaration</p>	<input type="checkbox"/>

No.	Criterion	Comment	Criterion met, proof of compliance submitted ¹⁴ (to be completed by the tenderer)
4	Recycling and disposal		
	Halogens: No halogenated organic compounds such as binders or flame retardants are to be used in the manufacture of the products in question and their materials (e.g. timber products, adhesives and coatings).	Minimum criterion Proof of compliance via manufacturer's declaration	<input data-bbox="1027 591 1066 630" type="checkbox"/>
	Flame retardants: The product is not to contain any flame retardant. This rule does not apply to the following: <ul style="list-style-type: none"> • inorganic ammonium phosphate (diammonium phosphate, ammonium polyphosphate and so on) • other water releasing minerals such as aluminium hydroxide • expanded graphite 	Minimum criterion Proof of compliance via manufacturer's declaration	<input data-bbox="1027 933 1066 972" type="checkbox"/>
	Biocides: The product is not to contain any biocide. Exceptions: (a) biocides that are used solely for in-can preservation in aqueous coatings and adhesives; and (b) flame retardants in accordance with section 4.	Minimum criterion Proof of compliance via manufacturer's declaration	<input data-bbox="1027 1286 1066 1324" type="checkbox"/>

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The first part of the paper discusses the importance of the research and the objectives of the study. It then presents a literature review of the existing research on the topic. The second part of the paper describes the methodology used in the study, including the data collection and analysis techniques. The third part of the paper presents the results of the study, and the fourth part discusses the conclusions and implications of the findings.

The research was conducted using a quantitative approach, and the data was collected from a sample of participants. The results of the study indicate that there is a significant relationship between the variables being studied. The findings suggest that the research has important implications for the field, and further research is needed to explore the topic in more depth.

In conclusion, the study has provided valuable insights into the research topic, and the findings have important implications for the field. The research was conducted using a rigorous methodology, and the results are reliable and valid. The findings suggest that the research has important implications for the field, and further research is needed to explore the topic in more depth.